

	<h1 style="text-align: center;">PROPWASH</h1> <p>PROPWASH is published for the dissemination of information for and about the members of Chapter 190 of the Experimental Aircraft Association (EAA). President Aaron Wypyszynski, Vice President Bryan Tauchen, Secretary Wes Conkle, Treasurer Jim Harchanko, WebMaster Bill Perry.</p>	
EAA Chapter 190	http://eaa190.weebly.com/	November 2013

Photo of the Month:



3M5

Presidents Message:

Aaron Wypyszynski – EAA # 579057

October was quite the busy month! We had a great turnout for the pancake breakfast as well as a great presentation by Peter on aviation photography. If you are interested in seeing his presentation, let either Peter or myself know and we will make sure to get it to you.

See below for this month's upcoming events. Also, as the days are getting shorter and building season picks up again, look for more workshops and other events. Some of the events currently in the planning are:

- Build Projects tours to see several of our members build projects that are underway

- Builders Workshops: As I start the process of building my airplane (hopefully starting this winter), look for regular workshops on techniques that are being used.
- Simulator nights: We are working on get togethers at the FBO where several of us bring our flight simulator setups and fly together and give others a chance to see how we have set up our simulators and give them a try.
- Movie night: We are working on setting up movie nights to view aviation related films, both new and classics.

Let me know if you have any thoughts on these or other events that the chapter could do. I look forward to seeing everyone at this month's events.

Activity	Date	Time	Location	RSVP Contact
Murfreesboro Family Aviation Day	Sat. Nov. 9 th	10:00-2:00	Murfreesboro, TN (MBT)	N/A
Monthly Chapter Meeting	Tues. Oct 12 th	6:30pm	Moontown FBO	N/A
Moontown Pan-cake Breakfast	Sat. Oct 16 th	8:00-9:30	Moontown FBO	N/A

Minutes of Last Meeting:

Wes Conkle – EAA # 633811

Meeting Minutes 10/15/2013

1830 – Meeting Called to Order

Attended:

Wes Conkle		John Frerichs
Bryan Tauchen	Charles Cozelos	Jim Harchanko
Aaron	Kevin Macquinn	Marty Sullivan
Wypyszynski	Peter Knudtson	Andrea Atwood

Items for Discussion – The September Open House was a strong topic for discussion. There were lessons learned that can be carried forward to next year's event. Many Chapter members enjoyed the aviation events in the earlier part of October. The Chapter breakfast is this weekend, as well as the Koontz event.

Charles would like input for the Annual Event Ops Manual. If you have a suggestion, send it to Charles.

Aaron is working with the N. Alabama Radio Flyers to set up a spring event where the Chapter can show Young Eagles.

Workshop – No workshops this month. Wes is going to work on scheduling events for the next two months.

Tours / Presentations – Peter Knudtsen gave an enlightening presentation on the topic of Aviation photography. Wes is going to work on scheduling events for the next two months. Possible tours include:

Build projects

FSX Day
Aerocrafters of Alabama

Treasurer’s Report – Jim discussed the financial outcome of our September Open House. There was a net loss, largely due to a rainy event and also due to low attendance at the Banquet. See the Treasurer’s report for more detail.

Young Eagles –Aaron is scheduling a Boy Scout troop for YE flights. All available YE pilots are invited to come out and fly Boy Scouts.

1915 Meeting is adjourned.

Treasurers Report:

Jim Harchanko – EAA # 541411

October Treasurers Report

Date	Ck #	Description	Deposit	Check	Balance
9/30/13		Beginning Balance			\$22,947.56
10/4/13	1093	EAA Air Academy camp deposit for 2014		\$200.00	\$22,747.56
10/4/13	1094	A. Wypyszynski---Reimb table/chair rental (from Mullins)		\$437.87	\$22,309.69
10/4/13		Check Order (bank draft)		\$41.45	\$22,268.24
10/9/13	1098	SE A/C Rebuilders---gas for Veterans Museum fly-in display		\$137.50	\$22,130.74
10/17/13	1095	Charles Cozelos---print Ops Manuel		\$39.88	\$22,090.86
10/23/13		2014 dues(Skeet Vaughn)---15; breakfast---290	\$305.00		\$22,395.86
10/31/13		Ending Balance			\$22,395.94

Safety:

Wes Conkle – EAA # 633811

Young Eagles - Senior:

Aaron Wypyszynski – EAA # 579057

October was a great month for fly and we had more young eagles last month than in the last several months combined. We will be having Young Eagles flights following the Pancake breakfast this month. We will also have flights by appointment. If you are interested

in a Young Eagles flight, let us know. You can always reach me by email at YoungEagles.EAA190@gmail.com.

