WEIGHT AND BALANCE-LOADING

3 LOAD CONTROL

3.1 GENERAL
The purpose of the load control is to ensure that:

- the weight and balance of the aircraft is within limits and correctly calculated,

- the number of persons of all categories on board is within given limits,

- the load carried is distributed supported and secured in accordance with the regulations,

- the "special cargo" e.g. radioactive material, restricted articles etc and live animals are handled in accordance with the Swedish Operating Regulations BCL-D 1.8 with respect to allocation, quantity limitations and loading.

- the information on the Loadsheet correspons with teh actuel loading of the aircraft,

- correct Load Message is dispatched - without delay - to the next station

The Pilot-in-Command shall approve the loadsheet

The following documents are required for each flight in connection with Load Control:

- Loadsheet (see FOM 3.4)

- Balance Chart/Table (see FM VI and FOM 3.7)

- Loading Instruction/Report (see FOM 3.6)

- Fueling Order (see FM VI and FOM 3.8)

FOR FLIGHT SAFETY REASONS EVERYTHING MUST BE DONE TO ENSURE CORRECT LOAD CONTROL

3.2 OPERATING LOAD INFORMATION

3.2.1 CREW AND CREW BAGGAGE
For weight calculations on the Loadsheet the following standard weights apply:

- 85 kgs for each male crew member with unchecked baggage

- 75 kg för each female member with unchecked baggage.

(In critical weight situations, the actual weight of the crew and their baggage may be used instead of standard weights.)

- Actual weight of checked Crew Baggage.

3.2.2 FUEL
Between the station staff and the crew, all reference to tankage shall be made in KILOS

For conversion from weight to volume or vise versa the following figures apply in Std temprature (+15°C)

JET FUEL:
KEROSENE TYPE

One litre	- 0.79 kg
One US gallon	- 2.990 kg
One Imp. gallon	- 3.591 kg
1000 kg	- 1266 litres
1000 kg	- 334 US gallons
1000 kg	- 278 Imp. gallons

3.3 TRAFFIC LOAD INFORMATION

3.3.1. PASSENGERS AND BAGGAGE

For mass calculation of passengers and checked baggage on Loadsheet either the actual weighed mass of each person and the actual weighed mass of baggage or the standard mass values specified in the tables below must be used.

The standard mass values are valid where the total number of passenger seats available on an airplane is 20 or more. As an alternate to the standard masses of male and female in Table 1 the "All Adult" mass values may be used where the total number of passenger seats available is 30 or more.

The standard masses include personal belongings, hand baggage and the mass of any infant below 2 years of age carried by an adult on one passenger seat. Infants occupying separate passenger seats must be considered as children. 2-12 years of age.

Holiday charter means a charter flight solely intended as an element of a holiday travel package.

Table 1

Passenger seats:	20 or more Male	20 or more Female	30 or more All adult
All flights except holiday charters	88 kg	70 kg	84 kg
Holiday charters	83 kg	69 kg	76 kg
Children	35 kg	35 kg	35 kg

The standard mass values in Table 2 are applicable for each piece of checked baggage.

Table 2

Type of flight	Baggage standard mass
Domestic	11 kg
Within the European region	13 kg
Intercontinental	15 kg
All other	13 kg

See Swedish BCL-D 1.6 and JAR-OPS 1 Subpart J for more information about standard masses etc.

3.4 LOADSHEET

3.4.1 GENERAL

Loadsheet and loadmessage shall be used according to the following procedures:

The loadsheet shall be prepared by authorized station personnel and checked, approved, and signed by the pilot-in-command.

3.4.2 Specimen - Loadsheet

LOADSHEET AND LOADMESSAGE

BOARD OF CIVIL AVIATION SWEDEN

Address

All Weights in: [X] Kilos [ ] Lbs

From: KRS | Originator | LDM | Flight: LC 111 | A/C reg: SE-LFV | Version: 44 P | Crew: 22 | Date: 830107

	Zero Fuel	Take Off	Landing
Maximum Weights for	16600		18550
Take Off Fuel +	1020	Trip Fuel +	575
Max. allowed T.O.W. lowest of a, b or c	a 17620	b 19500	c 19125
Operating Weight −	13120		
Allowed Traffic Load	4500		

Basic Weight	
Crew	
Pantry	
Dry Operating Weight	12100
Take Off Fuel +	1020
Operating Weight	13120

