

Service News



A SERVICE PUBLICATION OF LOCKHEED MARTIN AERONAUTICAL SYSTEMS SUPPORT COMPANY

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LOCKHEED MARTIN

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LOCKHEED MARTIN AERONAUTICAL
SYSTEMS SUPPORT COMPANY

Editor

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Focal Point

From the President

On April 5th I assumed the duties of President of Lockheed Martin Aeronautical Systems. Whenever there is a change of leadership, there is always an accompanying anxiety about changing priorities and loss of focus. I'd like to assure each and every one of our Hercules Operators that I am fully committed to continuing our effort to improve response times and provide innovative and comprehensive solutions to your problems. I intend to realign our



company structure along customer value streams and to delayer our management structure to allow shorter decision time lines. I'd like your feedback on how we're doing and whether you see any improvements.

On June 7th I had the privilege to fly the C-130J and it is indeed a remarkable flying machine. The improvements in performance, reliability, maintainability, and supportability are exceptional. The airplane is currently in operation with seven different customer groups and we believe the future looks very bright. Our commitment to you, our customers, is to provide the service you expect. Anything short of that is unacceptable.

I look forward to the many challenges of my new position and I hope to visit as many of our Hercules Operators as I can in the near future.

Tom Burbage
President

LOCKHEED MARTIN AERONAUTICAL
SYSTEMS SUPPORT COMPANY

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T. J. ZEMBIK

Front And Back Covers: The aircraft of VXE-6 operating on the Antarctic continent. The aircraft pictured on the front cover was damaged during take-off from D59 (over 700 miles from McMurdo Station) in 1971. It remained in the ice until 1988 when it was freed and repaired. Special thanks to PH1 (AW/NAC) Edward G. Martens for his outstanding photographic support throughout this issue.

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The 54H60 Propeller



by
L. R. Webb
Field Service Analyst, Sr.

Special thanks to
Bill Montgomery and
Pacific Propeller, Inc.

Over the years, the C-130/Hercules family of aircraft has had four different propellers installed, all manufactured by different vendors. During early flight tests of the C-130A aircraft, some were equipped with Curtis Electric propellers; production C-130A aircraft were delivered with three-bladed Aero products propellers. All C-130B, E, and H versions of the Hercules family were delivered with some configuration of the Hamilton Standard 54H60 four-bladed propeller. Today's generation of the Hercules, the C-130J, is operating with the six-bladed Dowty R391 propeller.

Most of the C-130A aircraft delivered with the Aero products propellers have been refitted with Hamilton Standard propellers. Since virtually all of today's in-service Hercules aircraft (with the exception of the C-130J) are operating with Hamilton Standard propellers, the remainder of this article will concentrate on the Hamilton Standard propeller.

Four Hamilton Standard electro-hydraulic, constant-speed, full feathering, reversible-pitch propellers are installed on the C-130 aircraft. Some of the configurations installed on the Hercules over the years include the 54H60-39,-63,-73, 75, 89, 91, 111, and 117. The 54H60 has two ranges of operation: the scheduled blade angle range, called Beta, and the constant speed range, called Alpha. The Beta range is 0 degrees to 34 degrees throttle travel or the point where propeller governing is reached. Note: until the engine reaches propeller-governing speed, RPM is controlled by the engine fuel control. The Alpha range of the propeller is somewhere above 34 degrees to 90 degrees throttle travel.

Beta range is normally the ground handling range, taxi, and reverse. In Beta, constant speed is blocked out and a propeller blade angle and fuel flow are scheduled as a result of power lever (throttle) position. Each power lever position will schedule a fuel flow and blade angle

to produce the desired operation while maintaining the propeller RPM within a specified range (96 - 103%).

