



Contents of this talk

The demise of the legacy towplanes

Electric Towplanes?

Winches?

Modern light towplanes?

“Towplanes 101”

Jens Trabolts



Pawnee

PLUS

Can tow even the heaviest glider

Heavy = good control authority

Robust, made for rough work

Built in safety with lots of structure to sacrifice
(towplanes crash eventually)

Wire cutters sometimes installed on
undercarriage/cockpit

Legacy Towplanes



Pawnee

MINUS

100 year old engine tech

Very expensive fuel bills (60 l/hr x 25 kr/l) =

Problematic CO₂ emission (Green sport?)

Very expensive to repair/maintain aircraft and engine

Noisy

Legacy Towplanes



A dying breed because

- Accidents happen
- Uneconomical to restore once they become old?

Legacy Towplanes



After the crash on July 7, the Pawnee Yankee Yankee is probably ready for retirement after 57 years of service. "Some of the best hours of my flying life have been in the Yankee Yankee, with which I have flown around 3,000 tows", says a moved Jannie, when NORDIC GLIDING looks at the wreckage with her during a break in the Junior EC in Arnborg. (Photo: Henrik Sylvest)

CHAMPIONSHIP , NEWS , PILOTS IN PROFILE , STARTING METHODS 03/08/2023

Junior EC without a faithful draft horse

"I have to go down to him every day to say hello". That's what tug pilot Jannie Krogsdal says about "his" dear Pawnee Yankee







Norway's last "Iron Horse" retires. Here is the Swedish Mikael "Lillebror" Engström who has captured Urs Bütikofer in a magnificent moment with LN-EIC.

NEWS, STARTUP METHODS 06/03/2023

The last iron horse

Norway's last flying Pawnee has emitted its last roar and drunk its last liter of petrol in the service of the Seilflyseksjonen. More than 20,000 tows were made. "With several necessary upgrades in sight, it was simply too expensive to keep it on the wings", says head of department Steinar Øksenholt, who is now looking for the tow plane of the future.

TEXT AND PHOTO: JENS TRABOLT (LARGE PHOTO THANKS TO MIKAEL ENGSTRÖM)



Electric Towplanes?

Promising tech, but currently no really mature projects

Options to replace legacy towplanes?