We also got confirmation last month that our spot is reserved at Air Academy for the first Advanced Camp (July 22-30th). If you are interested in being sponsored for our scholarship to the camp, come out to one of our chapter events and let us know!

Also, keep an eye out for many new upcoming chapter events. As the days get shorter, we shift our events to ground base flight activities. Some of the ones particularly of interest to Young Eagles are our builders workshops (a great chance to learn how aircraft are built) and our new simulator get together. Simulators are a great way to work on hour techniques and try new things prior to getting in the airplane. Feel free to come by and see how we set up our computers to work as flight simulators for all different types of flying, from recreational, to adventure, to Instrument flying practice.

Hope to see you soon!

Young Eagles - Junior:

Thoughts:

Jamie Dodson – EAA # 1025923

Howard Hughes says “Go Large” Again

Compiled by Jamie Dodson

As 1949 approached, Howard Hughes was getting frustrated. His flying boat, the HK-1 Hercules, known to the world as the Spruce Goose, had made its one and only flight on November 2, 1947. Having come under intense Congressional scrutiny, it never made it into production. Likewise, his XF-11 photoreconnaissance airplane, originally set for a production run of 100 ships, was cancelled at war's end. Even the XF-11's maiden flight went awry when Hughes, who insisted on making the flight himself, was forced down in a fiery crash caused by a propeller malfunction. Miraculously he survived. It could be said that the late 1940s were not the best of years for the famous industrialist. Most annoying was that there were no new aircraft development projects under way at his plant in Culver City, California.



Figure 1 Technicians attach a military communications trailer, weighing 8,000 lbs., beneath the XH-17 to demonstrate the helicopter's immense lifting capability. (Photo from the Ray Prouty collection)

Hughes hounded Rea Hopper, the general manager of his aeronautical operation at Hughes Aircraft Co., to keep busy sniffing out any aircraft development that showed promise. In 1948, desperately seeking work for the company, Hughes took things in his own hands and flew his B-23, converted into an executive aircraft, to Wright Field in Ohio. He talked with Lt. Gen. Bill Craigie about latching up some kind of aircraft development contract.

“Craigie told me he put Hughes in the helicopter business,” said Jack Real, who later became a close friend and confidant of the industrialist. “In the late forties, Howard asked for some aircraft work as the HK-1 was through flying and the second XF-11 had completed its flight test program, and there was a recession in the aerospace industry. Craigie told him he did not have an airplane program but he had something as big as an airplane - the XH-17,” Real said.

This wasn't exactly what Hughes had in mind (an airplane project), but rather the task of completing the fabrication and testing of a huge helicopter. Seeing little else on the horizon at Hughes decided to *Go Large*.

The XH-17 was a heavy-lift rotorcraft that was designed to lift loads in excess of 15 metric tons. To speed construction, parts of the XH-17 were scavenged from other aircraft. The front wheels came from a B-25 Mitchell and the rear wheels from a C-54 Skymaster. The fuel tank was a bomb bay-mounted unit from a B-29 Superfortress. The cockpit was from a Waco CG-15 and the tail rotor from a Sikorsky H-19 was used for yaw control.

In the late 1940s, Hughes developed an interest in helicopters. In August 1947, helicopter manufacturer Kellett sold his design for the giant XH-17 Sky Crane to Hughes, who commissioned the development of the XH-17 Flying Crane research vehicle. In 1948 the XH-17 began to take shape. The giant helicopter was tested in Culver City, California over a three-year period beginning in 1952. The XH-17 flew in 1953 at a gross weight in excess of 50,000 pounds (23,000 kg). It still holds the record for flying with the world's largest rotor system. Only one unit was built, since the aircraft was too cumbersome and inefficient to warrant further development.



The propulsion system was unusual. Two General Electric J35 turbojet engines were used, sending bleed air up through the rotor hub. The blades were hollow, and the hot compressed air traveled through the blades to tip jets where fuel was injected. In flight the rotors spun at a sedate 88 rpm. Since the rotor was driven at the tips rather than the hub,

Figure 2 Figure 2 Two cars parked beneath the XH-17 give a sense of

little torque compensation was required. Thus, the XH-17 had a very small tail rotor compared to its main rotor. This drive system was inefficient, limiting the test aircraft to a range of only 40 miles (64 km).

The Monster Takes Shape

The most notable feature of the XH-17 was its immense 130-foot diameter, 2-blade main rotor. The width of the 12-inch-thick blades spanned 58 inches. Each 5,000-pound blade incorporated air ducts and fuel lines to feed compressed air and fuel to the combustion chambers, called burners, at the tip of each blade.