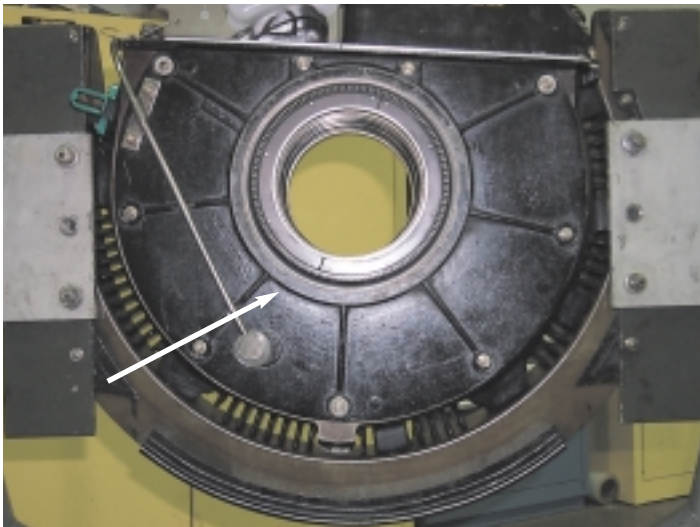
In the constant speed (Alpha) range, in all flight regimes, except for extremely low speed flight idle condition, the propeller is operated at one RPM setting, 1,020 RPM. Engine power is absorbed by changing the pitch of the blades.

Pitch change is accomplished through a variable pitch change mechanism integral with the propeller. This mechanism utilizes a double acting piston located in the dome assembly that actuates as a result of fluid being ported to the increase or decrease blade angle side. Fluid is normally only ported to the increase side of the piston because Centrifugal Twisting Moment (CTM) exceeds Aerodynamic Twisting Moment (ATM) by 20 times and causes the blades to seek a lower pitch during propeller operation.

The 54H60 propeller assembly is made up of the following components: barrel (hub) assembly, 4 blade assemblies, low pitch stop assembly, pitchlock assembly, dome assembly, spinner assembly, and contact ring assembly.

In addition to the rotating mass listed above, the following components are also part of the propeller: propeller control, consisting of a pump housing and valve housing; afterbody assembly; drive bracket assembly; negative torque bracket assembly; deicer timer assembly; synchrophaser assembly; and feather override switch.

The heart of the propeller governing system is the control assembly, mounted to the extension shaft of the propeller hub. This assembly is non-rotating, and contains the reservoirs for the fluid supplied to the main and standby pumps as well as the auxiliary feather pump. Because this control unit is non-rotating and is mounted



Pump housing front lip seal. Fluid should not be in contact with the seal when the propeller is static.

to a rotating extension shaft, fluid is retained in the unit during operation by front and rear “lip” seals. The control assembly is made up of a valve housing and a pump housing; the pump housing contains a pressurized and non-pressurized (atmospheric) sump. During operation, the atmospheric sump serves as a supply for the pressurized sump. When not in operation, the fluid from the pressurized sump drains back to the atmospheric sump. It is very important that the propeller fluid servicing be done in such a manner that the two lip seals are not subjected to the presence of fluid when static. Servicing will be discussed later in the article.

During normal operation of the propeller, blade angles are predetermined by settings in the valve housing for the Beta range and fluid is ported to the front or rear of the piston in the dome as required to provide a scheduled blade angle. In the Alpha or constant speed range, a governor assembly containing fly weights and a speeder spring move the pilot valve in the valve housing to port fluid as required (usually increase pitch only) to maintain 1,020 RPM (100%). By adjusting the tension on the speeder spring, mechanical RPM governing can be set to 100% +/- 1/4%. This can be fine-tuned by the synchrophaser system.

The synchrophaser system provides for control of the relationship of the propellers with respect to RPM and the rotational position (phase) of the respective blades. Maintaining the same RPM and a constant phase relationship within close limits reduces vibration and noise (“beat”). The synchrophaser system also provides faster propeller response to power lever movement (“throttle anticipation”)

and offspeed indications (“speed derivative”) than does centrifugal governing, thereby improving governing performance. The synchrophaser system utilizes electronic devices and as such is a secondary function. Its influence on RPM control is limited so that the primary hydromechanical governing system will always function in the event of an electrical failure.

The propeller system contains several safety functions:

- ◆ Pitch lock operates in the 25 degree to 55 degree blade angle range and will engage in the event of an oil loss while in this range to prevent the blades from decreasing to a lower angle.
- ◆ Low pitch stop prevents the blades from decreasing below a preset angle when in the flight range.
- ◆ The negative torque system is designed to increase blade angle at reduced power settings to prevent the propeller from driving the engine.

Over the years, the 54H60 has proven to be a very safe and dependable propeller and will operate for years with routine servicing and preventive maintenance. When operating in a coastal environment, more frequent inspection and/or maintenance of the blades will be required.

