



Lockheed Martin Management Association Retirees Newsletter

Looking Forward Towards A Wonderful Retiree Future!

AUGUST 2012

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EDITOR'S CORNER

Small Space Gardening

By: Jonathan Miller

Even the smallest patio or porch can boast a crop of vegetables or a garden of flowers in containers. Planter boxes, wooden barrels, hanging baskets and large flowerpots are just some of the containers that can be used. The container gardener is limited only by his imagination.

The City – an endless sprawl of smog and fog, concrete and tarmac, and nothing green to be seen other than a cycle-lane or two? Not anymore! An ever-growing number of the Great British Public are finding ways to get the countryside into the urban zone.

Whether on patios, roof-tops, window-sills or conservatories, it seems everyone can find a space to get growing.

The big break-through on this front was the development of container gardening. No longer was city gardening the preserve of those lucky enough (and dedicated enough) to run an allotment patch. Affordable, ready-to-use Patio planters mean that everyone, with a minimum of labor and space, can grow their own produce.

Patio planters are a simple polythene bag, with drainage holes in the bottom and handles on the side – Available in a huge range of colors and sizes, you can now buy a planter to suit pretty much every project. Due to the huge range of colors, shapes and sizes, the tarmac roofs and concrete patios of British cities are becoming a colorful and productive garden. Round and rectangular planters, deep and shallow, planters with pockets for herbs and strawberries and planters with canes for climbing beans and sweet peas – there's an option for everyone.

The idea is simple. Instead of digging and weeding and all the traditional labor related to growing, you simply

add a decent quality multi-purpose compost to your container of choice, plant your seeds, add a little water and food from time to time and Bob's your uncle! For those who gain further interest, you can of course develop your seeds in trays and then transplant into the container for better results, but in its simplest form, container gardening works for the most un-green-thumbed...

Gardening has always been popular in the UK, and especially so when times are hard, both recently and in the last recession in the early 1990's, the gardening sector remained strong as people turned to the simple satisfaction of home growing, coupled with the produce of cheap, healthy vegetables. Hopefully, everyone who has discovered container gardening lately will stick with it. The city feels a better place with green roofs and patios. Healthy, fresh and affordable vegetables are definitely worth it, and lets face it you just can't beat that home-grown taste!

Haxnicks are world-renowned manufacturers and retailers of gardening supplies with years of experience in

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container gardening supplying a wide range of patio planters.

MEMBERSHIP

New Member:

CAROLYN S. YOUNG
10349 GLENCOE DR
CUPERTINO, CA 95014-1813
Sp: PARTICK
Ph: (408) 253-1206

Membership DUES

322 members have Paid their dues.

Thanks

210 members still owe dues.

Does your Newsletter address label show P11/12? Then you most likely owe dues.

Point Of Contact For Address Changes And Other Member Concerns:

Lmmar
P.O. Box 3847
Los Altos, CA 94024
Norm_Dhom@Earthlink.Net
Norm Dhom,
Membership Chairman

From Your Program Chairman's

Desktop:

Country 'n Western BBQ is all set for Aug 17. Reservations are due Monday, Aug 13. If you have not signed up yet, and wish to attend, call Lucille at 408.225.9566 or Gay at 408.243.2233 ASAP and we will do our best to accommodate you. No walk-ins will be accepted.

BRIDGE

July 3, 2012 individual duplicate - 1st place - Dave Himmelblau, 2nd place - Chuck Schmidt, 3rd place - Doug Gordon

July 5, 2012 pairs duplicate - 1st place - Chet Hayes & Ted Hinshaw, 2nd place - Ken Christie & Doug Gordon, 3rd place - Gary Bea and Chuck Schmidt

July 10, 2012 individual duplicate - 1st place - Dave Himmelblau, 2nd place - Angie Schynert, 3rd place - Doug Gordon

July 12, 2012 pairs duplicate - 1st place - Angie Schynert & Bob Vigeant, 2nd place - (Tie) Chet Hayes & Ted Hinshaw and Dave Himmelblau & Dave Topka, 3rd place - Ken Cristie & Doug Gordon

July 17 No Game

July 19 No Game

July 24, 2012 pairs duplicate - 1st place - Ken Christie & Doug Gordon, 2nd place - Ted Hinshaw & Chet Hayes, 3rd place - Angie Schynert & Bob Vigeant

