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**LINE SQUALLS!**

The Terror of the Air



# Aerobatics a la Cow Pasture

by ALFRED CELLIER

Harry, commander of Squadron OX-5, deserts his military caste and becomes enamored of the aerial circus and barnstorming line of business with his pal playing the role of goat—as per usual.

"LOOPIN' jelly fish!" says Harry and leaves his mouth open. "Hmm!" I says.

We had just seen the one interestin' stunt that the air circus had pulled during the whole afternoon. A guy had looped with a girl parked out on the top wing. The rest of the business was hot dogs, peanuts and a lot of blah.

As we was bouncin' home in my fliv Harry says, "That was a blame good stunt."

"Yeah," I says, "it was O. K. to watch."

"It really wasn't anything dangerous," he goes on, "that gal couldn't have fell off. Centrifugal force. When a loop is done correct, the pressure on the seat of your pants remains the same."

"I'm glad you told me," I says, "for when I done what you called a loop with you the pressure was all on the safety belt."

"That was because I did variations," said Harry.

"Variations was all you done," I answer. "If it hadn't been for your variations in settin' a airplane on the ground we would still have your OX5 to flop around in. The book says you are supposed to land a airplane on the wheels, not all over."

"Shut up!" says Harry. "I think that subject has done been discussed. Besides I told my old man if he would buy me a new crate we wouldn't play at any more wartime flyin'."

"What of it," I says, "he ain't bought you no airplane."

"He might," says Harry.

"He's got too much sense," I answer.

"Which ain't neither here nor there," says Harry. "There's money in it."

"In what?" I asks.

"In a air circus," says Harry. "What else was we talkin' about? Look at all the money the yaps in towns around here are waitin' to shell out to see a stunt like that gal on the wing. I say that was a blame good stunt."

"I admit it," I says, "why argue."

"We are goin' in the air circus business," says Harry.

"O. K. by me," I answer. "The only drawback I see is that first, you ain't got no airplane, and second, there's no gals around here with the correct kind of weakness in the head to be parkin' on a top wing."

"I don't need no gal," says Harry, "I got you."

"Like thunder," I answer.

"It ain't dangerous."



"We must have started a loop then but there ain't no way for me to tell, for there I was out in the air all by myself."

"No, not for the guy sittin' back in the ship."

"Even if you get throwed off, you got a chute."

"A chute wouldn't do much good if you was already scared to death. You know what I think of chute jumpers."

"You'll do it won't you?" asks Harry.

"Why argue," I says, "you ain't got no airplane. Get out, I wanta go home, I'm hungry."

We was by this time parked in front of Harry's house.

"You'll do it," insists Harry, not makin' a move.

"Sure," I says, "I'll hang on the landin' gear with my tail. Get outa here. I wanta go home and eat."

He does and I does.

Well, my usual luck, which ain't any, holds out. The very next afternoon Harry's papa goes down to the port and buys that second hand crate which Harry has been yelling his head off about. Harry comes by my house that night and brags for an hour about what a fine new airplane he has got.

Harry stops and whispers, "Report for the dawn patrol in the morning, Lieutenant."

"I thought the war was over," I says.

"Just a slippage of speech," says Harry. "The air circus starts practice at daylight tomorrw. Be present on the dot. I'll borrow a chute for you."

With that he gets gone.

I see trouble loomin' up pretty black but am so pleased over gettin' to fly

with Harry again that I try to forget it.

I say to myself, "that bird ain't gonna get me messed up in no more foolishness. No sir! Besides, he won't get up in the morning at no daylight."

I go to bed.

The next morning I was pounding my ear peaceful like when all of a sudden a roar cuts loose, Whir-r-r-r! Like a big buzz saw cuttin' the house in two. I jumps out of bed and runs out on the balcony and there is Harry, divin' the house. I guess he's kinda mad because when I wave at him and he sees I ain't got on no clothes he takes a extra dive at me that nearly pulls the shingles off the roof. I decide I better get down to the port before Harry comes back and somebody gets sore. That boy wasn't foolin' when he said daylight.