Propeller fluid servicing is extremely important and has been a source of problems since day one of the 54H60. In the early days, fluid was checked with a short dipstick measurement in the pressurized sump of the propeller control assembly. This procedure required a wait of at least two minutes while the pressure reduced to a point that made it safe to open the cap of the pressurized sump. There was no easy way of being sure how much

Pump housing rear lip seal.



fluid had drained back into the atmospheric sump; therefore, oil quantity was never accurately known. In 1969, Hamilton Standard issued a Service Bulletin, HS Code 54H60 No. 39, which installed a dipstick on the front cover plate of the atmospheric sump. This Service Bulletin also gave detailed instructions on use and servicing of the propeller. After a few growing pains with dipstick length and markings, this new system/procedure has proven very effective in proper propeller servicing and reducing lip seal leaks. When using the dipstick in the atmospheric sump, it is very important that the steps in the appropriate maintenance manual be followed exactly; failure to do so will result in an incorrect reading and could result in an improperly/overserviced propeller, which will in time cause lip seal leaks.

One item of interest is a device developed by Pacific Propeller, Inc. of Kent, Washington, which is detailed below. This device, when used as directed, results in precise servicing of the propeller. The device and procedure have been demonstrated at various U.S. Air Force and Air National Guard bases around the country as well as various foreign and commercial operators.

Overservicing Check - 54H60 Propeller

1. Do not operate propeller system when the temperature is below 0 degrees Celsius or 32 degrees Fahrenheit.
2. Remove quick release pin and open the pressurized sump filler cap. Install the overservicing tool P/N T1987 and install safety pin attached to the tool.

NOTE: Be sure to seat the tool in the pressurized sump filler cavity.

3. A five-quart capacity container should be used to catch the oil coming from the tube of the overservicing tool.
4. Operate the propeller from reverse to feather three times.

NOTE: Hold your hand on the feather motor during the operation of the propeller. If the auxiliary feather motor P/N 537874 gets hot enough for you to remove your hand, stop operations until it cools.

5. The propeller will pump oil from the overservicing tool tube the first and second times the propeller is operated from reverse to feather. The third cycle, the propeller will pump air bubbles and then vapors.
6. When the propeller reaches ground idle coming from feather on the third cycle, stop the auxiliary feather motor and immediately remove the overservicing tool, close and install the quick release pin in the pressurized sump cap.

NOTE: During the cycling of the propeller, the low oil light will not illuminate.

7. Measure the volume of hydraulic fluid pumped out during the previous steps.

NOTE: Allow a minimum of 5 to 10 minutes before opening the pressurized sump cap, if it is necessary to open it.



8. Reservice the propeller with 1.5 quarts of oil through the atmospheric sump.

For more information about the propeller overservicing tool, please contact Bill Montgomery of Pacific Propeller, Inc. at Telephone: 253-872-7767 or Facsimile: 253-872-7221.

For technical questions about the 54H60 on the C-130/Hercules aircraft, please contact the Hercules Support Center at Telephone: 770-431-6569, Facsimile: 770-431-6556, or E-mail: hercules.support@lmco.com. □



Antarctica. The name itself conjures up images of an inhospitable land. The fact is that Antarctica is the coldest, windiest continent on Earth. The main component of Antarctica is the ice. In fact, the place itself is affectionately known as “the ice” to people familiar with it. Ice covers 98% of the continent and is as much as two miles thick in places. Antarctica’s ice contains 90% of all the ice in the world and 70% of the world’s fresh water. Antarctica is home to the world’s largest glacier, Lambert Glacier, which measures 25 miles wide and 250 miles long. An iceberg broke off of the Ross Ice Shelf in the late 1980s that measured nearly 100 miles by 25 miles - roughly the same land area as the state of Delaware. Without extensive preparation and adequate provisions and gear, people will quickly perish in the harsh environment. Yet it is this very place that holds tremendous scientific potential and value. Because of this fact, the United States, through the National Science Foundation, along with many other nations, conducts extensive operations in Antarctica during the short summer season. In addition, a small group of people “winter over” each year on the ice.

The National Science Foundation operations in Antarctica require a massive amount of logistic support each year. This support effort faces major challenges in the form of extreme and unpredictable weather from a land that is very unforgiving of mistakes. A tremendous amount of supplies and fuel, in addition to passengers, must be moved to the ice each season. These transportation needs have been met through a variety of methods over the years.

