

## EFM Aircraft Towing Plan at Munich Airport



### Content

1	Introduction .....	Page 2
2	Company portrait .....	Page 2
3	Towing tractors .....	Page 2
4	Towing coordinator .....	Page 3
5	Services .....	Page 3
6	Additional services .....	Page 4
7	Standard phraseology .....	Page 5
8	Contact .....	Page 7

## **1 Introduction**

This document describes the operational procedures for the pushing and towing of aircraft at Munich Airport. These procedures are intended to provide safe, orderly and efficient pushing and towing of aircraft. They have been agreed on between operations department of the Flughafen München GmbH (FMG) and EFM - Gesellschaft für Enteisen und Flugzeugschleppen am Flughafen München mbH.

The regulations and procedures established in this Towing Plan do not replace the relevant international standards or internal regulations of airlines. This plan is intended to be primarily used by all airline operations staff for further information. It has been published in order to ensure that all regulations and procedures for pushing and towing aircraft at Munich Airport are applied.

Any variations must be authorised in writing by FMG Aviation and EFM before implementation.

## **2 Company portrait**

EFM was jointly formed by Lufthansa and Munich Airport in 1992. The Lufthansa subsidiary GlobeGround Deutschland holds a 51 percent share in the company, and Munich Airport holds the remaining 49 percent. In July 1997 EFM received ISO 9001 certification for its quality management and in July 2003 the company received ISO 14001 certification for its environmental management.

For pushback and inter-gate towing EFM is operationally integrated into the ground handling section of FMG, for maintenance towing EFM is integrated into FMG Aviation. On behalf of FMG EFM pushes aircraft out of their parking positions (pushback) and tows them between parking positions. On behalf of Lufthansa Technik or other airlines EFM tows aircraft between terminal aprons and maintenance areas. On request EFM also performs pushback and towing operations for other ground handling companies and airlines at Munich Airport.

With the exception of the maintenance aprons, Munich Airport traffic coordination center (AVVZ) is responsible for positioning of aircraft at Munich Airport.

## **3 Towing tractors**

The EFM fleet includes 23 towing tractors, among them 19 towbarless tractors and 4 towbar tractors.

EFM operates towbarless tractor types GHH AM 110, GHH AM 150, Goldhofer AST 1, Goldhofer AST 2, Goldhofer AST 3.

All of the towbarless tractors are equipped with state-of-the-art safety systems (Oversteer- or Overtorque warning system).

Furthermore, towbar tractor types Schopf F 396, Schopf F 220 and Schopf F 106 are in operation.

Towbars are available for the following aircraft types:

A300/310	B733-739	DC9/MD80	IL 96
A319/A320/A321	B747	DC10/MD11	L1011
A340-500/600	B757	DH8A/B/C	MD11
A330/A340	B767	DO 328	L1011
AT42/AT72	B777	EMB 135/145	SF34/SB20
B707	BAe11	FK 50	SW3/SW4
B717	BA46	FK 70/100	YK 42
B727	CARJ	HS25	TU54
B731	DC8	IL76/86	

## 4 Towing coordinator

The towing coordinator is responsible for assigning the relevant equipment and a driver with the right qualifications at the right place and time. Therefore the airlines or their handling agents must meet the necessary requirements and update their times correctly. In addition, the coordinator's office documents all steps of the process so that the service can be analyzed at all times. The towing coordinator is available on a 24 hour basis (Telephone: 089/977-6577). Further information about aircraft towing at Munich Airport is also available in the MAS system on pages 195 to 197.

## 5 Services

### 5.1 Pushback

The towing coordinator automatically receives the towing work order before the announced off-block-time and initiates all necessary steps. Towing coordination can, however, only work smoothly and to the satisfaction of all customers if all airlines or their handling agents update their times correctly and in this way make available a realistic basis for the work of the towing coordinator.

If the aircraft is not ready for towing within a certain time period after the towing tractor arrived at the parking position, the towing tractor may be moved off.