Dest.	No of passengers Adult M	Adult F	Ch	I	Cabin Bag		Total	Distribution – Weight 1	2	3	4	5	6	0	Remarks F	Y
KLR	11	2	1	1	50	Tr		150								
						B		170								
	9	3	1		40	C										
						M		40								
					CB	T		1	2	3	4	5	6	0	FY	TW
JHG	2	1			10	Tr					50					
						B					90					
	5	1	2	2	25	C					120					
						M					50					
					CB	T		1	2	3	4	5	6	0	FY	TW
GOT						Tr		40								
						B		50								
	3	1			10	C		70								
						M		20								
					CB	T		1	2	3	4	5	6	0	FY	TW
						Tr										
						B										
						C										
						M										
					CB	T		1	2	3	4	5	6	0	FY	TW
						Tr										
						B										
						C										
						M										
					CB	T		1	2	3	4	5	6	0	FY	TW
Totals	30	8	4	3			850	540			310					
Passenger Weight							135									
							3090									

Total Traffic Load	4075	Allowed Traffic Load	4500
			4075
Dry Operating Weight +	12100	Underloaded before LMC	425
Zero Fuel Weight Max. 16600	16175		
Take Off Fuel +	1020		
Take Off Weight Max. 19500	17195		
Trip Fuel −	575		
Landing Weight Max 18550	16620		

Notes 1

Last Minute Changes – LMC

Dest.	Specification	Cl Cnt	+ −	Weight
KLR	Pax, male	Y	+	80
KLR	Bag	4	+	15
LMC total			+	95

Balance and Seating Conditions

Sec	Restriction	Index
	Free	DOI 91
		DLI 85
		LIZFW

Prepared by: Ulf Balldén

Approved by: Bengt Ängfors

Notes 2: PAX 46

F 1909-1

WEIGHT AND BALANCE - LOADING

3.4.3 SPECIMEN - LOADSHEET AND LOADMESSAGE

BOARD OF CIVIL AVIATION SWEDEN

LOADSHEET AND LOADMESSAGE

Address: KLRXH

All Weights in: [X] Kilos [ ] Lbs

From	Originator	LDM	Flight	A/C reg	Version	Crew	Date
KRS	KRSXH		LC 111	SE-LFV	44 P	22	830107

		Maximum Weights for	Zero Fuel	Take Off	Landing
Basic Weight			16600		18550
Crew		Take Off Fuel +	1020	Trip Fuel +	575
Pantry		Max. allowed T.O.W. lowest of a, b or c	a 17620	b 19500	c 19125
Dry Operating Weight	12100	Operating Weight −	13120		
Take Off Fuel +	1020	Allowed Traffic Load	4500		
Operating Weight	13120				

Dest.	No of passengers Adult M	Adult F	Ch	I	Cabin Bag		Total	Distribution — Weight 1	2	3	4	5	6	0	Remarks F	Y
KLR	11	2	1	1	50	Tr		150								
	9	3	1		40	B		170								
						C										
						M		40								
	21	05	02	01	CB90	T		1375	2	3	4	5	6	0	FY	TW
JNG	2	1			10	Tr					50					
	5	1	2	2	25	B					90					
						C					120				AVI 4	
						M					50					
	07	02	02	02	CB35	T		1	2	3	430	5	6	0	FY	TW
GOT						Tr		40								
	3	1			10	B		50								
						C		70								
						M		20								
	03	01	00	00	CB10	T		1180	2	3	4	5	6	0	FY	TW
						Tr										
						B										
						C										
						M										
					CB	T		1	2	3	4	5	6	0	FY	TW
						Tr										
						B										
						C										
						M										
					CB	T		1	2	3	4	5	6	0	FY	TW
Totals	30	8	4	3			8500	540			310					
	Passenger Weight						1350	Allowed Traffic Load			4500				Notes 1	
							3090									
Total Traffic Load							4075	→			4075					
Dry Operating Weight +							12100	Underloaded before LMC			425					
Zero Fuel Weight Max. 16600							16175	Last Minute Changes — LMC							Balance and Seating Conditions	
Take Off Fuel +							1020	Dest.	Specification	Cl Opt	±	Weight	Sec	Restriction	Index	
Take Off Weight Max. 19500							17195	KLR	Pax, male	Y	+	80		Free	DOI 91	
Trip Fuel −							575	KLR	Bag	4	+	15			DLI 85	
Landing Weight Max 18550							16620	LMC total			+	95			LIZFW	