In 1946, Rear Admiral Richard Byrd of the U.S. Navy conducted an expedition involving sea-based Martin PBMs and land based Douglas R4Ds to conduct an extensive aerial survey of Antarctica. This expedition successfully mapped about 1.5 million square miles of the interior and 5,500 miles of coastline.

The U.S. Navy’s involvement in the Antarctic Program was formalized on 17 January 1955 when Air Development Squadron SIX (VX-6) was established at Naval Air Station, Patuxent River, Maryland. VX-6 made its first deployment, DEEP FREEZE 1, in November 1955. That first season, VX-6 completed nine long range exploratory flights and transported people and materials necessary for the construction of Little America Base Camp, the Naval Air Operations Facility on Hut Point (Ross Island) and South Pole Station, and assisted in the location of four other base sites on the continent.

In January 1969, VX-6 was redesignated as Antarctic Development Squadron SIX (VXE-6). Since its establishment, VXE-6 has logged more than 200,000 flight hours in direct support of the United States’ interests in the Antarctic. The squadron transported more than 195,000 passengers, delivered over 240 million pounds of dry cargo, and nearly 10 million gallons of fuel to numerous sites throughout the continent.

Over the years, VXE-6 has operated a variety of aircraft in support of the Antarctic Program. These aircraft have included the P2V-2 Neptune, UC-1 Otter, R4D & C-47 Dakotas, R5D & C-54 Sky Masters, R7D Super Constellations, and several different helicopters. The LC-130 Hercules arrived during the 1960 - 1961 season (DEEP FREEZE ‘61). The LC-130 is a ski-equipped version of the Hercules and was particularly well suited to the challenges of Antarctica.

With the LC-130 Hercules came the Lockheed Martin Field Service Representatives (FSRs) that

remained a part of VXE-6 until the disestablishment. Over the years, a number of FSRs were assigned to the squadron. The FSRs assigned to VXE-6 typically spent six months per year deployed with the squadron. During deployments, the FSR would alternate between Christchurch, New Zealand, and McMurdo Station on the ice. The FSRs provided engineering/technical assistance and conducted both formal classroom training and on-the-job training for squadron personnel. Most of the formal classroom training was conducted at Pt. Mugu, California, VXE-6’s home. On-the-job training was also conducted at Williams Field, near McMurdo Station on the Antarctic continent.

Weather conditions at Williams Field were often very harsh, but no hangars were available for maintenance activities. FSRs who have spent time with VXE-6



VXE-6 Antarctic Development Squadron SIX

report that many times during the frequent Antarctic storms, the aircraft on the flight line could not be seen from Maintenance Control, even though they were only 50 - 75 feet away. It was also not unusual, after a big storm, for it to require 12 - 18 hours of work just to dig the aircraft out of the snow drifts.

On 31 December 1993, one of the LC-130 aircraft struck a snow bank while on a mission to the Lucy Glacier. One of the propellers entered the fuselage just aft of Fuselage Station 245 as a result of the mishap. The Lockheed Martin FSR on-site with VXE-6 accompanied VXE-6 personnel to survey the damage on 2 January 1994. After determining that the aircraft was



recoverable, the FSR, along with eight VXE-6 personnel and a site manager, returned to the site on 4 January 1994 for the recovery effort. In order for the aircraft to be flyable, extensive sheet metal repairs had to be made and one engine/propeller assembly had to be replaced. Before the

work could begin, however, the aircraft had to be dug out of the snow from where it had lodged during the mishap. All of this work was accomplished without the benefit of airbags, hangar facilities, or many of the other necessities normally required for extensive aircraft maintenance. The team accomplished all of the work in only 13 days while living in austere conditions. The aircraft departed the incident site on 17 January 1994, weeks ahead of schedule. The FSRs associated with VXE-6 all agree, VXE-6 personnel would never give up. No matter how adverse the conditions, they always gave everything they had!

Over the years, the LC-130 provided an ideal mode of transportation, both from Christchurch, New Zealand, and to the remote sites in the Antarctic interior. Some of the significant milestones/events achieved by VXE-6

are listed below.

