**WARNING – MAKE A BACKUP OF ALL FILES PRIOR EDITING SO YOU CAN UNDO CHANGES IF NEEDED**

MJQ400 Weight Management with FSCaptain and PFPX

Setup

The MJQ400 weight issue with FSCaptain results when multiple programs are used and each of those are using different values for passenger and cargo weights. Sometimes the empty weight of the aircraft has different values compounding the issue. This tutorial is specifically for operating Majestic's Q400 with PFPX for flight planning along with FSCaptain. I would urge anyone to rename any file being modified by adding the extension ".original". Example is "aircraft.cfg" would be renamed to "aircraft.cfg.original".

MJC8-Q400 Changes
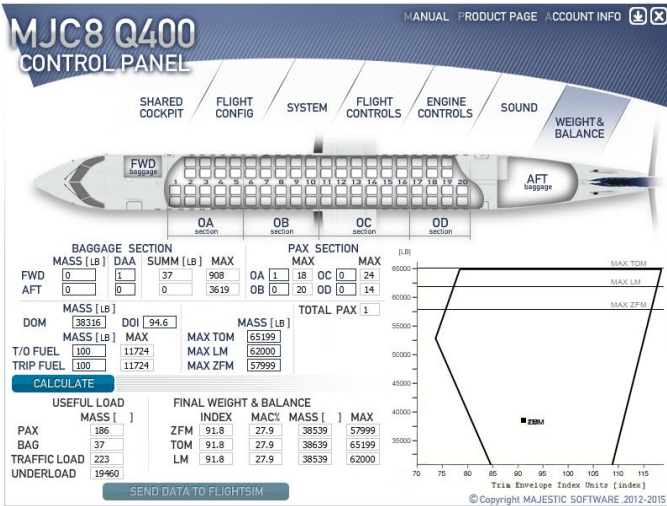
Unfortunately the MJC8-Q400 Control panel has hardcoded weights and does not factor in the Pilot Flying, First Officer (PF_FO) or Flight Attendants (FA). PAX weight is set at 186 per. DAA weight is set at 37 per. These weights are not exact so the more PAX and DAA you add the larger the discrepancy. You cannot modify these values so weights have to be configured in PFPX and FSCaptain. Baggage we can compensate for during planning.

Only the DOM weight has to be modified. This value is arrived from the empty weight that is listed in the aircraft.cfg file which was 37572lbs, and then adding 744lbs, to account for the combined weight of the flight crew. New value is now 38316lbs. I decided to make the PF/FO and 2 the Flight Attendants match the adult weight at 186lbs (x4). This crew weight will come up over and over.
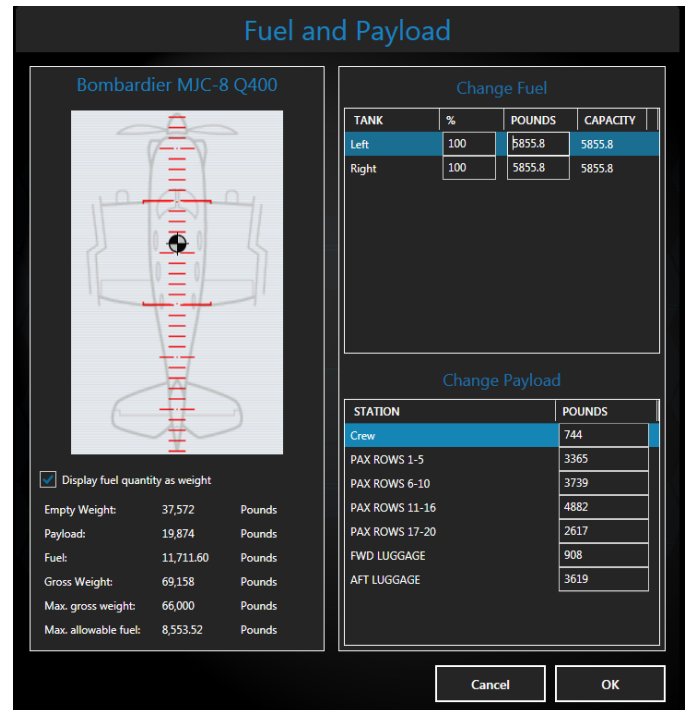
Aircraft.cfg Changes