Notes 2: PAX 46

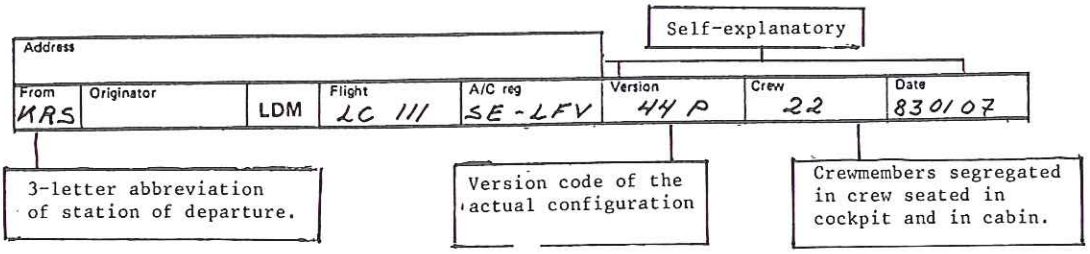
Prepared by: Ulf Wallden

Approved by: Bengt Ängfors

F 1909-1

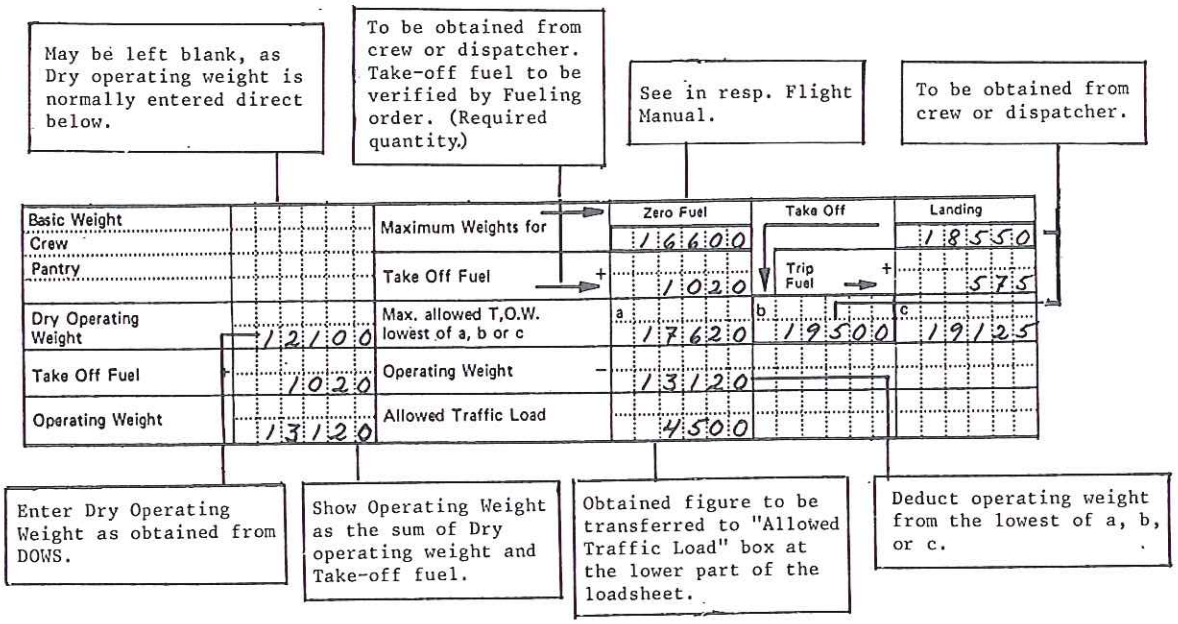
3.4.4 COMPLETION, GENERAL

a) Heading



b) Precalculation

This part should be used in order to facilitate the preplanning and to have an allowed Traffic Load calculated.



WEIGHT AND BALANCE - LOADING

c) Load distribution
On top line of each destination insert figures for through load as obtained from the incoming loadmessage or from the incoming loadsheet.

Show number of passengers split up into males under M, females under F, children under Ch and infants under I.

Show weight of cabin baggage.

Enter through load obtained from incoming loadmessage.

Dest.	No of passengers Adult M	Adult F	Ch	I	Cabin Bag	Total		Distribution – Weight 1	2	3	4	5	6	0	Remarks F	Y
M	11	2	1	1	50		Tr	150								
							B	170								
L	9	3	1		40		C									
R							M	40								
					CB		T	1	2	3	4	5	6	0	FY	TW

3-letter abbreviation of the stations ahead in route sequence.

Leave blank.

Show load per load category in compartment where loaded. Under B: Checked passenger baggage, expedite baggage and checked crew baggage. Under C: Cargo and diplomatic bags, extra equipment and ballast. Under M: GPO mail and co-mail.

d) Totals

Total number of passengers per category.