### 5.2 Aircraft towing

Customers must order towing operations in time at AVVZ (Telephone: 089/975-131). AVVZ or the towing coordinator then initiate all necessary steps. It takes 30 minutes for the preparation plus the time for the towing operation.

The following requirements must be fulfilled for towing operations:

- The aircraft is ready for towing
- AVVZ has prepared a towing data record for the towing coordinator and the apron control
- The aircraft which is to be towed is cleared of gangway, ground power unit etc.

## **6 Additional services**

### **6.1 SMPB/Walkout**

During a single man pushback (SMPB) the tractor driver is in direct contact with the cockpit and the apron control and performs the tasks of the walk-out assistant. This ensures a faster and more economical pushback and increases safety.

The following aircraft types are licensed for SMPB:

- FK70/100
- BAE 146
- B737                      all subtypes except 737-200
- B747
- B757                      all subtypes
- B767                      all subtypes
- A318-A321                all subtypes
- A300, A310                all subtypes
- A330, A340                all subtypes

The walkout assistant may be provided on request for further aircraft types.

EFM employees are also trained for the following aircraft types:

- B717
- B727
- DC 9
- DC 10
- MD 11
- MD 80

For SMPB and walkout EFM adapts its standard phraseology to the requirements of the respective airline.

### **6.2 Starting the engines with air start unit (ASU/air start) at SMPB/Walkout**

During a pushback the walkout assistant is responsible for the correct and prescribed start of the engines with the air start unit. During a SMPB the tractor driver is responsible as he takes over the tasks of the walkout assistant.

**7 Standard phraseology**

**7.1 SMPB/Walkout**

During a pushback tractor driver and cockpit observe the following standard phraseology.

**English version**

**German version**

<b>COCKPIT</b>	<b>GROUND</b>	<b>COCKPIT</b>	<b>BODEN</b>
ground from cockpit	here ground bypass-pin set set parking brake	Boden vom Cockpit	Hier Boden, bypass-pin gesetzt Bremsen setzen
parking brake set	tow-truck lifting up	Bremsen gesetzt	Schlepper hebt auf
	release brakes		Bremsen lösen
brakes released pushback facing ...	pushing back facing ...	Bremsen gelöst pushback Richtung ...	pushback beginnt, Richtung ...
ready for engine start	all engines clear	Fertig zum Anlassen	Alle Triebwerke klar

**when pushback is completed:**

**Wenn Pushback beendet ist:**

	set parking brake		Bremsen setzen
parking brake set	tow-truck removed, bypass-pin will be removed	Bremsen gesetzt	Schleppgerät entfernt, bypass-pin wird gezo- gen
prepare airplane for taxi and give hand signal from ..... side.	wait for hand signal from .....	Abrollen vorbereiten und Freizeichen von ..... geben.	Freizeichen abwarten von .....

A SMPB or walkout may be ordered with the EFM towing coordinator (Telephone: 089/977-6577). Isolated cases are accounted for on a work order basis. SMPB and walkout may, however, be arranged on a contract basis with FMG-GHM and be accounted for monthly.

**7.2 Air start**

The following standard phraseology must be observed during an air start.

**English version**

**German version**

<b>COCKPIT</b>	<b>GROUND</b>	<b>COCKPIT</b>	<b>BODEN</b>
ground from cockpit		Boden vom Cockpit	
	here ground steering-pin inserted set parking break		Hier Boden Steuer-Pin gesetzt Bremsen setzen
parking break set connect external electric		Bremsen gesetzt Externe Stromversorgung anschließen	
	external electric is connected		Externe Stromversorgung angeschlossen
ready for engine start ready for ground air		Fertig zum Triebwerk anlassen Fertig für Startluft	
	all engines clear ground air available		Alle Triebwerke klar Startluft bereit
remove external electric remove ground air		Strom entfernen Startluft entfernen	
	external electric re- moved ground air removed		Strom entfernt Startluft entfernt

After removing of the ground equipment the pushback will be continued accordingly.

**8 Contact**

If you have any questions or requests please do not hesitate to contact us at any time:

Towing coordinator	089/977-6577
Supervisor	089/977-6567
Manager operations	089/977-6569

FMG

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