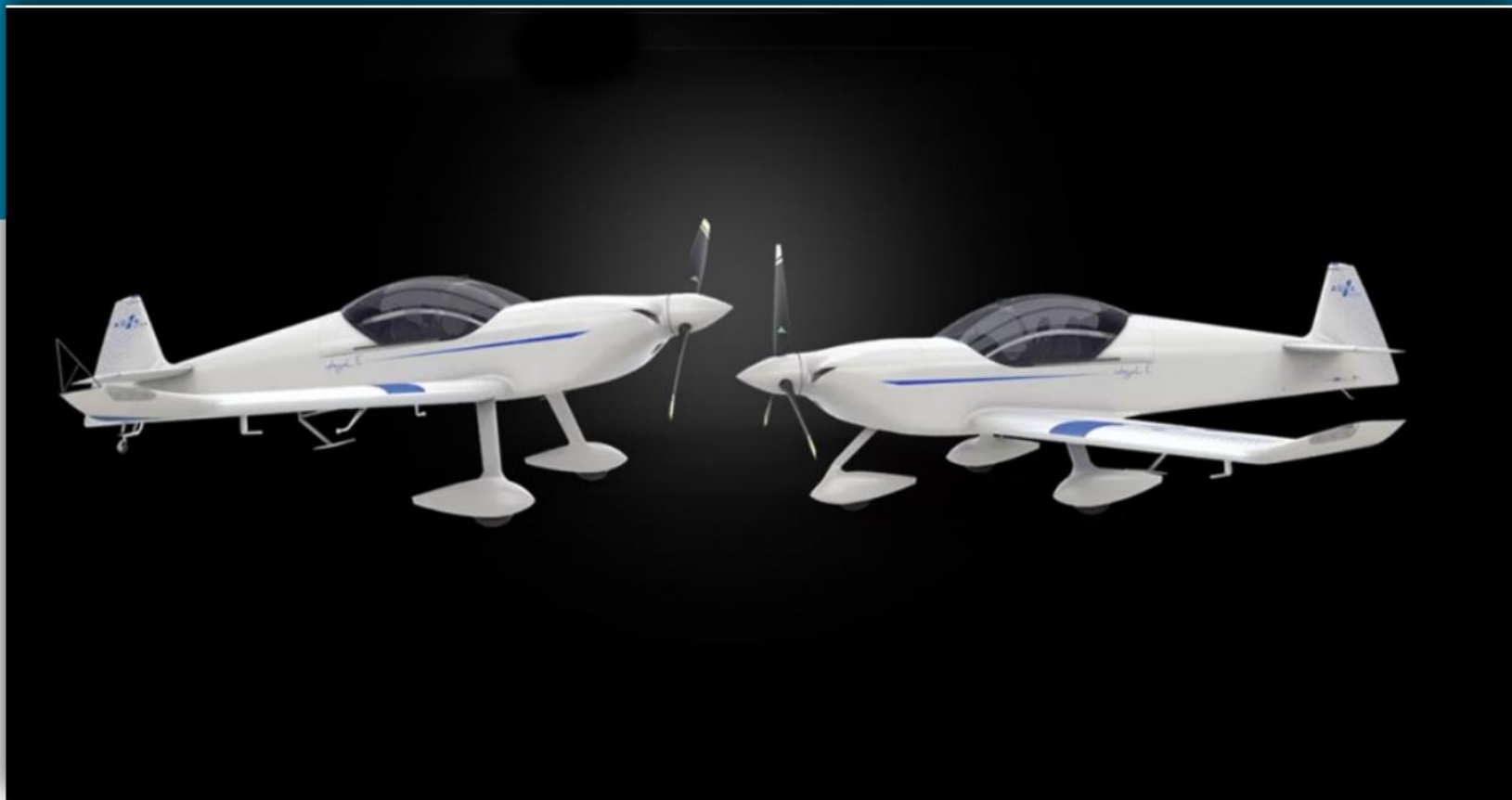
The team's own photos of the towing experiment. The glider was an Atlas ultralight.

ELECTRICAL, NEWS 26/05/2020

Electric "Pawnee" closer to reality

The electric Pure Flight Onix from the Czech Republic has started with tests of towing capacity. Another step in the right direction for the electrification of gliding.

TEXT: JENS TRABOLT/ PHOTO: JENS TRABOLT, PUREFLIGHT.EU



Rendering of AURA INTEGRAL E

ELECTRO , NEWS , MANUFACTURER 03/01/2023

French Gliding Federation collaborates on electric tow plane

The French Gliding Federation has signed an agreement with the French aircraft manufacturer AURA AERO for the supply of the upcoming electric version of their INTEGRAL model. The plane is planned to be operated daily in a club as a tow plane.

TEXT: JENS TRABOLT / PHOTO: AURA AERO





Winches (fossil/elec)

Plus

Economical to run (both foss/el)

Environmentally friendly (low noise emission
and low energy consumption per launch)

Electrification realistic

Options to replace
legacy towplanes?



Winches (fossil/elec)