These should match your load map in FSCaptain. If PAX and Baggage weights are less then what FSCaptain has in the load map, then FSCaptain may not show a load plan on the manifest within the administrator.

```
[WEIGHT_AND_BALANCE]
max_gross_weight = 66000.0
empty_weight = 37572.48                    // This is in fact DOM
max_number_of_stations = 20

//Weight (lbs), longitudinal, lateral, vertical
station_load.0 =  744.0,  -29.0, 0.0,   0.0
station_load.1 =  3365.0, -29.0, 0.0,   0.0
station_load.2 =  3739.0, -29.0, 0.0,   0.0
station_load.3 =  4882.0, -29.0, 0.0,   0.0
station_load.4 =  2617.0, -29.0, 0.0,   0.0
station_load.5 =  908.0,  -29.0, 0.0,   0.0
station_load.6 =  3619.0, -29.0, 0.0,   0.0

station_name.0 = "Crew"
station_name.1 = "PAX ROWS 1-5"
station_name.2 = "PAX ROWS 6-10"
station_name.3 = "PAX ROWS 11-16"
station_name.4 = "PAX ROWS 17-20"
station_name.5 = "FWD LUGGAGE"
station_name.6 = "AFT LUGGAGE"
```
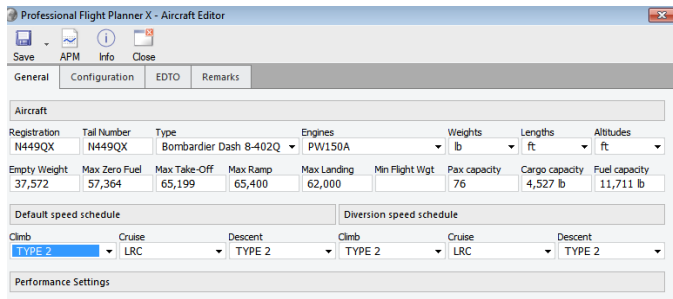

If everything is set up properly in the aircraft.cfg file your fuel and payload in the sim should show your station names and weights.

PFPX Changes

Set up your aircraft as you normally would and for the Empty Weight, enter the weight that was listed in the aircraft.cfg file. No need to add the crew weight as we will want to keep some flexibility for our aircraft.