To save development costs, as the Air Force requested of both Kellett and Hughes, the cockpit was salvaged from a Waco CG-15 cargo glider, the forward landing gear came from a North American B-25 bomber, and the rear landing gear was taken from a Douglas C-54 transport. The fuel tank was pulled out of a Boeing B-29 bomber.

Twin General Electric TG-180 turbojet engines supplied the hot, pressurized air to the burners at the blade tips. The engines normally had 11 compressor stages, but for the XH-17 several of the final stages were removed. A scroll duct was attached to each compressor to extract the bleed air, routing it into the rotor hub and out to the burners. It was calculated that by ejecting only compressed air at the tips the system would develop 1,000 horsepower. By adding tip burning, the propulsion scheme was expected to boost the output to 3,480 horsepower. The monstrous rotor would turn at a miniscule 88 rpm, its normal operating speed. Unlike smaller helicopters where rotating blades were only a blur, observers of the XH-17's slow moving rotor would be able to watch the blades rotate, one by one.

Powered by the big fuel-guzzling engines, the ungainly helicopter was expected to lift 26,455 pounds. At a gross weight of 46,000 pounds, the aircraft would be two and one-half times heavier than any helicopter flown during that era. The lack of mechanical transmissions and shafts required for conventional helicopters meant that the XH-17 had an unusually low empty weight, giving it the ability to carry heavy payloads.

Flying the Beast

Helicopter development being largely in its infancy, it wasn't an easy task to find a pilot, both qualified and willing, to test the XH-17. The war had created a surplus of experienced pilots, but few had enough helicopter experience. Gale Moore did, and would latch on to that opportunity with enthusiasm.

On September 16, 1952, Moore climbed into the cockpit of the monster (a name that Moore coined for the aircraft), started the engines, and made the helicopter's first short "unofficial" hover test. Actually, the monster rose only a foot or so above the ground before the flight was cut short after barely a minute. The sensitivity of the controls proved too much for Moore to smoothly maneuver the aircraft. He had slowly raised the collective lever, pulling the helicopter up to make it "light on its wheels." When he did, the machine abruptly lurched into the air. His immediate reaction was to lower the collective,

but he was a bit too fast in doing so. He raised it again quickly, repeating the movements, and making for what appeared to be a poorly choreographed first flight.

Moore finally put the helicopter back on the ground with an unmistakably “solid” thud. A look at the performance data recorded aboard the aircraft showed that he was too rough with the sensitive controls. This wasn’t surprising as the XH-17 controls were almost eight times more sensitive than those of the Sikorsky machines that Moore had flown previously. The problem with the sensitive control forces was corrected by something as simple as installing a different length collective control stick and an armrest. The next day, the tests continued. The flight controls were more to his liking now as he raised the machine to a hover. As one problem was solved, another surfaced: the helicopter wanted to yaw to the left. The characteristic was so pronounced that Moore’s right leg started to cramp as he struggled to keep the aircraft from turning. Upon landing, the problem was solved by changing the size of a counterbalance weight on the tail rotor.



Figure 3: The XH-17 helicopter at the Culver City airport for its first official flight on October 23, 1952. From left, Clyde Jones, Hughes aeronautical engineering chief; Gale Moore, test pilot; Nick Stefano, project engineer; Howard Hughes; and Rea Hopper, general manager. (Photo from the UNLV Libraries, Special Collections)

The day for the first public flight had come. The monster would now have to do more than only hover. Moore flew the XH-17 from Hughes Airport, with Howard Hughes watching from alongside the runway, on the chilly, overcast morning of October 23, 1952.

The flight consisted of a vertical ascent and hover of about nine minutes. The ship was flown forward, backward, and made a 360-degree turn. A second flight that day consisted of a straight takeoff and forward run to the west end of the field at a height of 50 feet and a speed of approximately 45 mph.

Grounded Forever

By December 1955, all XH-17 flying stopped as the helicopter neared the predicted life of the blades. During testing, the monster had flown at a maximum weight of 50,199 pounds and achieved a top speed of 70 mph. With its flying days over, the unique aircraft was scrapped, much to the dismay of aviation historians.

The XH-17 was conceived to investigate tip-jet propulsion to provide enough lift to carry an Army tank. Three months of whirl tests on the ground were made with power obtained from only the compressed air from the engines, followed by tests with the tip burners activated. Thirty-three short flights were completed, accumulating a total of 10 hours. Most of them were at 44,000 pounds gross weight. For the final test of the program, an 8,000-pound Air Force radio trailer was attached under the helicopter and lifted off the ground to prove that the XH-17 could hover at 50,000 pounds gross weight.