July 26, 2012 pairs duplicate - 1st place - Ken Christie & Doug Gordon, 2nd place - Ted Hinshaw & Gary Bea, 3rd place - John Parker & Tony Zade

July 31, 2012 pairs duplicate - 1st place - Ted Hinshaw & Don Kies, 2nd place - Dave Himmelblau & Dave Topka, 3rd place - Angie Schynert & Bob Vigeant

In Memoriam

Morris (Moe) Edward Isaak

Morris was born in Los Angeles, Ca. and after graduating from Clear Lake High School (1948), went on to serve in the U.S. Navy as an aviation Radioman, flying in ASW aircraft, that are now on display in the Smithsonian Museum.



Moe found his way to the Western Pacific and flew forty-two combat missions over Korea and was decorated twice with air medals.

After his honorable discharge in 1952, he enrolled in Cal Poly University in San Luis Obispo, Ca. Moe met the love of his life, Dorothy, and they were married on Dec 12, 1953. Upon graduating from Cal Poly, in 1957, Moe went to work for Sperry Gryroscope as a Design Engineer to work on automatic checkout equipment for bomb navigation systems in support of the Hustler Aircraft.

In 1961 Moe left Sperry and went to work for Lockheed Missile and Space where he was a System Test Engineer involving the Agena Discoverer and numerous NASA Agena programs. In 1979 Moe was promoted to Manager with the addi-

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tional responsibilities for SSD's Environmental Test Facilities.

In 1983 Moe oversaw and managed the MILSTAR Test and Launch organization until his retirement in 1993.

After retiring, Moe moved to Madera, Ca. with Dorothy and became an active participant in the local VFW Post 1981.

Moe has lived a fulfilled life surrounded by his loving wife, Dorothy; his daughter Deanna and her friend Wes, son Tom and his wife Angie, son Tim and his wife Janette, his grandchildren ,Nanci, Tara and her husband Ryan, Katie, Danny, Scott, Janelle, Tori and his great grandchildren Julian, Jacob and Isaac.

PRESS RELEASE

Taking the Heat: Lockheed Martin Aeroshell to Protect NASA's Mars Science Laboratory on Descent Through Martian Atmosphere

DENVER, July 26, 2012 – After a journey of 245 days across 352 million miles, the moment of truth for the Mars Science Laboratory (MSL) begins late in the evening of August 5 when the spacecraft roars into the Martian atmosphere, traveling at 13,200 miles an hour. The final seven minutes – the entry, descent and

landing (EDL) – will determine the fate of the mission, and a perfect performance of the Lockheed Martin [NYSE: LMT] Space Systems aeroshell is absolutely vital to getting the Mars Curiosity Rover safely down on the sands of Mars.

NASA's Mars Science Laboratory is the most ambitious Mars mission yet. With its Curiosity rover – built by the Jet Propulsion Laboratory (JPL) – the mission supports the Mars Exploration Program's strategy of "follow the water" and will have the science goals of determining whether the planet was ever habitable, characterizing the climate and geology of Mars, and preparing for human exploration.

The Lockheed Martin MSL aeroshell comprises a back shell and a heat shield. The back shell protects the Curiosity rover during cruise and descent, and provides structural support for the parachute and the unique descent stage, a system that will lower the rover to a soft landing on the surface of Mars. The biconic-shaped back shell is covered with a thermal protection system composed of the cork/silicone super light ablator (SLA) 561V that originated with the Mars Viking landers of the 1970s. Because of the extreme heat the unique entry trajectory through the atmosphere will create, the heat shield uses a tiled Phenolic Impregnated Carbon Ablator (PICA) thermal protection system. This will be the first time PICA has flown on a Mars mission.

"Our job during EDL is to protect Curiosity and its associated systems

through an extremely dynamic and unforgiving environment and have it descend to the point where the sky crane can lower it gently on to the surface of Mars," said Rich Hund, aeroshell program manager for Lockheed Martin Space Systems Company's support of the NASA mission. "This aeroshell at nearly 15 feet across is the largest capsule we've ever flown and the design had to address the large size and weight of the rover along with the requirement for landing at a more-precise point on Mars. We look forward to hearing 'Curiosity has landed!'"