In the Configuration tab click add and Crew weight here. Click add then create the additional weight profile.
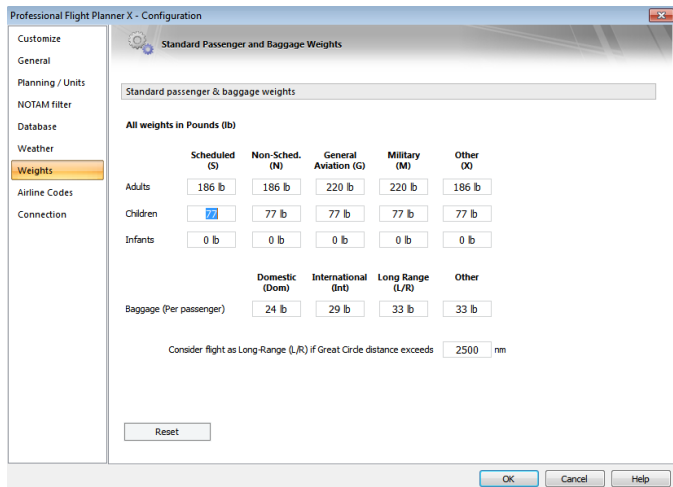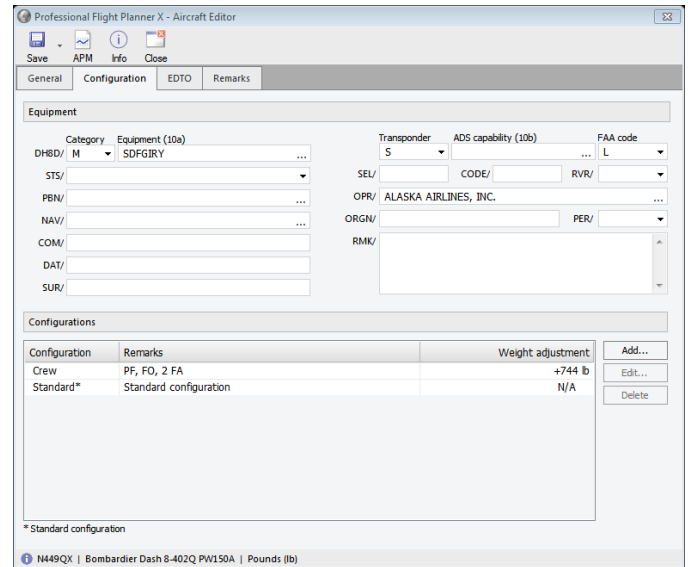
PAX Weights need to be 186 lbs. We need to only to modify adults for the types of flights we are flying (S, N, G, M, or X)

The baggage weights will be provided by FSCaptain later during actual planning so we don't need to adjust them.

FSCaptain Changes

PAX weight. In the \FSCaptain\Config directory you will need to edit the file "Items.cfg". The very first entry is the passenger weight. Change the first number to 186 to look like below.

186,0,0-4,2,PAX,,Passenger,1000,0

Aircraft Characteristics

Nothing needs to be modified here but keep in mind your values for the Weights section should be the same if not very close.

Load Maps

NOTE – LIMIT IS LARGER FOR UNIT*SIZE error is for the PAX to account for the MJC8-Q400 Control Panel discrepancy and to match the aircraft.cfg weights for PAX and baggage stations. You can ignore this error when saving and hitting compute.

As for the baggage, I chose to make pallets.

Planning

Once all these values are in FSCaptain, PFPX and the MJQ400, we can now start planning. First run your external weather program. Once loaded and the weather is updated, run FSCaptain and then run PFPX. Once you selected your flight, in this case Flight 2433, the View Release is where all the information you need is located for the weights. You need PAX count, baggage and cargo weights.

FSCaptain Flight Dispatch

FSCaptain 1.8.1 Administrator - PREPAR3D V4

Tabs: Achievements | Areas of Concern | Flight Dispatch | Flight Log | Options for All Airlines | Airline Definitions | Aircraft Characteristics | Load Maps | Registration

Required
Date: 15 June 2019
Aircraft Type: DHC8D mjc8q400

Optional
PAX / Cargo / Ferry
Departure: KBIL
Time Constraint: 60
Codeshare: AS

Load Factor: 70%
List Flights | Get Assignment | Specify Flight Details

Flights

Flight	Departs	To	Distance	HDG	Block	Payload	Fuel	Flags	Leg 2	Leg 3
2433	07:25L	KSEA Seattle-Tacoma Intl	575NM	284	2:10	19000LB	6239LB	76 PAX		
7170	Charter	KEVW Evanston-Uinta Co ...	292NM	202	1:22	14800LB	4564LB	54 PAX		
7183	Charter	KBFF Western Nebraska R...	318NM	136	1:27	16400LB	4684LB	63 PAX		
7462	Charter	KCAG Craig-Moffat	321NM	171	1:27	17400LB	4684LB	68 PAX		
7472	Charter	KLEM Lemmon Mun	268NM	086	1:18	18100LB	4364LB	72 PAX		
7485	Charter	KBPP Bowman Mun	214NM	082	1:09	15400LB	3920LB	57 PAX		

