



Welcome to Chapter 33!

Next meeting:
Thursday, March 26, 2015 @ 7:00 pm
See article —>

Aviation Links

- www.EAA33.org
- www.LiveATC.net
- www.FlightAware.com
- www.AirNav.com
- www.DUAT.com
- www.DUATS.com
- www.EAA.org
- www.EAA33.org

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Next Meeting Mike Jimenez & Sarah Hammonds' RV-10 Visit

The March meeting will be this Thursday, March 26, 2015 @ 7:00 pm at the home of Mike Jimenez and Sarah Hammonds, 150 31st St. in Marion. Mike and Sarah are building an RV-10 and have invited us into their home to see their progress.

Mike says:

We're excited to have everyone over! A couple quick notes:

- Parking: Please park on the EAST side of 31st street (across from our house, on the side

towards the softball field), or 2nd Ave which is a little less busy. The city tends to get a bit fussy about cars if they are blocking the sidewalk or parked on the west side of the street. There should be plenty of room for everyone to park, and we'll have space set up in the workshop, living room, and basement areas for meeting,

show and tell, and I presume some hangar flying. We'll have a few refreshments too, actually Sarah's busy baking cookies as we speak! :-)
- Our project: as Tim mentioned, Sarah and I are building an RV-10 and are currently about mid-



way through with the wings-- we're hoping to have top skins and leading edges complete by Thursday. Sorry, nothing as exciting as the last outing though, I will not be performing a demo flight! :-)

But...feel free to check

out our build blog site here:

<http://mikeandsarahrv10.blogspot.com/>

Please call/text my cell at 515-460-4100 or email me directly: mikeyj350@gmail.com if there are any questions or comments before Thursday. We hope to see you all here!!

Welcome to The Lippisch Letter!

This is your Lippisch Letter. The only way to keep it alive is for you to help. What trips your trigger in aviation? Building, Flying, Restoring, Hangar Flying? Is it all about aluminum, steel tube & fabric, composites, wood, avionics, engines, or none of the above? Are you a fixed wing fan, balloon lifter, whirly girl, glider guy, seaplane sailor? Do you teach kids or adults? Tell us about your travels, your adventures, and your tests. Believe it or not, you are all experts in something. Share that vast knowledge, and we will all get smarter.

Show us photos from your flight breakfast adventure, your aircraft project, or you sharing aviation with friends young and old. Let's make The Lippisch Letter a new source of fun!

Nissan's New 400hp Engine

Applicability to Aviation?

Courtesy GizMag

It's a common problem: You're off to Le Mans with your new 400 bhp engine and you discover that it won't fit in the airplane's overhead compartment. This week, Nissan showed off the answer to this traveler's nightmare with its ultralight DIG-T R 1.5 liter, three-cylinder petrol engine that is small enough to fit in carry-on luggage and boasts a power-to-weight ratio better than the engine of a Formula 1 racer

The new engine is the other half of a hybrid powerplant for Nissan's Zero Emission On Demand Racing Car ([ZEOD RC](#)), which is set to become the first entry to complete a lap of the Circuit de la Sarthe at Le Mans solely under electric power this June.

The DIG-T R's base engine is 500 mm tall x 400 mm long x 200 mm wide (19.68 x 15.74 x 7.78 in), but it puts out power like a fire hose at 400 bhp (298 kW) and 380 Nm (280 ft-lb) of torque. Nissan points out though this is small enough to fit inside the luggage guides found at check in, at 40 kg (88 lb), the DIG-T R is too heavy to be considered as a carry-on. That works out to 10 bhp per kilo, which Nissan says is better than the new engines approved for the FIA Formula 1 World Championship this year.

The engine is an example of how Nissan is approaching the ZEOD RC with an eye towards reducing size while increasing efficiency. The ZEOD RC is also part of an effort to develop a more

efficient petrol/electric hybrid engine that can switch on or off on demand.

As part of the design strategy, both the petrol and electric parts of the



powerplant go through the same five-speed gearbox. However, Nissan says that the real problem in developing the DIG-T R for the ZEOD RC was cutting down friction, since the less of it there is, the less the engine needs to deal with its consequences. To help with this, Nissan worked closely with French lubricants manufacturer Total to come up with better fuels and lubricants to take care of internal friction.

After the ZEOD RC finished dyno testing, Nissan took to the track last week, where it tested both the electric and petrol components. It will undergo

further testing for the next four months, then in June it will take part in the Le Mans 24 Hour, where it will occupy "Garage 56," which is reserved for new

technology demonstrators by the Automobile Club de l'Ouest. The ZEOD RC will do one lap of each roughly hour-long fuel stint of the competition using only electric power, then the DIG-T R will take over for the rest of the run. Lessons from the ZEOD RC will be used in Nissan's entry in the LM P1 class of the FIA World Endurance Championship in 2015.

