

Operational Liaison Meeting FBW aircraft

Taxi Procedures





Contents

- Introduction
- Safety Precautions
- Powerpush
- One-Engine Taxi (A340 Two-Engine Taxi)
- Taxi with Deflated Tires
- Taxiing the A340-500/600
- Conclusion



Introduction

- Taxi incidents are usually perceived to be **less dangerous** than incidents in flight ...

...but they may cost a lot of money!

Structural damage to the landing gear

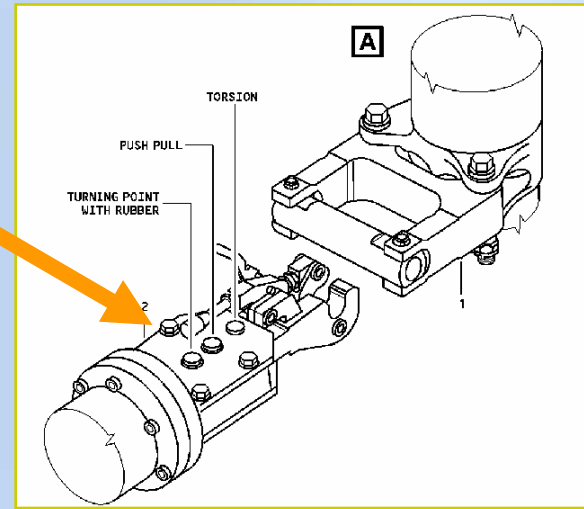


- **Safety precautions** specific to Airbus aircraft
- Pushback and taxi techniques:
 - One-Engine Taxi (A340 Two Engines)
 - Powerpush
 - Taxi with Deflated Tires

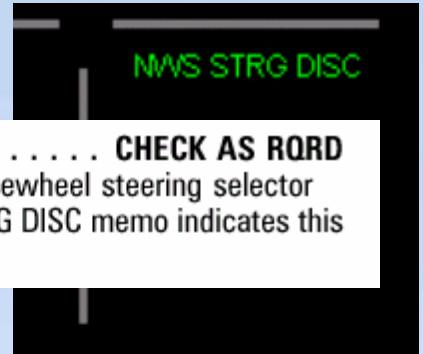


Safety Precautions

- Conventional vs. Towbarless Pushback
 - Towbar embodies a “torsion and traction fuse”
 - No towbar → No “excessive effort” protection
- Nosewheel steering **must not be pressurized** during pushback.



– **NW STRG DISC** **CHECK AS RQRD**
 In case of pushback (conventional or towbarless) , the nosewheel steering selector bypass pin must be in the tow position. The ECAM NW STRG DISC memo indicates this to the flight crew.



- Towbar shear **pin breaking** (conventional towing).
- **Severe damage** to the nose landing gear (towbarless towing).



Safety Precautions ...

- BRAKE HYD SEL FAULT / WHEEL HYD SEL VALVE
 - NWS remains available

DO NOT TOW WITH GREEN HYD!!!

WHEEL HYD SEL VALVE

Failure of the normal brake selector valve, or the steering selector valve, in the open position.

– *If the normal brake selector valve is failed open, full green hydraulic pressure is present at normal servovalves' entry*

Nosewheel steering remains available.

– *On ground, do not tow the aircraft with the green hydraulic system pressurized. Nosewheel steering remains pressurized, and so towing may either break the towbar's shear pin, or the nose gear (if towbarless towing).*

– *Selecting A/SKID NWS OFF or resetting the BSCU will cause the nosewheel to go to maximum deflection.*

– A/SKID NWS KEEP ON
As long as antiskid is operative, brake pressure is regulated by normal servovalves.

STATUS

– A/SKID NWS KEEP ON |

ABNORMAL & EMERGENCY
FCOM 3.02.32

A320 family: REV 33
 A330: REV 14
 A340: REV 22

→ Safety Precautions ...

- ACCU PRESS...CHECK
 - SOP Preliminary Cockpit Preparation
 - Re-pressurize with electrical pump, if needed
- **NO REVERSE** at low speed
 - FOD
 - Hot exhaust air re-ingestion → Compressor stall



NO REVERSE for
slowing down the
aircraft during taxi

NO REVERSE for
pushback

→ Safety Precautions ...

- The Flight Control check to be done prior to **autobrake arming**:
 - If the spoilers are left in the extended position after landing...
 - ...the aircraft **will suddenly brake** at autobrake MAX arming!!!
 - Recommendation introduced in the SOP.
- Reduced efficiency at first brake application in wet conditions.

CAUTION

If the aircraft has been parked in wet conditions for a long period, the efficiency of the first brake application at low speed will be reduced.