Select (Click on flight number above)

Flight 2433 KBIL Billings Logan Intl to KSEA Seattle-Tacoma Intl

<< 1 >> KBIL->KSEA Direct 284 true 575NM
Altitude 25000FT Gndspeed 350KT
Select Plan --> | Get Weather --> | Enroute Winds

VA Flt #: Assign
Alternate: KPDX Portland Intl
Destination Parking: GATE D 11 (19m)
Block Time and Fuel: 2:18 7025LB
Hold SHIFT key when recalculating to override
<-- Recalculate

View Release | Commit | Reject

OK | Cancel | Apply

Dispatch Release

```
ALASKA AIR LINES          DISPATCH RELEASE        FSCAPTAIN 1.8.1

FLIGHT 2433 KBIL (BIL) -- KSEA (SEA) -- ALT KPDX (PDX)   15-JUN-19 07:25L  ARRIVE 09:00L

AIRCRAFT (TBA)          OUT: _____          OFF: _____
TYPE    DHC8D           ON:  _____          IN:  _____

CREW INFORMATION:
DISP: D B COOPER       /_____ (SIGNED)
PIC : RICHARD HARDMAN  /_____ (SIGNED)


FUEL CALCULATION            WEIGHT/FUEL BREAKDOWN
MIN      0LB                        ZFW  56572LB
TAXI    260LB    25MIN        T/O FOB   6757LB (MAX: 11724LB)
KSEA   3862LB   113MIN     PLANNED TOW  63329LB (MAX: 65199LB)
KPDX    665LB    19MIN     ENROUTE BURN  3862LB (Burn 1329LB for MLW)
RSV    1050LB    30MIN      PLANNED LDW  59467LB (MAX: 62000LB)
HOLD   1050LB    30MIN  DESTINATION FOB  2765LB
EXTRA     0LB            ALTERNATE FOB   2100LB
*************************
TOTAL  6887LB   217MIN

NOTAMs:
KSEA DO NOT MISTAKE TWY "T" FOR LNDG SFC.


WEATHER INFORMATION:
* METARs
KBIL 151353Z 21005KT 10SM FEW100 FEW240 17/09 A3003 RMK AO2 SLP147
     T01670094
KSEA 151353Z 19004KT 10SM OVC005 12/10 A3009 RMK AO2 SLP195 T01220100
KPDX 151353Z VRB05KT 10SM OVC020 14/09 A3008 RMK AO2 SLP184 T01390089

* Weather Aloft
     FT  3000  06000  09000  12000  18000  24000  30000  34000  39000
     ID  ----  -----  -----  -----  -----  -----  -----  -----  -----
KBIL: KBIL 2404 2504+12 2604+09 3325-01 3339-11 3251-22 3160-38 3165-48 3168-60
KSEA: KSEA 0803 1106+18 1506+14 2305+04 2109-11 2014-24 2024-40 2026-50 2124-60
KPDX: KPDX 1005 1214+18 1607+16 2508+04 1607-11 1811-24 1818-40 1821-50 1921-59
```