- ◆ 9 April 1961 - The first mid-winter fly-in was accomplished to rescue a severely ill Russian scientist from Byrd Station.
- ◆ DEEP FREEZE '78 - VXE-6 evacuated five critically injured Soviets from the crash site of an IL-4 transport aircraft at Molodezhnaya, on the Prince Olav Coast, located 1,825 miles (about 24 flight hours, round trip) from McMurdo Station. This life-saving flight earned the squadron the Navy Unit Commendation.
- ◆ DEEP FREEZE '88 - A medical evacuation to the South African station of Sanae broke the record for time and distance in a single Antarctic flight. Another season highlight was the recovery of an LC-130 that had been buried in ice and snow since its crash in 1971 near Dumont D'Urville. The aircraft was subsequently fully restored and operated by VXE-6 until the disestablishment.
- ◆ DEEP FREEZE '97 - This season was the first of a three year program designed to transition the Department of Defense long range logistic support for the Antarctic Program from the U.S. Navy to the U.S. Air National Guard. Despite a delay in "opening up" South Pole Station due to extremely low temperatures and other maintenance difficulties due to extreme weather conditions, VXE-6 and the Air National Guard's 109th Airlift Wing worked together to complete 120% of all planned missions.
- ◆ DEEP FREEZE '99 - VXE-6's last deployment season was the busiest on record: nearly 500 missions planned; 320 to the South Pole alone. During this season VXE-6 flew over 1,200 hours and delivered 2.5 million pounds of cargo, with no mishaps or injuries.

On 27 March 1999 at Point Mugu, California, 44 years on the ice came to an end for VXE-6 with the disestablishment ceremony. Lockheed Martin extends deep felt congratulations to all members of VXE-6, past and present. Their dedication, perseverance, and commitment to service are a credit to the U.S. Navy.

As mentioned earlier, the responsibility for the support of the National Science Foundation and the U.S. Antarctic Program has now been transferred to the 109th Airlift Wing of the New York Air National Guard.

□



Photographs, clockwise from top center:

One of the VXE-6 aircraft flies by the Ceremonial South Pole.

The LC-130's shadow is the only clue of altitude in this low altitude photo.

Mt. Erebus, a volcano, looms in the background as the LC-130 makes its approach to Willey Field at McMurdo Station.

Sailor Kampath salutes an outgoing mission as it departs Willey Field.

Aircraft maintenance activities at on the ice runway at McMurdo Station.

An LC-130 flies by one of the out camps in Antarctica.

The South Pole Station Dome can be seen in this photo with a Herc.

Photographs courtesy of PH1 (AW/NAC) Edward G. Martens.



C-130J

Cold Weather Testing



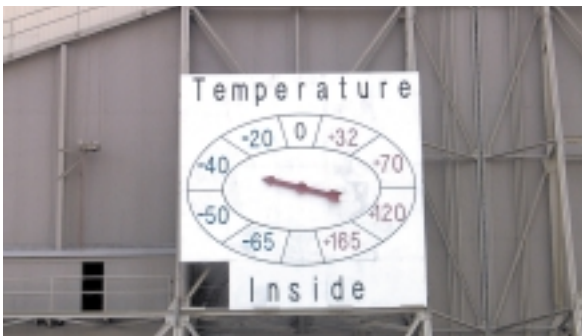
When a new aircraft is produced, it is imperative that testing be accomplished to verify that it will operate under all expected climatic conditions. In the case of the C-130J, this meant ensuring that the aircraft could satisfactorily operate under virtually any weather condition found on the planet. How can this be done efficiently? The solution to this dilemma can be found near Ft. Walton Beach, Florida, at Eglin Air Force Base.

The McKinley Climatic Laboratory is unique in that it is the most comprehensive environmental testing facility ever constructed. The origins of the facility date back to World War II when the Cold Weather Test Detachment was established at Ladd Field in Fairbanks, Alaska. Cold weather testing was definitely needed, as many military operators discovered during the winter of 1942-1943 when they could not get aircraft airborne during extreme cold. However, the newly formed Cold Weather Test Detachment faced many challenges. Unpredictable weather made scheduling difficult, transportation to and from test sites was difficult and even

hazardous due to the weather in which they were trying to test. In short, a better way was needed.

In September 1943, the task of cold weather testing was assigned to the Army Air Proving Ground Command at Eglin Air Force Base. Lt. Colonel Ashley McKinley, who already had extensive experience in the area of cold weather testing, developed the idea of using a refrigerated hangar to produce the extreme environmental conditions needed for the testing. Lt. Colonel McKinley correctly believed that a controlled environmental test inside a hangar would be far superior to actual field testing, both in results and in cost.