Total weight of compartment load.

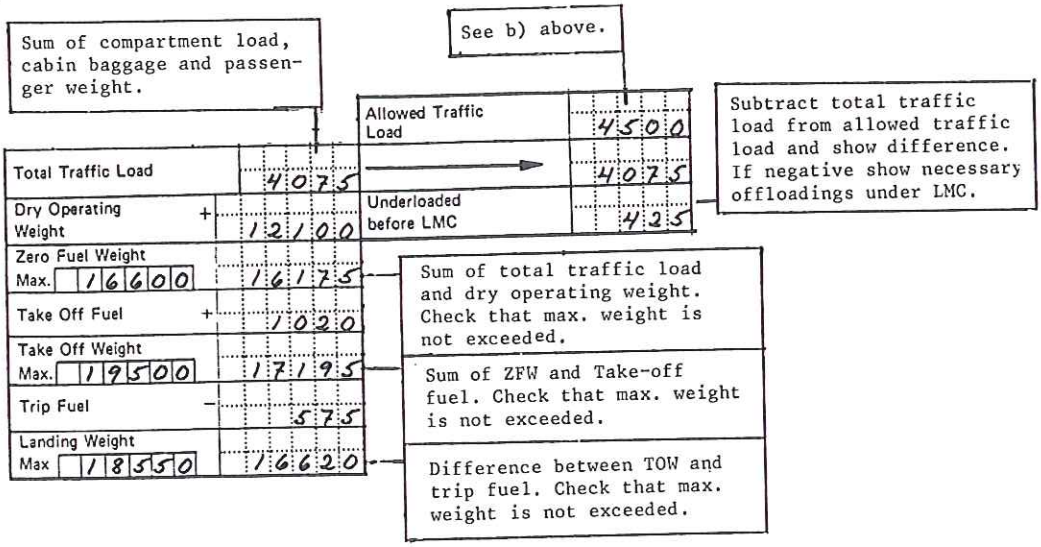
Total weight of load per compartment.

						Tr											
						B											
						C											
						M											
					CB	T		1	2	3	4	5	6	0	FY	TW	
Totals	30	8	4	3			850	540			310						
Passenger Weight							135										
							3090										

Total passenger weight.

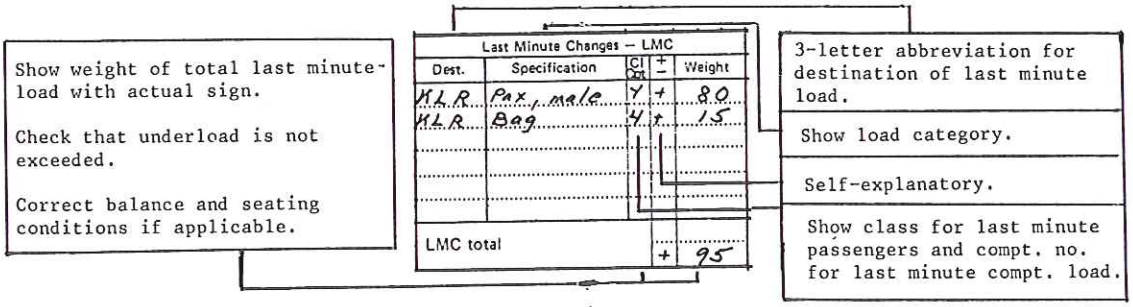
Total weight of cabin baggage.

e) Gross weights, traffic load and dry operating weight

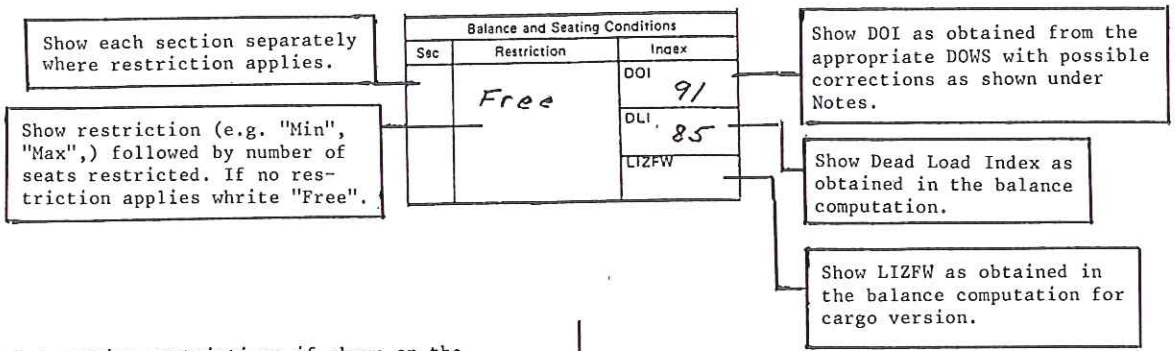


f) Last minute changes

Only to be used for changes in traffic load. Changes to Dry Operating Weight and fuel shall not be entered as LMC, but shall be corrected under appropriate headings. New weights resulting from the changes shall be calculated.