Approve | OK | Print

Load Manifest / Load Plan

```
KBIL KSEA KPDX


LOAD MANIFEST:
1)   4 Units   Fixed Weight              744LB
2)  76 PAX     Passengers              14136LB
3)   1 Lot     Baggage                  2642LB
4)   1 Crate   Commercial Cargo          860LB
5)   1 Box     Automobile Tires          618LB
                                       ********
                       TOTAL PAYLOAD  19000LB

* DHC8D Load Plan
STN TYPE  UNITS    WEIGHT   DESCRIPTION
--------------------------------------------------
001 C    4/Seat    744LB   Crew
002 Y   18/Seat   3348LB   PAX Rows 1-5
003 Y   20/Seat   3720LB   PAX Rows 6-10
004 Y   24/Seat   4464LB   PAX Rows 11-16
005 Y   14/Seat   2604LB   PAX Rows 17-20
006 G    9/Pallet  883LB   Fwd Luggage
007 G   33/Pallet 3237LB   Aft Luggage

* Load Summary
C FIXED     4  744LB
Y PAX/Y    76 14136LB
G CARGO    42  4120LB


REMARKS:
- CREW BOARDING SHOULD OCCUR FROM 06:35L TO 06:50L.
- PAX BOARDING MAY NOT BEGIN BEFORE 06:55L.
- PAX FLIGHT WITH MEAL SERVICE.
- AVERAGE SNACK SERVICE EST AT 15.0 MINUTES.
- NOTE TRANSITIONS: KBIL=18000 (TA), KSEA=FL180 (TL), KPDX=FL180 (TL).
- ARRIVAL WINDOW 21 MINS EARLY TO 7 MINS LATE.
- MINIMUM SAFE DISTANCE DEPARTING KBIL=2400FT.
- MINIMUM SAFE DISTANCE ARRIVING KSEA=1400FT.
- MINIMUM SAFE DISTANCE ARRIVING KPDX=1400FT.
- PERFORMANCE DATA REQUIRES TOC WITHIN 21 MINS AFTER TAKEOFF.
```

Approve | OK | Print

The Load Manifest has your baggage and cargo weight for PFPX. Here the Baggage is 2642lbs. Total up the cargo items for your cargo weights. Here the two total up to 1478bs. As for the crew and passenger weight, it already matches now that we have the weights standardized. You just need the PAX Count which is 76.

The Load Plan is what you will need for entering into the MJC8-Q400 Control Panel. I would save this info somehow for later. If this does not show up, go back to the setup section of this tutorial. You might have missed some key weights.

Close the release by hitting OK – Do not hit Approve yet.

Once back in PFPX, on your planning page you enter for payload the PAX Count, baggage weight and the cargo weight found from FSCaptain into PFPX. Notice the configuration is "Crew" under aircraft which added our crew weight of 744lbs.

Once you're done planning, Compute flight and release.

Export the flight plan route.

The OFP of the computed flight. All we need from this page for FSCaptain is Release fuel and a Block time. In this plan we have 8186lbs of fuel and a planned block time of 2:52. Also we had to change our Alternate due to weight and fuel. It is now KPAE.

Once back in FSCaptain click on "Select Plan", select it, the click recalculate. Take the release fuel and block time value from PFPX and override the values calculated by holding the shift key and click recalculate.

View the release now.

```
ALASKA AIR LINES        DISPATCH RELEASE       FSCAPTAIN 1.8.1

FLIGHT 2433 KBIL (BIL) -- KSEA (SEA) -- ALT KPAE (PAE)   15-JUN-19 07:25L  ARRIVE 09:00L

AIRCRAFT (TBA)          OUT: _____        OFF: _____
TYPE    DHC8D           ON: _____         IN: _____

CREW INFORMATION:
DISP: D B COOPER        / _____  (SIGNED)
PIC : RICHARD HARDMAN   / _____  (SIGNED)


FUEL CALCULATION             WEIGHT/FUEL BREAKDOWN
MIN       0LB                      ZFW  56572LB
TAXI      220LB    27MIN           T/O FOB  8002LB (MAX: 11724LB)
KSEA      3929LB   145MIN      PLANNED TOW  64574LB (MAX: 65199LB)
KPAE      665LB    4MIN      ENROUTE BURN   3929LB (Burn 2574LB for MLW)
RSV       1050LB   30MIN      PLANNED LDW   60645LB (MAX: 62000LB)
HOLD      1050LB   30MIN   DESTINATION FOB  3963LB
EXTRA     1198LB            ALTERNATE FOB   3298LB
************************
TOTAL     8112LB   236MIN

NOTAMs:
KSEA DO NOT MISTAKE TWY "T" FOR LNDG SFC.


WEATHER INFORMATION:
* METARs
KBIL 151453Z 19006KT 10SM FEW100 FEW240 18/09 A3003 RMK AO2 SLP147
     T01830094 51004
KSEA 151453Z 00000KT 10SM OVC005 12/10 A3010 RMK AO2 SLP197 T01220100
     53002
KPAE 151453Z 00000KT 2SM BR OVC002 12/10 A3010 RMK AO2 SLP193
     T01170100 53004

* Weather Aloft
       FT  3000  06000  09000  12000  18000  24000  30000  34000  39000
   ID  ---- ---- ------- ------- ------- ------- ------- ------- -------
 KBIL: KBIL 2404 2504+12 2604+09 3325-01 3339-11 3251-22 3160-38 3165-48 3168-60

          Approve            OK              Print
```