The result of Lt. Colonel McKinley's idea was a facility that first opened in 1947. In May of that year, the first tests were conducted, which subjected several aircraft, including B-29, C-82, P-47, P-51, and P-80 aircraft, as well as trucks, tanks, and clothing to a temperature of -70 degrees Fahrenheit (F).



The facility is very impressive. The Main Chamber is 252x260x70 feet in size and has a temperature range of -65 degrees F to +165 degrees F. The chamber is large enough to accommodate a C-5 Galaxy. The cooling system for the chamber is capable of cooling it from +60 degrees F to -65 degrees F within 24 hours. One of the most unique aspects of the Main Chamber is the fact that engine runs can be accomplished inside of it. The challenge of running engines inside the chamber is that all of the exhaust is routed outside. As a result, a tremendous amount of air must be pumped back into the chamber in its place. The Air Make-Up System can provide air at -65 degrees F to the Main Chamber at a rate of 1,000 lbm/sec for up to one hour. The endurance of the Air Make-Up System is significantly longer at test temperatures higher than -65 degrees F.



Earlier this year, the new C-130J completed the cold weather testing requirements at the McKinley Climatic Laboratory. During the testing, the J demonstrated its ability to operate under a variety of circumstances at temperatures down to -65 degrees F.

The testing for the J involved all aspects of aircraft operation. Engine starts were demonstrated both with the use of preheat and under austere field conditions. The performance of all computer and electronic systems was scrutinized as was the environmental control systems. Many of the items that people normally

take for granted, such as the operation of switches, displays, etc. can all be adversely affected by the extreme cold, so all of them were thoroughly evaluated during the testing.

Other weather conditions can be simulated as well. Snow, rain, wind, sandstorms, dust storms, fog, icing, and solar radiation can all be introduced through various means. In addition to the Main Chamber, the facility includes five other chambers of different sizes and capabilities: Equipment Test Chamber; All-Weather Room; Sun, Wind, Rain, and Dust Chamber; Salt Fog Chamber; and Temperature - Altitude Chamber. The McKinley Climatic Laboratory is utilized to test a variety of aircraft, vehicles, weapons, and equipment for both government and commercial agencies.



At the conclusion of the testing it was readily apparent that the C-130J is fully prepared to efficiently operate in extreme weather conditions. The J performed exceptionally well in all of the tests.



Hercules Customer Service Improvements

The Hercules Support Center (HSC) at Lockheed Martin Aeronautical Systems Support Company is one of the best resources available to Hercules Operators worldwide. Located near the production facility in Marietta, Georgia, the HSC makes every effort to provide the most comprehensive support possible to Hercules Operators. A total of seven analysts staff the HSC and have a combined experience of some 200 years. The average experience level of the analysts is nearly 30 years on Lockheed Martin aircraft.

As the Field Support arm of the Original Equipment Manufacturer (OEM), the HSC has access to all of the technical data at Lockheed Martin concerning the C-130/Hercules aircraft. This technical data includes all of the drawings and design specifications, which are available via computer to the analysts in the HSC. Also available via computer are Aircraft Inspection Memos (AIMs) and Aircraft Restriction Memos (ARMs).

The HSC has superior access and information when it comes to looking up part numbers and materials. The OEM is the final authority concerning approved part numbers and materials, and in some cases, is the only supplier of a particular part. Due to the proximity of the HSC to the production facility, analysts can, when necessary, personally go to the production line to look at particular parts and how they are assembled. This direct, hands-on access to materials and processes saves time and research. From time to time, it is advantageous to have access to the manufacturing records of a particular aircraft. While not generally available, the HSC can submit a request to the factory for this information. Each request is then reviewed on a case-by-case, need-to-know basis.

The HSC also receives several periodic reports that greatly simplify the replacement parts process:

- ◆ One set provides information to cross reference Part Numbers and National Stock Numbers.
- ◆ One set provides information to cross reference superseded and superseding part numbers.

Service Trouble Reports (STRs) are normally generated by Field Service Representatives (FSRs) who are assigned to various customers around the world. When a situation arises that warrants an STR with a customer who does not have an on-site FSR, however, analysts in the HSC may generate an STR.