"Nissan will become the first major manufacturer to use a three-cylinder engine in major international motorsport," says Darren Cox, Nissan's Global Motorsport Director. "We're aiming to maintain our position as industry leaders in focusing on downsizing. Lessons learned from the development of the engine will be seen in Nissan road cars of the future.

The video below explains the development of the new engine.

Source: [Nissan](#)

Video:

<http://youtu.be/Nv1hWjzjgMc>

Thatcher CX5

Text from Pia Bergqvist, www.flyingmag.com

Chapter 33 Communications Corner

A new experimental airplane, the two-tandem-seat Thatcher CX5, has



taken its maiden flight. Glen Bradley, who helped build and design the airplane together with the main designer, Dave Thatcher, was at the controls when the CX5 took off from the Jack Edwards Airport near Gulf Shores, Alabama.

Bradley used one word to describe the visibility, the handling of the airplane and the operation of the engine — "Great!" He added after the flight, "All of us know that Dave hit a homerun with the CX4, and I told him today he has now hit two clean out of the park."

The builder and pilot claims the CX5 can be built for less than \$25,000, which includes a factory assembled 85 hp Revmaster VW engine and basic VFR instrumentation. While some parts, such as the spar and tail assembly, may eventually be available to purchase as a kit from other builders, as is the case with the CX4, the airplane is a complete homebuilt. It was, however, purposely designed to be built with basic

tools. The airplane has 589 pounds of useful load and 20 gallons of useable

fuel. Stall speed is estimated at 39 knots and cruise at 108 knots based on first flight data.

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The two-seater was derived from the successful single-seat CX4.

They claim about 900 hours to build a CX5 from scratch, and half that using prefab parts. Not bad for a 2-seat LSA.

Plans are available for \$475 at:

<http://www.thatchercx4.com>

Other useful internet sites include:

<http://www.cx4community.com/>

<http://cx5.wikidot.com/start>

See next page for specs & performance



These days, there must be a million ways to communicate inside and outside an organization. Here are just a few ways Chapter 33 currently communicates with you:

Newsletter: The Lippisch Letter

Website: www.EAA33.org

Facebook: EAA Chapter 33

YahooGroups.com:

EAAChapter33

Email:

Leader emails & phones on page 5

Email:

EAAChapter33@yahoo.com

These are low-cost methods of keeping us in touch with each other. Why is this important? Because we are more effective if we stick together. We can respond to legislative challenges faster (user fees anyone?), we can learn faster (who knows where to find the chapter scales?), we can participate quickly (who's going to Sully for breakfast?), etc.

We have the capability to post files, photos, internet links, calendar items, our membership list, and much more.

Please take advantage of all this communications capability. The more we use it, the better we get.

The general public has no idea what aviation is or what it's about, except what they learn from the media, and you know that isn't good. Let's use these tools to also help educate them so they can see why we love aviation!

Thatcher CX5

Thatcher CX5 Specifications

Length	20.5'
Wing Span	28'
Height	7' 2"
Cabin Width	28"
Wing Area	126 sq ft
Wing Loading	10 lbs / sq ft
Empty Weight	721 lbs
Gross Weight	1320 lbs
Useful Load	599 lbs
Design Load	3.8 G's
Fuel (92 Octane Auto)	20.0 Gal
Engine	Revmaster R2300 85 Hp
Propeller	56/48 Combo 54/50 Cruise
Electrical System	Starter, Alternator
Brakes	Hydraulic Disc/Toe Brakes
Airframe Construction	6061-T6 Aluminum - Airframe Fiberglass - Cowl, wing tips & wheel pants
Notes	<ul style="list-style-type: none"> - Side-opening canopy - Fuel tanks - 2 (10 gal. in each wing) - Weight & balance data: <ul style="list-style-type: none"> • Solo (front) with min fuel (2 gal) - Max 250 lbs • Dual with full fuel and 20 lbs baggage: <ul style="list-style-type: none"> - Min pilot (front) - 180 lbs - Max passenger - 240 lbs

Performance

Cruise (75% Power)	120 mph
Stall (Vso)	42 mph
Rate of Climb (Vy)	1000 fpm at 75 mph
Never Exceed Speed (Vne)	155 mph
Best Decent Speed	65 mph
Best Angle of Climb (Vx)	65 mph
Take-Off Roll	700 ft
Max. Ceiling	10,000 ft



EAA Chapter 33

Calendar of Events

March 26, 2015
EAA Chapter 33 Meeting
 150 31st St, Marion
 7:00 member meeting

April 19, 2015
Dubuque Regional Airport
 Flight Breakfast
 8 – 10 noon

April 25, 2015
Spring Social
 Butcher Block Restaurant
 Speaker: B1 Instructor Pilot