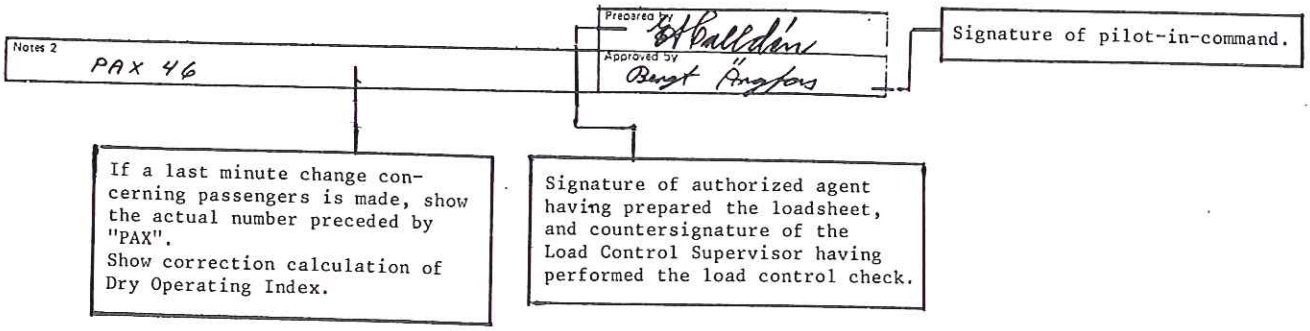
g) Balance and seating conditions



Observe that seating restrictions if shown on the loadsheet are applicable during the whole flight. All efforts shall be made to inform the Cabin Attendants about the seating conditions prior to the embarkation of the passengers.

WEIGHT AND BALANCE - LOADING

h) Notes and signatures



By signing the loadsheet, the Loadsheet Agent certifies that:

- all load figures are correctly entered according to the load documents prepared for the flight,
- all calculations are correct,
- all figures are correctly applied according to company regulations,
- the weight distribution corresponds to the Loading instruction signed by the person responsible for the loading,
- the permissible max. weights for take-off, landing, zero fuel and compartment capacities are not exceeded,
- the centre of gravity is within given limits,
- the max. permissible number of persons on board is not exceeded,
- the allowed seating capacity for passengers and crew is not exceeded.

By countersigning the loadsheet, the Load Control Supervisor certifies that:

- all precautions have been taken to ensure a correct Load Control
- all regulations in the Local Load Control Procedure have been followed.

3.4.5 COMPLETION SPECIAL CASES

a) Corrections to Basic weight/index
Corrections to the Basic weight shall be specified in the Basic weight box, and corrections to the basic index in the Notes box.

Example 1 (200 kgs equipment removed from the forward pantry)

Basic Weight	12100
Crew	
Pantry – 200	200
Dry Operating Weight	11900
Take Off Fuel +	
Operating Weight	

Index	
DOI	83
DLI	
LIZFW	

Notes 2
Corr. 200 kgs pantry removed DOI 91 – 8 83

Example 2 (actual crew weights used)

Basic Weight	11850
Crew (Actual)	250
Pantry	
Dry Operating Weight	12100

Show Basic weight for 0 crew.

b) Calculation of additional fuel
To calculate additional fuel the following rule may be used:

If b or c is the limiting factor only the actual underload may be used for additional fuel. If a limiting, actual underload plus the difference between a and lowest of b and c may be used for additional fuel.

If any LMC has been made the actual underload must be reduced accordingly before calculation of additional fuel.

Maximum Weights for →	Zero Fuel	Take Off	Landing
	16600		18550
Take Off Fuel + →	1020	Trip Fuel +	575
Max. allowed T.O.W. lowest of a, b or c	a 17620	b 19500	c 19125
Operating Weight –	13120		
Allowed Traffic Load	4500		

Allowed Traffic Load	4500
→	4075
Underloaded before LMC	425

3.4.6 DISTRIBUTION
The loadsheet copies shall be distributed as follows:

Original - Load Control Folder
1:st copy - for transmitting purpose, if necessary
2:nd copy - station file.