As the MSL spacecraft approaches the Mars atmosphere, an autonomous onboard computer program comprising over 500,000 lines of code will begin conducting commands to thrusters, systems and sensors that will culminate seven minutes later with a soft touchdown of Curiosity on the Martian surface.

Just prior to atmospheric interface at Mars, the aeroshell will turn so its heat shield faces forward along the direction of travel, then eject two 178-pound weights to shift the center of mass of the capsule. The shift will enable the capsule to generate lift as it flies through the atmosphere, allowing roll control and autonomous steering to guide it to a precise landing spot. Peak heating occurs about 75 seconds after atmospheric entry, when the heat shield temperature will reach about 3,800 degrees F. Peak deceleration occurs about 10 seconds later, with maximum deceleration forces possibly reaching as high as 15 Gs.

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After MSL finishes its guided entry maneuvers, a few seconds before the parachute is deployed, the back shell jettisons another set of weights to shift the center of mass back to the axis of symmetry, rebalancing the spacecraft for the parachute portion of the descent. At an altitude of about seven miles and a velocity of about 900 miles per hour, the parachute – 51 feet in diameter – deploys about 254 seconds after entry. Twenty-four seconds later, the heat shield separates and drops away with the spacecraft at an altitude of about five miles and traveling at a velocity of about 280 miles per hour.

At heat shield separation, the Mars Descent Imager begins recording five images a second, continuously through landing, looking in the direction the spacecraft is flying. The rover and its descent-stage are still attached to the back shell on the parachute. Radar on the descent stage begins collecting data about velocity and altitude.

About 85 seconds after heat shield separation, the back shell, with parachute attached, separates from the descent stage and rover. Just a mile above the ground, and falling at 180 miles an hour, eight throttleable retro-rockets on the descent stage begin firing. Decelerating abruptly to 1.7 miles per hour, nylon cords begin to spool out to lower the rover from the descent stage in the “sky crane” maneuver. The rover’s wheels and sus-

pension system, doubling as landing gear, rotate into place just before touchdown. When Curiosity senses touchdown, the connecting cords are severed and the descent stage flies out of the way, coming to the surface at least 492 feet from the rover’s position.

Soon after landing, Curiosity’s computer switches from EDL mode to surface mode. This initiates autonomous activities for the first Martian day on the surface of Mars, Sol 0. The time of day at the landing site will be mid-afternoon — about 3 p.m. local mean solar time at the destination Gale Crater.

During entry, descent and landing two other Mars spacecraft – Mars Odyssey and the Mars Reconnaissance Orbiter (MRO) – both built and operated for NASA by Lockheed Martin Space Systems – will monitor transmissions from the Mars Science Laboratory. Odyssey will receive telemetry directly from MSL and send it to Earth in a near-real time (light time delay is 13.8 minutes). MRO will also be recording the landing telemetry and will transmit it back to JPL an hour later. Also, MRO will attempt to take an image of the MSL descent with its HiRISE camera much the same way it did with the Phoenix Lander in 2008.

In addition to the aeroshell, technologists from Lockheed Martin’s Information Systems & Global Solutions (IS&GS) have provided information technology (IT) support services to JPL’s scientists, researchers and engi-

neers throughout the MSL mission. During the entry, descent and landing event, the team from Lockheed Martin’s JPL Desktop and Institutional Computing Environment (DICE) subcontract will be working alongside the JPL Mission Operations teams to provide mission-enabling technical and help desk support as needed and serve as the central reporting point to quickly address IT issues during the landing window.

LMSSC, a major operating unit of Lockheed Martin Corporation, designs and develops, tests, manufactures and operates a full spectrum of advanced-technology systems for national security and military, civil government and commercial customers. Chief products include human space flight systems; a full range of remote sensing, navigation, meteorological and communications satellites and instruments; space observatories and interplanetary spacecraft; laser radar; ballistic missiles; missile defense systems; and nanotechnology research and development.

Headquartered in Bethesda, Md., Lockheed Martin is a global security and aerospace company that employs about 120,000 people worldwide and is principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services. The corporation’s net sales for 2011 were \$46.5 billion.