May 26, 2015
 Iowa City Movie Night

May 30, 2015
Vinton Municipal Airport
 Safety Seminar - Landings

June 27, 2015
 Young Eagles and/or CID Cook-
 out with ATC & CID Staff

July 23, 2015
 Airventure Chapter Picnic

July 30 - August 3, 2015
 CID B-29 Tour Stop

August 22, 2015
 Fly-out to Anoka (KANE)
 AOPA Regional Fly-in

September 24, 2015
 Project visit and/or chili cookout

October 24, 2015
 Fall color fly-out to KLNR

November 16, 2015
 Fall/Holiday Social

December - No meeting

Iowa's Airports Check 'em out!

Burlington	BRL
Cedar Rapids	CID
Des Moines	DSM
Dubuque	DBQ
Mason City	MCW
Sioux City	SUX
Waterloo	ALO
Fort Dodge	FOD
Ackley	4C7
Albia	4C8
Algona	AXA
Allison	K98
Amana	C11
Ames	AMW
Anita	Y43
Ankeny	IKV
Atlantic	AIO
Audubon	ADU
Bedford	Y46
Belle Plaine	TZT
Belmond	Y48
Bloomfield	4K6
Boone	BNW
Carroll	CIN
Centerville	TVK
Chariton	CNC
Charles City	CCY
Cherokee	CKP
Clarinda	ICL
Clarion	CAV
Clinton	CWI
Corning	CRZ
Council Bluffs	CBF
Cresco	CJJ
Creston	CSQ
Davenport	DVN
Decorah	DEH
Denison	DNS
Dyersville*	IA8
Eagle Grove	EAG
Elkader	I27
Emmetsburg	EGQ
Estherville	EST
Fairfield	FFL
Forest City	FXY
Fort Madison	FSW
Greenfield	GFZ
Grinnell	GGI
Grundy Center	6K7
Guthrie Center	GCT
Hampton	HPT
Harlan	HNR
Humboldt	OK7
Ida Grove	IDG
Independence	IIB
Iowa City	IOW

Iowa Falls	IFA
Jefferson	EFW
Keokuk	EOK
Keosauqua	6K9
Knoxville	OXV
Lake Mills	OY6
Lamoni	LWD
Larchwood*	2VA
Le Mars	LRJ
Manchester	C27
Mapleton	MEY
Maquoketa	OQW
Marion	C17
Marshalltown	MIW
Milford	4D8
Monona	7C3
Montezuma	7C5
Monticello	MXO
Mount Ayr	1Y3
Mount Pleasant	MPZ
Muscatine	MUT
New Hampton	1Y5
Newton	TNU
Northwood	5D2
Oelwein	OLZ
Onawa	K36
Orange City	ORC
Osage	D02
Osceola	I75
Oskaloosa	OOA
Ottumwa	OTM
Paullina	1Y9
Pella	PEA
Perry	PRO
Pocahontas	POH
Primghar	2Y0
Red Oak	RDK
Rock Rapids	RRQ
Rockwell City	2Y4
Sac City	SKI
Sheldon	SHL
Shenandoah	SDA
Sibley	ISB
Sioux Center	SOY
Spencer	SPW
Spirit Lake	0F3
Storm Lake	SLB
Sully	8C2
Tipton	8C4
Toledo	8C5
Traer	8C6
Vinton	VTI
Washington	AWG
Waukon	Y01
Waverly	C25
Webster City	EBS
West Union	3Y2
Winterset	3Y3
Woodbine	3Y4

2014 EAA Chapter 33 Leadership

by Tim Busch



Below is the EAA Chapter 33 organizational leadership list for 2015. We have open positions for Program Chair and for Fundraising Chair. I would REALLY like to see someone pick up the newsletter. I don't mind writing articles, but I'd like to see more input and someone else take the Lippisch Letter and run

with it.

Please consider helping to run this outstanding group. Isn't

EAA worth it? Isn't AVIATION worth it?

I know, everyone's busy. I'm happy to compare schedules with you just in case you think I have nothing else to do. Please help! Thank you.