All this is starting to pay off. The ZFW matches the ZFW of the PFPX data but the fuel is way off. Hit Ok to exit the release. Do not approve yet!!!

Hold the shift key and click recalculate again and view the release again.

```
ALASKA AIR LINES        DISPATCH RELEASE       FSCAPTAIN 1.8.1

FLIGHT 2433 KBIL (BIL) -- KSEA (SEA) -- ALT KPAE (PAE)   15-JUN-19 07:25L  ARRIVE 09:00L

AIRCRAFT (TBA)          OUT: _____        OFF: _____
TYPE    DHC8D           ON: _____         IN: _____

CREW INFORMATION:
DISP: D B COOPER        / _____  (SIGNED)
PIC : RICHARD HARDMAN   / _____  (SIGNED)


FUEL CALCULATION             WEIGHT/FUEL BREAKDOWN
MIN       0LB                      ZFW  56572LB
TAXI      220LB    27MIN           T/O FOB  8076LB (MAX: 11724LB)
KSEA      3929LB   145MIN      PLANNED TOW  64648LB (MAX: 65199LB)
KPAE      665LB    4MIN      ENROUTE BURN   3929LB (Burn 2648LB for MLW)
RSV       1050LB   30MIN      PLANNED LDW   60719LB (MAX: 62000LB)
HOLD      1050LB   30MIN   DESTINATION FOB  4037LB
EXTRA     1272LB            ALTERNATE FOB   3372LB
************************
TOTAL     8186LB   236MIN

NOTAMs:
KSEA DO NOT MISTAKE TWY "T" FOR LNDG SFC.


WEATHER INFORMATION:
* METARs
KBIL 151453Z 19006KT 10SM FEW100 FEW240 18/09 A3003 RMK AO2 SLP147
     T01830094 51004
KSEA 151453Z 00000KT 10SM OVC005 12/10 A3010 RMK AO2 SLP197 T01220100
     53002
KPAE 151453Z 00000KT 2SM BR OVC002 12/10 A3010 RMK AO2 SLP193
     T01170100 53004

* Weather Aloft
       FT  3000  06000  09000  12000  18000  24000  30000  34000  39000
   ID  ---- ---- ------- ------- ------- ------- ------- ------- -------
 KBIL: KBIL 2404 2504+12 2604+09 3325-01 3339-11 3251-22 3160-38 3165-48 3168-60

          Approve            OK              Print
```

Now the fuel matches also with the planned takeoff weight of 64648lbs matching the PFPX value of 64648lbs. Now APPROVE the release!! COMMIT to the flight!!

Enter the values from the Load Plan for PAX and luggage into the MJC8-Q400 Control Panel. Did you save them?

```
* DHC8D Load Plan
STN TYPE  UNITS    WEIGHT   DESCRIPTION
--------------------------------------------------------
001 C   4/Seat   744LB    Crew
002 Y  18/Seat   3348LB   PAX Rows 1-5
003 Y  20/Seat   3720LB   PAX Rows 6-10
004 Y  24/Seat   4464LB   PAX Rows 11-16
005 Y  14/Seat   2604LB   PAX Rows 17-20
006 G   9/Pallet  883LB   Fwd Luggage
007 G  33/Pallet 3237LB   Aft Luggage
```

The takeoff and trip fuel values are from the PFPX release. Once done hit calculate. If you need to move some weight around to bring it into trim, easiest way is to take PAX from OD and move them into OA.