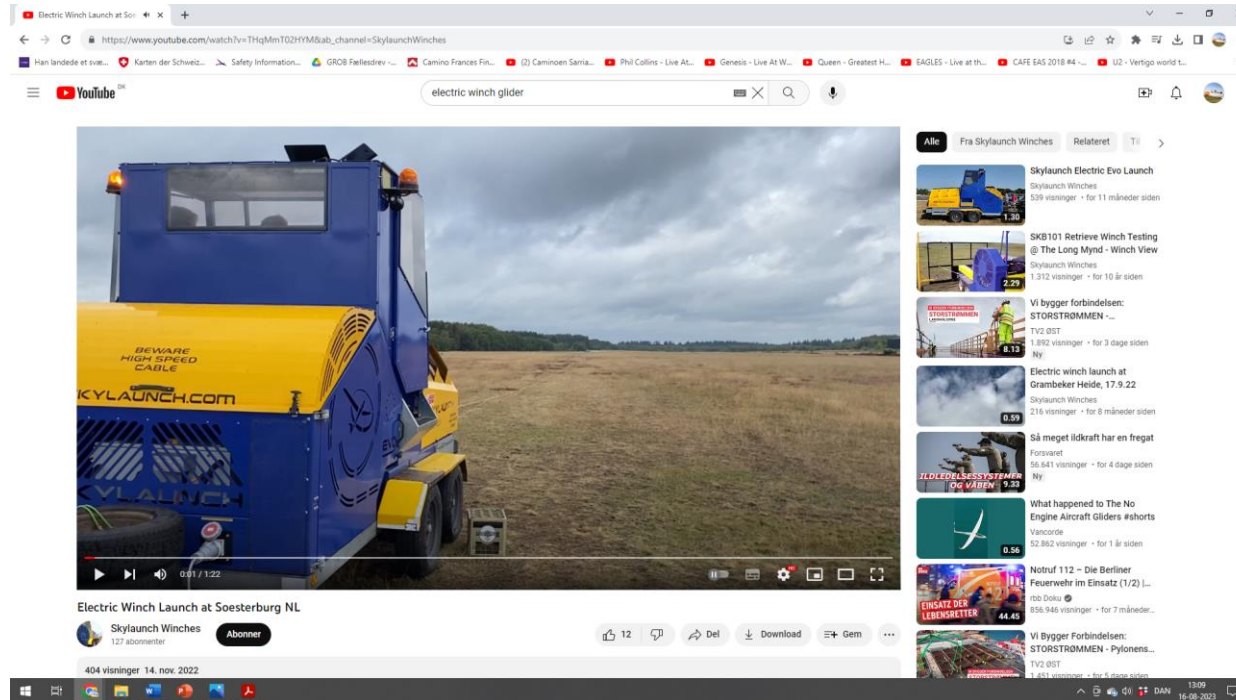
Minus

Probably more dangerous if mishandled by pilots

Limits to release altitude and position

An electric winch costs the same as a new towplane

Options to replace legacy towplanes?



Electric winch launch, Soesterberg, NL 2023

<https://youtu.be/THqMmT02HYM>



Eurofox 915is

PLUS

Powerful 141 hp turbo fuel injected engine

Sea level performance up to 6000 m

Can tow even the heaviest glider (850 kg)

Modern engine technology

Modern light
towplanes



Cheap futureproof parts
(eg tires/propeller 1/10 th of Pawnee)

DIY cost saving maintenance

Low fuel consumption around 1/3 of Pawnee
and cheaper mogas

Modern light towplanes



Low noise emission

Seemingly benign flying characteristics – no pattern of stall/spin accidents in reports

+ 700 built since 1990 in Slovakia

Modern light towplanes



Modern light towplanes

Eurofox 915is

MINUS

Must be experimentally built to be useful to pilots who want to collect hours towards commercial licence.

Will it be as robust as the Pawnee – mechanically and in terms of crash safety?

Will it have sufficient emergency control authority when towing gliders?