In addition to the pool of expertise within, the HSC also has direct access to experts in virtually all areas of the aircraft. This includes the engineers that design the aircraft and its various systems, on-site supplier representatives including Rolls-Royce, Allied Signal, and Dowty, technical publications experts, customer training personnel, supply specialists, and operations personnel.

In an effort to always provide the most comprehensive and up to date support for Hercules Operators worldwide, the HSC has recently made two noteworthy improvements:

- ◆ 24/7 Hercules Support coverage
- ◆ The relaunch of the Field Support Web Site on the World Wide Web

By expanding the support coverage available through the HSC to 24 hours per day/7 days per week, the HSC is now much more accessible to operators in various parts of the world.

The new Field Support Web Site features many new resources for Hercules Operators. One of the most significant new resources is the Technical Assistance Request form. This form can be filled out online and then submitted to the Hercules Support electronic mailbox for response. This provides a quick and easy way to contact the HSC.

For those persons planning to attend the upcoming Hercules Operators Conference (HOC), which will be held the week of 11 October 1999, a complete



section of the Web Site is available for information and online registration. For those persons planning to present a briefing at the Conference, presentation guidelines and forms are available online.

One other area of interest on the new Web Site is the *Service News* section. Electronic versions of all issues from 1974 through the most current issue are available as downloadable Adobe Portable Document Format (PDF) files. These files can be viewed by using the (free) Adobe Acrobat Reader software, which is available from the Adobe Web Site (<http://www.adobe.com>). All distribution requests can now be handled online at the Web Site. Each reader of the publication is encouraged to provide feedback in the form of general comments/suggestions as well as future article ideas. A Reader Feedback form is available at the Web Site to facilitate this process.

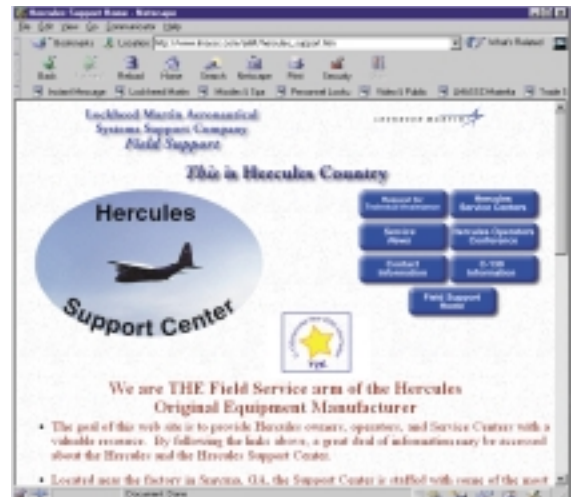
The HSC is a resource for the Hercules Operators. Most of the analysts come from a military background and are familiar with the systems and procedures at work within the military. Most have also spent a number of years in the field working with various operators around the world. The HSC is one place that deals with all aspects of Hercules, from the earliest C-130A to the newest C-130J. Operators are encouraged to contact the HSC anytime we may be of assistance using any of the following methods:

Hercules Support Center
2251 Lake Park Drive
Smyrna, GA 30080-7605
USA

Telephone: 770-431-6569
Facsimile: 770-431-6556

E-mail: hercules.support@lmco.com

World Wide Web: <http://www.lmassc.com>



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1999 Hercules Operators Conference Presentation Guidelines

As stated in the following article, each attendee at the 1999 HOC is encouraged to make a presentation during the Conference. The Audio/Visual Equipment for the 1999 HOC will be very similar to that of the 1998 HOC. Because of this, presentations will be most effective in electronic format. The preferred format for presentations is Microsoft PowerPoint. Another benefit of having the presentations in electronic format will be a much smaller size for the Conference Minutes this year.

Most presentations are between 15 and 20 minutes in duration; however, presentations may be as short as 5 minutes or as long as 30 minutes. In order for there to be adequate time to prepare the agenda and minutes, presentations must be submitted no later than 15 August 1999. Each presenter is encouraged to notify the HOC Co-Chairman, Tom Scoggins, of their intention to present as soon as practical. Presentations may be submitted via E-mail (20MB maximum file size) or postal service (3.5 inch disks, ZIP disks, or Compact Discs). In addition, presentations may include VHS video tapes.