"She flies swell," greets Harry with dignity as I steam in.

"That's nice," I says, cold like.

"Here's your chute."

"I don't want it."

"Put 'er on!"

I does.

"Now we'll fly out where they ain't nothin' but farms and try a few odds and ends. Get in."

We taxies down to the end of the field and Harry says:

"When I wiggle the wings you climb out on top and we'll do a few easy ones."

"I ain't gonna do it," I says. "This trick crate might fold up."

Harry opens the motor and yells, "you got a chute ain't you?"

We takes off.

Pretty soon we was way out over the country and Harry signals by wiggling the wings. I pretend I don't notice anything and sit tight like I was admirin' the scenery. Harry wiggles a few more times and then cuts the motor.

"All right son, climb out."

"I ain't gonna do it," I says.

"Go on," he yells, "there ain't nobody around here."

"I am," says I, "and I wanta stay."

"I believe you're scairt," yells Harry.

"I am," says I.

"You gonna let a mere girl back you out?" he asks. "That guy in the circus didn't have to yell his head off every time he got a stunt done. Far be it from me to have it said that I got a pal what is a sissy."

I guess he knows he's got me so he opens up, climbs a little and then wiggles the wings.

Well, I start to crawl out. There ain't a way in the world for me to tell



you how scared I am. Boy! I am about petrified, and it seemed like it took me an hour to make a move. After about a week I gets up on that top wing and I bet I have left dents every place I touched that airplane.

Harry cuts the motor and I grab on in a strangle hold.

"All set?" he yells.

I was so scared I had forgot that there was supposed to be some stunts added to all this misery, so I blasts back.

"I'm comin' down. This is enough practice for today."

Harry didn't want his practicin' spoiled so he opens up with a roar and down we goes in a dive. We must have started a loop then but there ain't no way for me to tell, for there I was out in the air all by myself.

I must have done some fast thinkin' then for I remember how pleased I was once, when my feet flopped around between me and the ground. I knew then that I must still be all together. I grabbed onto that release ring and give her a jerk that like to have thrown my arm out of socket and then, Bang! I bet every bone I got changed places when that chute opened.

It was pretty nice for a while then. I was just floatin' there in the air swayin' a little bit with Harry circling around watching.

Then before I knew it, I was almost on the ground. Down below me is a big field with a lot of cows and things in it running around, and a farm house over at one side. I didn't get time to do much figurin' when, wham! I hits plenty hard. I thought I had been movin' along easy but the ground just all of a sudden reaches up and slaps me one and did those cows scatter!

That blame chute was still filled with air so there I went, bouncing along from rock to rock, tearin' off the seat of my pants and most of the hide that was under 'em. At last I got her stopped and as I see a guy comin' runnin' I gets ready to strut with dignity in front of the yokel population, even if I ain't got no seat in my pants. I changes my mind though on gettin' a closer look at the welcoming committee.

This bird has got a pitchfork in his hand and he looks like he wants action, so I get up steam immediate. Imagine him being sore and trying to be a harpooner just because some of his silly cows got scairt and tore through some fences.

When Harry sees me land he goes on back to the airport and when he sets down some silly dope what's hangin' around asks him.

"Where's your pal?"

"Oh," says Harry, "he seen some gal back at a farm house and wouldn't come back with me."

That made me kinda sore, Harry's sayin' that, with me back there gettin' chased around a cow pasture by a guy with whiskers and a pitch fork, with no seat in the back of my pants.

## Operating Lightplane Engines

by MANLEY MILLS

EVERY lightplane builder looks forward to the happy day when the ship is finished and he is ready to install the engine.

Whether it happens to be a shiny new one direct from the factory, or a good second-hand one picked up for a bargain, there are certain points to be observed in making the installation that are necessary for a satisfactory job.

When uncrating and handling the engine before placing it in the plane or on the test-stand, the thought to bear uppermost in mind is that the engine is a delicate and unfortunately expensive piece of mechanism. It's not just a hunk of cast iron or something. The more you appreciate this fact, the less chance there will be of breakage. With an air-cooled engine, the fins are easily broken through carelessness.