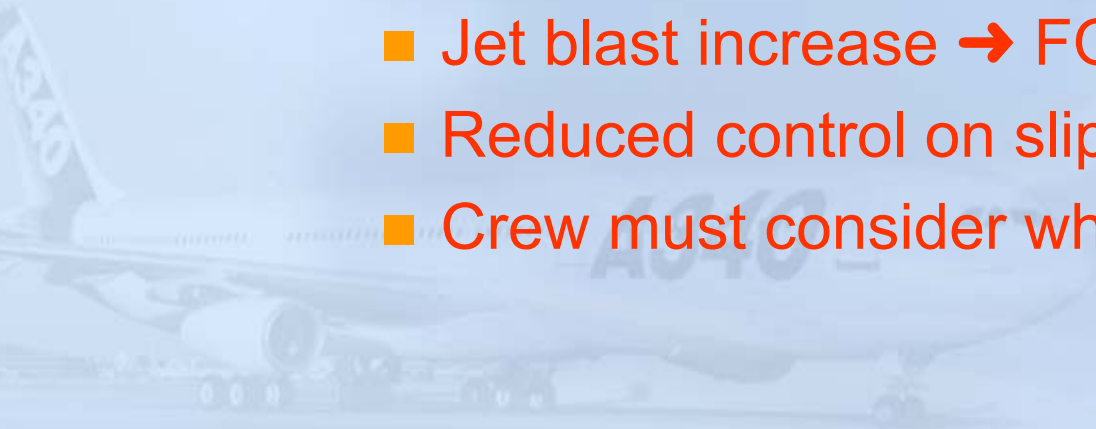
Contents

- Introduction
- Safety Precautions
- Powerpush
- One-Engine Taxi (A340 Two-Engine Taxi)
- Taxi with Deflated Tires
- Taxiing the A340-500/600
- Conclusion



One-Engine Taxi (A340 Two-Engine Taxi)

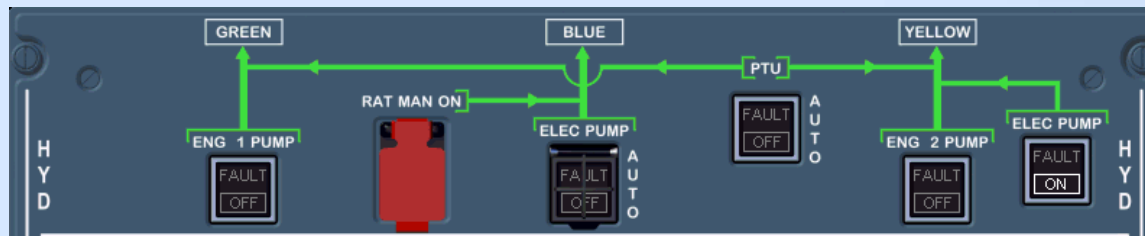
- Advantages and Drawbacks:
 - Fuel & engine life economy
 - Jet blast increase → FOD risk
 - Reduced control on slippery taxiways
 - Crew must consider which engine to use





One-Engine Taxi (A340 Two-Engine Taxi) ...

- Which Engine to Use?
 - A320 Family: ENG 1
 - A330: ENG 1
 - A340: Outer engines (ENG 1 + 4)
- A320 Family:
 - ENG 1 pressurizes GREEN HYD (NWS + NORM BRAKE)
 - PTU is not needed
 - YELLOW HYD pressurized via ELEC PUMP



→ One-Engine Taxi (A340 Two-Engine Taxi) ...

- A330:

- ENG 1 pressurizes GREEN + BLUE HYD
- HYD BLUE ensures ACCU PRESS
- ELEC PUMP are not needed



- A340:

- ENG 1 + 4 pressurize GREEN HYD (NWS + NORM BRAKE)
- Check ACCU PRESS normal before ENG start
- ELEC PUMP are not needed



Contents

- Introduction
- Safety Precautions
- Powerpush
- One-Engine Taxi (A340 Two-Engine Taxi)
- **Taxi with Deflated Tires**
- Taxiing the A340-500/600
- Conclusion

✈️ Taxi with Deflated Tires

- Tire **deflated** or severely **damaged**?
 - Stop the aircraft and confirm the damage
 - Contact gear-runway → severe gear damage



DO NOT TAXI !!!

- **JAR 25.511**: The aircraft must be capable of taxiing with one deflated tire (no structural damage risk).
- **Airbus**: The aircraft can taxi with up to 3 deflated tires (A340: 4 tires).
 - Affected tire **monitoring** is highly recommended.
 - **SPEED** and **TURN** limitations apply.



Taxi with Deflated Tires ...

- New Operating Limitation to cover TAXI WITH DEFLATED TIRES

**OPERATING
LIMITATIONS:
LANDING GEAR
FCOM 3.01.32**

A320 family: REV 31
A330: REV 15
A340: REV 22

TAXI WITH DEFLATED TIRES

If tire damage is suspected after landing, inspection of the tires is required before taxi. If the tire is deflated but not damaged, the aircraft can be taxied at low speed with the following limitations :

1. If one tire is deflated on one or more gears (ie. a maximum of three tires) the speed should be limited to 7 knots when turning.
2. If two tires are deflated on the same main gear, speed should be limited to 3 knots and the nosewheel steering angle should be limited to 30 degrees



Conclusion

- Safety Precautions

Steering HYD supply
NO REVERSE for taxi
Flight control check

- Powerpush

ENG OFF associated RISK:
Unwanted ENG START
NWS failure

- One (Two) Engine Taxi

A320 taxi on ENG 2: PTU reliability impact
A340 external / internal engines

- Taxi with Deflated Tires

Limitations
Contact gear-runway: DO NOT taxi!