Presenters may notify Tom Scoggins of their intentions via the World Wide Web (<http://www.lmassc.com>), E-mail: tom.a.scoggins@lmco.com, Telephone: 770-431-6522, or Facsimile: 770-431-6556. For more information concerning presentation formats or other technical matters, please contact Charles Wright via E-mail: charles.e.wright@lmco.com, Telephone: 770-431-6544, or Facsimile: 770-431-6556. □

Announcing the

1999 Hercules Operators Conference

Lockheed Martin Aeronautical Systems Support Company is pleased to announce the 11th Hercules Operators Conference. This year the conference will be held on 11 - 15 October 1999 at the Atlanta Marriott Northwest Hotel close to our facilities.

As in the past, this conference provides a forum for all Hercules operators and maintainers to come together and share common concerns and successes. It provides an opportunity to share operational, technical, modification, and maintenance issues among Hercules operators, suppliers, Service Centers, and Lockheed Martin. This is the only opportunity that the entire Hercules community has to come together.

To make the conference informative and meaningful, we must have your presentation topics identified and a short summary provided as soon as possible so that we can establish the agenda. As with previous conferences, most presentations are of a short duration of twenty (20) minutes or less. However, we encourage your participation with a presentation or discussion even if only five (5) minutes or less time is required. The conference is for all attendees and we all benefit from your experiences and ideas. As always, each input will be welcome. With inputs from you, the members of the Hercules community, we can ensure the conference is pertinent and beneficial. To ensure that appropriate presentations are incorporated in the agenda, a review committee, including the conference co-chairmen, has been established to review all presentations for format, technical content, audio-visual compatibility, and acceptability.

In the near future, we will be assembling a preliminary copy of the agenda to assist us in planning for the conference. We must stress that the agenda is determined by inputs from you. Without your support, the conference will fail to serve the purpose for which it was established. Therefore, we must have your presentation topics identified to enable us to prepare the final

agenda. To best utilize the presentation media, reduce the size of the minutes, and provide outstanding video support for your presentations, we prefer that all presentations be in electronic media, preferably PowerPoint. Also, 35mm slides and VHS videotapes can be accommodated.

We also request your ideas and subject matter inputs for the working groups. To set the tone of the working groups and make each session meaningful to all interested participants, we need inputs from all attendees.

We have been able to keep the conference fee the same as the last two years:

- ◆ \$100 U.S. Dollars per attendee for Hercules operators and government (military or civilian) personnel.
- ◆ \$300 U.S. Dollars per attendee for vendors, contractors, Service Center personnel, and other Lockheed Martin companies.

Fees must be paid at registration in U.S. Dollars either in cash, personal check/bank draft, or money order.

Please detach or photocopy the form on the opposite page, complete it, and return it to us at Facsimile: 770-431-6556. Registration can also be accomplished via the World Wide Web at <http://www.lmassc.com>. Accommodations should be arranged as soon as possible as the hotel has a tendency to fill up quickly. We have blocked out additional rooms this year to try to accommodate everyone at the Marriott. Additional information concerning the conference is available at the Hercules Operators Conference Web Site noted above.

If we can assist you in any way, please do not hesitate to contact us at Telephone: 770-431-6569, Facsimile: 770-431-6556, or E-mail: hercules.support@lmco.com.



1999 HERCULES OPERATORS CONFERENCE REGISTRATION FORM

Telephone: 770-431-6565

Facsimile: 770-431-6556

OPERATOR IDENTITY

Organization:

Telephone:

Address:

Facsimile:

E-mail:

GENERAL DESCRIPTION OF YOUR ORGANIZATION:

ATTENDEES: (Name/Title)

PRESENTERS:

TOPICS:

ITEMS OF INTEREST FOR WORKING GROUPS:

ADDITIONAL COMMENTS:

CONFERENCE FEE: (Non-Refundable US Dollars via Cash or Check)

PER PERSON PAYABLE AT REGISTRATION

\$100 - Government (Military and Civilian)

\$100 - Hercules Owners and Operators

\$300 - Vendors/Government Contractors/Service Centers/Lockheed Martin Companies/Others

AIRCRAFT FLIGHT HOURS: (By Serial No's)



Lockheed Martin Aeronautical Systems Support Company

Airlift Field Service Department
2251 Lake Park Drive
Smyrna, GA 30080-7605