- Tim

First	Last	Position	Email	Phone
Tim	Busch	President	timcfi@yahoo.com	319-373-3971
Mike	Jimenez	Vice President	mikeyj@gmail.com	515-460-4100
David	Miles	Secretary	david.miles@mchsi.com	585-703-2485
Denis	Sailer	Treasurer	rv9a@mchsi.com	319-294-0084
Dan	Meyer	At Large Board Member	D319Meyer@aol.com	319-362-0507
Chad	Wilhelm	At Large Board Member	chad.wilhelm74@yahoo.com	319-270-3218
Martin	Pauly	At Large Board Member	mpauly@mac.com	319-431-3174
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Connie	White	Young Eagle Coordinator	rcwhite691@gmail.com	319-393-6484
Dan	Meyer	Membership Chair	D319Meyer@aol.com	319-362-0507
Dave	Lammers	Flight Advisor	davelammers@mchsi.com	319-377-1425
Marvin	Hoppenworth	Technical Counselor	pedalplane@imon.com	319-396-6283
Tom	Olson	Technical Counselor	tcolson6@mediacombb.net	319-393-5531
Tim	Busch	Education Chair	timcfi@yahoo.com	319-373-3971
	OPEN	Programs		
Martin	Pauly	Social Chair	mpauly@mac.com	319-431-3174
Rob	Myhlhousen	Social Chair	robert.myhlhousen@gmail.com	319-640-0293
Sarah	Hammonds	Public Relations	Sarah.hammonds@gmail.com	
	OPEN	Fund Raising		

The Editor's Hangar

by Tim Busch

One of the key items that makes or breaks an airplane development is the engine. In manufactured General Aviation aircraft, the vast majority of piston engines are made by Lycoming, Continental, or Rotax. Why? Because they're reliable and available.... Expensive, but reliable. For turbine aircraft, GE, Pratt & Whitney, Williams and Rolls-Royce USA dominate the field.

When engine development stalls, airframe development goes with it. The Eclipse 500 suffered a major setback when the Williams FJ-44 didn't deliver on its specs. Jim Bede's BD-5 depended on German Hirth engines that weren't available at the right time (not that Jim didn't have other problems, but the engine was a big factor in holding back the BD-5). More recently, Diamond's DA-42 diesel engine was in production when Thielert went bankrupt.

I had an opportunity to fly the DA-42 with the diesel engines, and I love the airplane. They put Lycomings in it, but it's just not the same without the diesel engines.

Others have had similar engine teething trouble. Helicopter manufacturers have an even more difficult time. Their goal is a power-to-weight ratio of better than 1:1. That means they want at least one horsepower for every

pound the engine weighs. This explains the predominance of turbines in helicopters, but turbines are expensive.

Homebuilt aircraft have more flexibility to choose. Burt Rutan's comment was, "If you're building an experimental airframe, don't put an experimental engine in it. If you're experimenting with engines, use a certified airplane." Lots of people do otherwise, but Burt has a point about system reliability.

Diesel engines are getting lots of attention for aircraft use these days. The seem like a good fit if the designers can overcome the additional weight that goes with them.

There was a wankel fad a few years ago, but it seems to have gone away. Converted auto engines are on the market, but they usually come with a weight penalty from a gearbox.

Another one that never really makes it to prime time but I find interesting is the various flavors of barrel engines, or more properly, axial piston engines. I truly wish someone would get one of them to market. Imagine double-



headed pistons, arranged in a circle sliding back and forth with a wobble plate in the center to transfer the power to a crankshaft running down the center. It's brilliant in concept, but no one can seem to get one to market.

For most homebuilders that don't want to pay for a manufactured engine, Volkswagen and Subaru conversions are popular, and converted Corvairs also have a following. Marv Hoppenworth got me interested in them, and they seem like a worthy choice, although a bit heavy for an LSA compared to a Rotax.

Whatever you choose, make sure it has some significant time on it before launching. It's hard to pull over to the side of the road to fix it. Be safe and have fun.

Blue Skies!
Tim

EAA Chapter 33 Application & Questionnaire

Name: _____

EAA #: _____ expires: _____ Young Eagles # _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____ Evening Phone: _____

Email Address: _____

Copilot's Name: _____

Pilot Ratings (if any) _____

Aircraft Owned and/or Flying (if any): _____

Aircraft Under Construction / Restoration (if any): _____

Newsletter: Email (y/n) _____ Paper (+ \$10/year y/n): _____

What do you want from EAA? _____

(Socializing, Learning, Building, Restoring, Traveling, Flying, etc.)

How would you like to contribute to EAA? _____

(Socializing, Teaching, Young Eagles, Flying, Building, Restoring, etc.)

Dues are \$20/year, \$30 for 2 years, or \$40 for 3 years. Add \$10/year for paper delivery.

Please send your completed application and check to:

EAA Chapter 33, c/o Denis Sailer, 120 15th Ave Ct. Hiawatha, IA 52233

EAA Chapter 33

Experimental Aviation Association - Chapter 33

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FOOD, FUN, & FLYING!**

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Aviation can take you
anywhere!

Learn to Fly!
Join Chapter 33!

Tipton 8C4

<http://www.airnav.com/airport/8C4>

Aircraft based: 16
Single engine: 14
Multi engine: 2
Operations: avg 38/week
59% Local GA
40% Transient GA
1% Military