The flight tests spanned three years, producing useful knowledge about rotor dynamics and loads. More than anything, the flights yielded the first definitive test results for large tip-jet helicopter propulsion systems. Having a meager flying range of only 40 miles, tests of the monstrous aircraft didn't prove much else, except that such a large helicopter could actually fly. Its development into a heavy lift helicopter might have been feasible had it not been for its extreme fuel consumption, noise, and constraints of the military's budget.

The "monster" was truly ahead of its time. Although it never reached the production stage, like the flying boat and XF-11, the XH-17 did put Howard Hughes in the helicopter business for decades to come. His company, Hughes Helicopters, Inc. morphed into a major manufacturer of commercial Model 300s and 500 light helicopters, along with the OH-6A scout and AH-64 Apache attack helicopters for the U. S. Army. In 1984, the company was sold to McDonnell Douglas Corp. In turn, it merged with the Boeing Co. in 1997. The Apache continues to be manufactured in an expansive plant in Mesa, Ariz., almost four decades after that helicopter's maiden flight in 1976.

General characteristics

- Crew: 3 (pilot, mechanic and in-flight test engineer)
- Length: 53 ft 3 in (16.25 m)
- Rotor diameter: 129 ft 11 in (39.62 m)
- Height: 30 ft 2 in (9.17 m)
- Empty weight: 28,563 lb (12,956 kg)
- Loaded weight: 31,270 lb (14,184 kg)
- Useful load: 10,284 lb (4,665 kg)
- Max. takeoff weight: 43,500 lb (19,731 kg)

- Power plant: 2 × General Electric J35 turbojets Performance

Performance

- Maximum speed: 90 mph (145 km/h)
- Cruise speed: 85 mph (137 km/h)
- Range: 40 mi (64 km)
- Service ceiling: 13,100 ft (3,995 m)
- Rate of climb: 1650 ft/min (8.4 m/s)
- Disc loading: 2.34 lb/ft² (11.5 kg/m²)

Sources:

1. American Aviation History Society AAHS Journal Volume 58 (2013), Howard Hugh's Impromptu Beginning as a Helicopter Manufacturer, by Donald J. Porter
2. Wikipedia:

Next Generation of Pilots:

Hannah Brock – EAA # 1018039

Where has the year gone? I couldn't think of anything this month so Παππους said, "Why don't you talk about what you did this year".

The first thing I want to say is that the Open House was so much fun, even if it did rain, but maybe it won't next time. I remember that I got to go flying with Mr. Edgeman and his plane. That was great! It had a stick, and we got to do other things than just fly straight and level. And I got to fly it too. Oh yes, the campout before the Open House, I was so warm and dry even though it rained all night. It was the first time I got to help cook the dinner over the fire.

As far as trips go, I remember going to the museum in Birmingham and also we got to go see the weather bureau. It's fun to go on trips even when we don't get to fly there and I always learn something new.

It seems like I didn't get to have a lot of flying lessons this year. It was either raining or too windy or one time I found that Juliet Charlie had to get fixed before it could fly again, and I found the broken part on my pre-flight.

I'm looking forward to next year at 3M5. I'm sure we will all get to do so much more.

Projects Update:

Jim Harchanko
Bob Wilson

RV www.flickr.com/photos/rvflyer03/sets/
Dragonfly
<http://hiwaay.net/~bzwilson/dragonfly/index.html>

Calendar of Events:

Nov 12	1800hrs	Chapter Meeting	http://eaa190.weebly.com/
Nov 16	0730hrs	Fly-In Breakfast at Moontown	http://eaa190.weebly.com/
Dec 17	1800hrs	Chapter Christmas Party	http://eaa190.weebly.com/
Dec 21	0730hrs	Fly-In Breakfast at Moontown	http://eaa190.weebly.com/
Jan 14	1800hrs	Chapter Meeting	http://eaa190.weebly.com/
Jan 18	0730hrs	Fly-In Breakfast at Moontown	http://eaa190.weebly.com/
Feb 11	1800hrs	Chapter Meeting	http://eaa190.weebly.com/
Feb 15	0730hrs	Fly-In Breakfast at Moontown	http://eaa190.weebly.com/
Mar 11	1800hrs	Chapter Meeting	http://eaa190.weebly.com/
Mar 15	0730hrs	Fly-In Breakfast at Moontown	http://eaa190.weebly.com/
Apr 1-6		SUN 'n FUN	http://sun-n-fun.org/
Apr 15	1800hrs	Chapter Meeting	http://eaa190.weebly.com/
Apr 19	0730hrs	Fly-In Breakfast at Moontown	http://eaa190.weebly.com/
May 13	1800hrs	Chapter Meeting	http://eaa190.weebly.com/
May 17	0730hrs	Fly-In Breakfast at Moontown	http://eaa190.weebly.com/
Jun 10	1800hrs	Chapter Meeting	http://eaa190.weebly.com/
Jun 14	0730hrs	Fly-In Breakfast at Moontown	http://eaa190.weebly.com/
Jul 15	1800hrs	Chapter Meeting	http://eaa190.weebly.com/
Jul 19	0730hrs	Fly-In Breakfast at Moontown	http://eaa190.weebly.com/
Jul 28 – Aug 3		Oshkosh	http://www.airventure.org/
Aug 12	1800hrs	Chapter Meeting	http://eaa190.weebly.com/
Aug 16	0730hrs	Fly-In Breakfast at Moontown	http://eaa190.weebly.com/
Sep 16	1800hrs	Chapter Meeting	http://eaa190.weebly.com/

Sep 20	Experimental Aircraft Association Annual Open House, Sponsored by EAA Chapter 190 At Moontown Airport	http://eaa190.weebly.com/
Oct 14	1800hrs Chapter Meeting	http://eaa190.weebly.com/
Oct 18	0730hrs Fly-In Breakfast at Moontown	http://eaa190.weebly.com/
Oct 24-26	SERFI	http://serfi.org/
Nov 11	1800hrs Chapter Meeting	http://eaa190.weebly.com/
Nov 15	0730hrs Fly-In Breakfast at Moontown	http://eaa190.weebly.com/
Dec 16	1800hrs Chapter Meeting & Christmas Party	http://eaa190.weebly.com/
Dec 20	0730hrs Fly-In Breakfast at Moontown	http://eaa190.weebly.com/
Jan 13	1800hrs Chapter Meeting	http://eaa190.weebly.com/
Jan 17	0730hrs Fly-In Breakfast at Moontown	http://eaa190.weebly.com/
Feb 17	1800hrs Chapter Meeting	http://eaa190.weebly.com/
Feb 21	0730hrs Fly-In Breakfast at Moontown	http://eaa190.weebly.com/
Mar 17	1800hrs Chapter Meeting	http://eaa190.weebly.com/
Mar 21	0730hrs Fly-In Breakfast at Moontown	http://eaa190.weebly.com/

Ports of Call:

Lawrenceville, GA	LZW	EAA 690	1 st Saturday
Rome, GA	RMG	EAA 709	1 st Saturday
Winchester, TN	BGF	EAA 699	1 st Saturday
Gallatin, TN	M33	EAA 1343	2 nd Saturday
Guntersville, AL	8A1	EAA 683	2 nd Saturday
Murfreesboro, TN	MBT	EAA 419	2 nd Saturday
Huntsville, AL	3M5	EAA 190	3 rd Saturday
Shelbyville	SYI	EAA 1326	4 th Saturday
Decatur, AL	DCU	EAA 941	5 th Saturday
Fort Payne, AL	4A9	EAA 890	5 th Saturday

Members Network:

. If you are a chapter member in good standing, feel free to add one (1) line in this section. You may advertise anything you wish. The intent is that it will be your business, your company, your house,

car, plane, hanger or whatever. It's free and can run forever; the only limiting factor is one line per member per month. If you see something below that you can use, try them out, you'll be helping another chapter member.

Aircraft –Jon Moore’s	Contact Will Good	256-509-9459
Air Conditioning	Air Comfort Control	256-851-6991
Aircraft Fabric Covering	Brandy & Thomas Michaud	785-250-0873
Aircraft Maintenance	Southeastern Aircraft Rebuilders, Inc.	256-852-9781
Literature	http://www.nickgrantadventures.com	
Pressure Cleaning	ReNew-it Pressure Cleaning	256-682-0251

PROPWASH:

We are trying to get a digital library of past PROPWASHes. Below is a list of issues missing. If you happen to have a copy, please get in touch with us, even if it's a hard copy, we can digitize it.

<u>Before</u>	<u>1994</u>	<u>1995</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>
All	Jan	Jan	All	All	All	All	All	All	Jan
	Feb	Feb							Apr
	Mar								Jul
	Apr								
	May								
	Jun								
	Jul								
	Aug								
	Sep								
	Oct								
	Nov								