Price aprx 150 K Euro + VAT

Dynamic with same engine + 210 K euro + VAT



A classic design but with updated tech





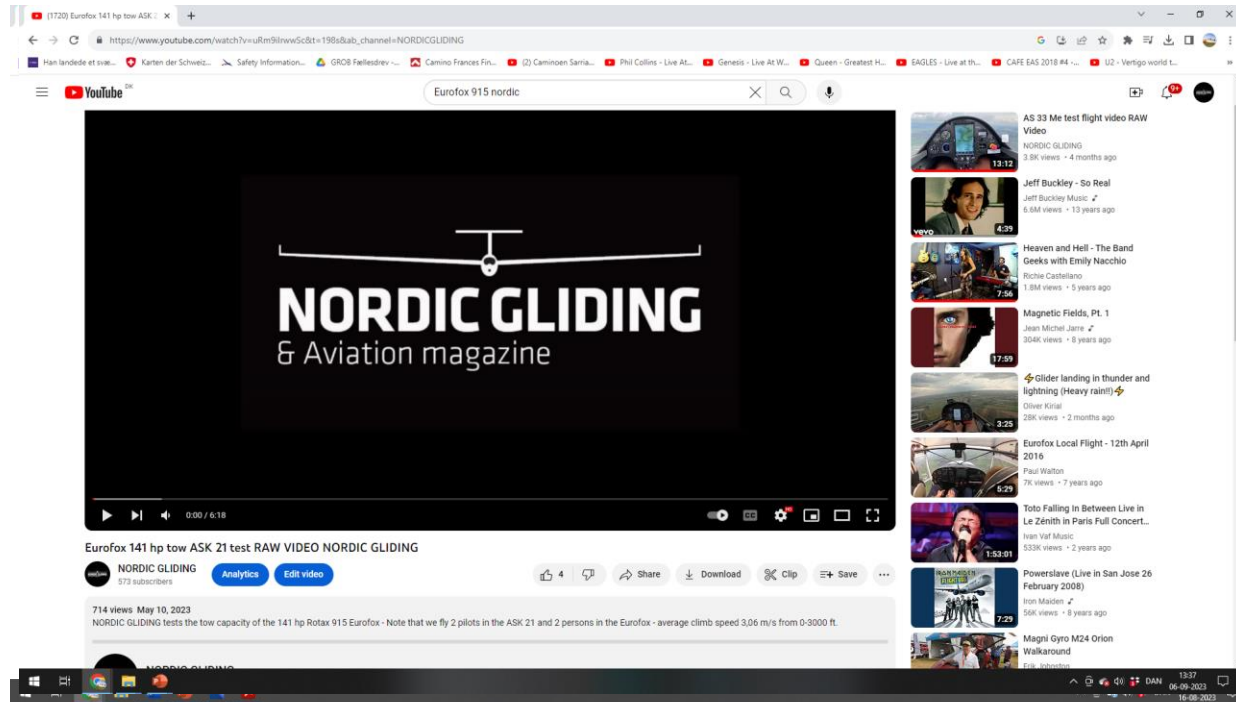






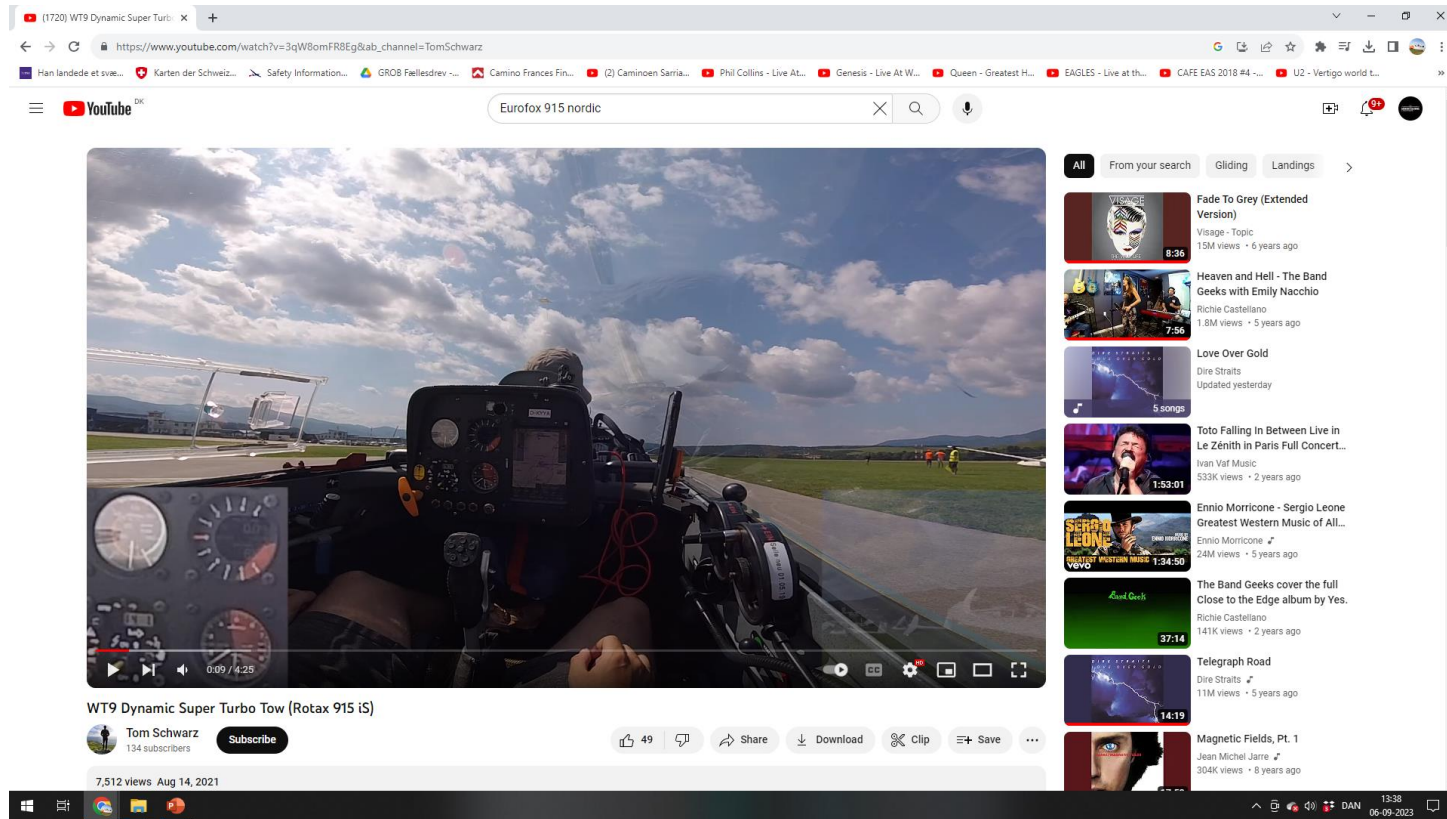






NG NLF towing test, Aston Down, UK 2023

<https://youtu.be/uRm9ilrwwSc>



Arcus T 850 kg Dynamic WT9 915
towing test, Prievidza, 2021

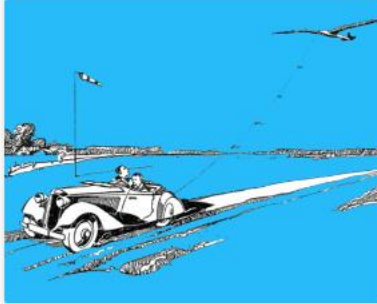
<https://youtu.be/3qW8omFR8Eg>

Startmetoder



Junior EM uden trofast slæbehest

"Jeg skal lige ned til ham hver dag for at sige hej". Det siger slæbepiloten Jannie Krogsdal om "sin" kære Pawnee Yankee Yankee som nu står parkeret under en presenning på Arnborg. Flyets aktive karriere fik en brat opbremsning ved mødet med et læhegn nær Arnborg d. 7. juli. Skaderne betyder, at Yankee Yankee har nok desværre fløjet sit sidste slæb i en alder af 57 år.



Bilslæb – alternativ til flyslæb?

Bilslæb: Back-up for slepeflyet eller alternativ startmetode? Arne Wangsholm ser her nærmere på en gammel startmetode, som med elektriske biler og fly har fået nyt liv.



Nordiske forbund investerer i moderne slæbefly

Efter længere tids research og afprøvning i England har Segelflyget og Seilflyseksjonen nu bestilt slæbeflyet Eurofox til nationalcentre. "Det var vores chance for at gå i brechen for mere miljøvenlig flyvning og enklere vedligehold", lyder det i Sverige.



Eurofox med store muskler – erstatning for Pawnee?

En delegation fra Seilflyseksjonen rejste til



Den sidste jernhest

Norges sidste flyvende Pawnee har udsendt sit sidste brøl og drukket sin sidste liter benzin i



Startmetoder part 2: Kroner og ører!

Økonomi og budget er ikke noget sexet emne.



More content on starting methods on nordicgliding.com

Currently more than 20 articles

- Legacy towplanes
- Ultralight towing
- Electric Towplanes
- Electric/Foss. Winches
- Car towing
- Economy of launching