There are lots of ways to uncrate a new engine but only one right way. The instruction book you get with the engine will describe that way. Read it carefully and follow the directions exactly. Don't make the mistake of just putting the book away without reading it or to refer to it only when spare parts are needed. Often, such spare parts would not have been needed if the instruction book had been followed in the first place.

Sometimes, it is desirable to place the engine on a test-stand first for minor adjustments and running-in, especially if it is a second-hand one which may need a little tinkering before it will turn up properly. It goes without saying that such a test-stand must be sturdy enough to withstand vibration of the engine without shaking apart and must be securely anchored to the ground. Oak is probably the most satisfactory material for the stand.

Inspect all nuts to see if they are properly tightened. Clean the magneto breaker points to remove any oil that



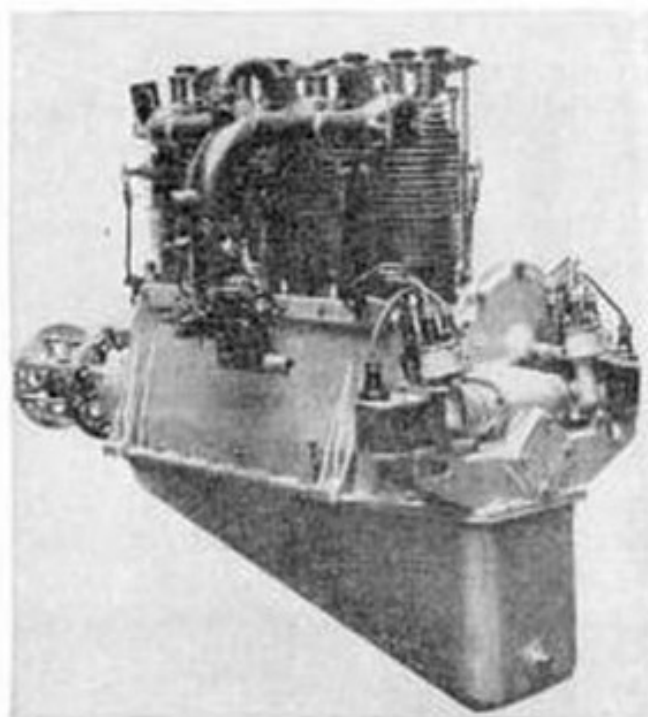
Lightplane engine parts are delicate and require careful handling to avoid serious damage while making an installation.

may have leaked in during shipment. Check the valve tappet clearance before running the engine. If it is a new one, the instruction book will specify the proper settings. As a general rule, engines in the lightplane class should have tappet clearances as follows: Intake valves, .008 of an inch. Exhaust valves, .012 of an inch. The exact clearance, of course, will depend wholly on the size of your engine and its operating temperature; the higher the temperature, the greater should be the clearance. When the valve tappets for a certain cylinder are checked, that piston should be at the firing point.

In mounting the engine on its bearers in the plane, it should be hoisted up with a block-and-tackle or crane. Have another fellow or two help you swing it into position, using caution to prevent injury to the motor or yourself. The mounting-bolt holes should not be bored until the plane is balanced by sliding the engine back or forth an inch or two in the usual way. The mounting bolts themselves should be of nickel-steel, at least a quarter of an inch in diameter. Most radial or opposed-type engines do not use a parallel-beam mount, but require a ring supported by a few short tubes. Or in some cases, the ring is not employed, the tubes being bolted directly to lugs on the engine. With such an arrangement, it's not so easy to balance the plane by moving the engine. It is usually more satisfactory to move the wing back or forward.

The proper cowlings of an engine doesn't usually receive as much attention as it should. Especially is this true when the ship is of the home-builder's own design, or when he uses an engine other than the type specified

(Concluded on page 194)



An aircooled 4-cylinder engine of the type commonly used for lightplanes.