Final Planning numbers from each program.

	ZFW	TOW	LDW
FSCAPTAIN	56572	64648	60719
PFPX	56572	64648	58687
MJC8-Q400	56644	64380	58869

Noticed the difference between the MJC8-Q400 ZFW and the rest? It's an extra 72lbs in this case. If you add 1 PAX to the MJQ400 it shows 186lbs. Add 10 PAX and its not 1860lbs. At 70 PAX x 186lbs our weight should be 13020lbs but it shows 13086lbs. For some reason the control panel has PAX and baggage weight as 186 point something so more PAX the more additional difference. Unfortunately we cannot overcome this. The DAA Baggage is the same way at 37 point something. This however we can overcome by setting it to zero and just entering weight values for FWD and AFT. Overall between FSCaptain which we need for the FCDU in flight, and the MJC8-Q400 which will send the weight to the plane, 72 lbs is good enough. Besides, no commercial flight that I know of is going to be spot on.

Pre-Flight

Once inside P3DV4.5, setup your scenario and load. Once you in the sim, if you look at the Aircraft values all of them will be maxed out. No worries as we have not sent the data from the MJC8-Q400 Control Panel yet. Run the MJC8-Q400 Control Panel to send the weights to the sim. If you look now the weights have changed. Personally I never looks at these values at all.

(Before)

(After)

One thing you should notice is the crew weight that we had set as 744lbs is now 878lbs while all the other weights match. A difference of 134lbs. Remember the 72lbs that came from the MJC8-Q400 PAX disparity? There is part of it along with another 62lbs that came from nowhere.

Start the FCDU for FSCaptain and take a look at the manifest. Should be the same as when we planned the flight.

LOAD MANIFEST:
1) 4 Units   Fixed Weight   744LB
2) 76 PAX   Passengers   14136LB
3) 1 Lot   Baggage   2642LB
4) 1 Crate   Commercial Cargo   860LB
5) 1 Box   Automobile Tires   618LB
                              ****
                    TOTAL PAYLOAD 19000LB

Before you allow passengers to board, you should enter the fuel data into the FMS/FMC from your OFP from PFPX. Ender the ZFW first. Enter ALT, FAR RSV (as Extra), then FUEL ONBOARD. TOTAL RESRVS will then calculate.

"Proceed" to use the FCDU to load the aircraft. Makes no difference if you select manual load or normal load. I prefer normal load. If you do reach the reconciliation screen after loading and it asks you to reconcile the load, select aircraft.

I was not prompted to reconcile and once the aircraft doors are closed you can start the flight and on the progress screen, more weight data is provided.


```
59          Information          1/1
15JUN19                        13:31Z

ZFW   : 56706LB    NEXT WP:    BIL
PAYLOAD: 19134LB    HDG  :    261
FUEL WT: 8186LB     DIST :     3
XTRA WT: 0LB       RANGE : N/A
GRS WGT: 64892LB MAX G : 0.0000
HOLDING: No        MIN G : 1.0000
GROUND : No        MAX BNK:   0
GATE  : KSEA GATE D11  CG: 41.03%

<RETURN              SYSTEMS>
```

```
MENU  PLN  STAT  WX  DISP     ON
```

Final Numbers

	ZFW	TOW	LDW
FSCAPTAIN	56572	64648	60719
PFPX	56572	64648	58687
MJC8-Q400	56644	64380	58869
P3DV4	56706	64893	
FCDU	56706	64892	
FMS/FMC	56572	64758	

If you really wanted to get your weights exact in the sim, you could run the MJC8-Q400 once, figure out the difference, then subtract that from your AFT luggage weight, re-calculate and run it again. I'm OK with at most a few hundred pounds.