The MSL aeroshell is a capsule comprised of two parts; the back shell and the heat shield. Prior to installation of the thermal protection system on both

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parts, the aeroshell structure went through static load testing.



PRESS RELEASE

Lockheed Martin-built Military Communications Satellite Marks 20 Years in Service

SUNNYVALE, Calif., July 30, 2012 – The U.S. Air Force’s Defense Satellite Communications System (DSCS) B12 satellite, built by Lockheed Martin [NYSE: LMT], has reached 20 years on-orbit, double its operational design life. The B12 satellite will continue to serve in a reserve capacity providing secure and reliable communications capabilities for the warfighter.

Launched from Cape Canaveral Air Force Station, Fla., on July 2, 1992, the B12 satellite is one of 14 DSCS III spacecraft designed and built by Lockheed Martin for the Air Force’s Space and Missile Systems Center, Los Angeles Air Force Base, Calif.

The DSCS constellation provides uninterrupted secure voice and high-data

rate communications to Department of Defense users; essential tools in monitoring events and deploying and sustaining forces anywhere in the world. The DSCS III constellation in its entirety has the longest total on-orbit operational experience of any U.S. military communications satellite constellation.

“The high performance and longevity of the DSCS III constellation is a true testament to the joint U.S. Air Force/ Lockheed Martin team dedicated to providing the warfighter with secure and reliable satellite communications,” said Mark Valerio, vice president and general manager of Lockheed Martin’s Military Space line of business. “Lockheed Martin has a distinguished 100-year track record of solid performance and the DSCS III constellation is no different. We are continuing to deliver innovative solutions for our customers.”

To meet increased military demand for space-based communications, Lockheed Martin is also progressing on the Air Force’s Advanced Extremely High Frequency (AEHF) satellite system and the Navy’s Mobile User Objective System (MUOS). The AEHF system will provide global, highly secure, protected, survivable communications for warfighters. MUOS is a next-generation narrowband tactical satellite communications system designed to significantly improve ground communications for U.S. forces on the move.

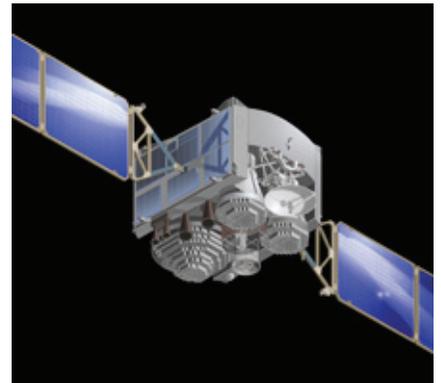
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and aerospace company that employs about 120,000 people worldwide and is principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services. The corporation’s net sales for 2011 were \$46.5 billion.

The DSCS III, a U.S. military communications satellite constellation, B-12 satellite has reached 20 years on-orbit, double its operational design life. (Artist Rendering)

Media Contacts:

Dani Hauf
303-977-8060
Danielle.m.hauf@lmco.com



LMMAR
P.O. Box 3504
Sunnyvale CA 94800
Phone 408 742 7506
Web Site Immar.net

August 2012

Activity Calendar

1. **LMMAR Executive Board Meeting.** First Monday of each month unless holiday conflict, then second Monday. 9:30 a.m. Bldg. 157-Front Lobby Conference Room.
2. **LMMAR Newsletter Mailing Session.** Volunteers needed. Second Thursday of each month. 9:00 a.m. Bldg. 157-Litrium. Contact Norm Dhom (408) 732-2742.
3. **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 Chuck Schmidt (408) 253-4965.
4. **Lockheed Martin Blood Bank.** Second Wednesday of each month. 8:00 a.m.– 3:00 p.m. Bldg. 163. LMMAR Contact Norm Dhom (408) 732-2742.
5. **Lockheed Martin Toys-For-Tots.** Donations Accepted. **LM Toys-For-Tots Cookbooks are available: \$8.00 Ea. or four for \$25.00.** LMMAR Contact Patti Voshall (408) 742-7667.
6. **LMMAR Picnic August 17, 2012 at Kiely Park** - Mark your calendar. For additional information call Lucille Wilson at 408.225.9566 or Gay Morgan at 408.243.2233.

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