

## BAK Assessment Module 10c Working File. BRAVO LOADING



### Q1.

(4 marks) Refer Loading System “Bravo” in the VFR day Booklet.

Given:

Basic empty weight 1265 LB/Arm 80. Normal category.

#### WORKING

Station	Weight (LB)	Arm	Moment x 1000
Aircraft Empty Weight	1265	80	101.20
Oil	15	32	0.48
Pilot and front passenger (Row 1)	335	91	30.49
Rear row passengers (Row 2)	305	126	38.43
Baggage area	30	151	4.53
<b>ZFW</b>	<b>1950</b>		<b>175.13</b>
Fuel 37 US Gallons	222	91	20.20
<b>Total</b>	<b>2172</b>		<b>195.33</b>

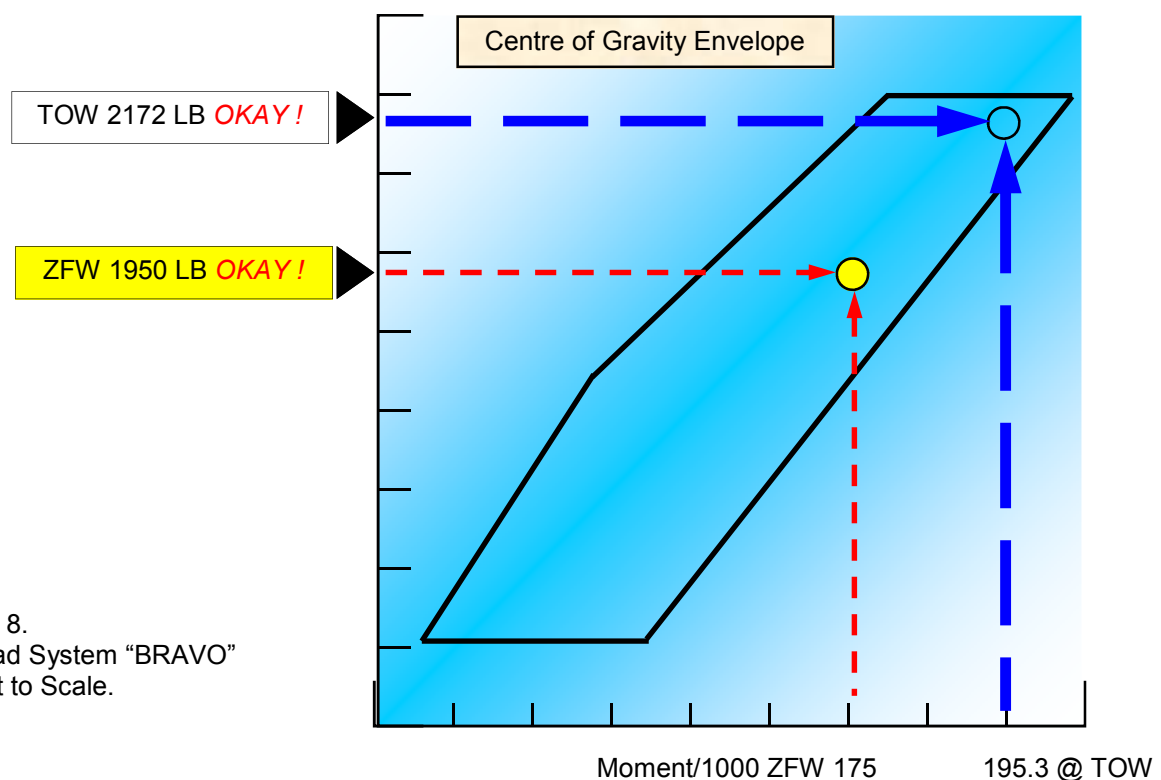


Fig 8.  
Load System “BRAVO”  
Not to Scale.

**Q2.**

(4 marks) Refer Loading System “Bravo” in the VFR day Booklet.

Given:

Basic empty weight 1270 LB/Arm 80. Normal category.

**WORKING**

Station	Weight (LB)	Arm	Moment x 1000
Aircraft Empty Weight	1270	80	101.60
Oil	13	32	0.42
Pilot and front passenger (Row 1)	300	91	27.30
Rear row passengers (Row 2)	150	126	18.90
Baggage area	20	151	3.02
<b>ZFW</b>	<b>1753</b>		<b>151.24</b>
Fuel 25 US Gallons	150	91	13.65
<b>Total</b>	<b>1903</b>		<b>164.89</b>

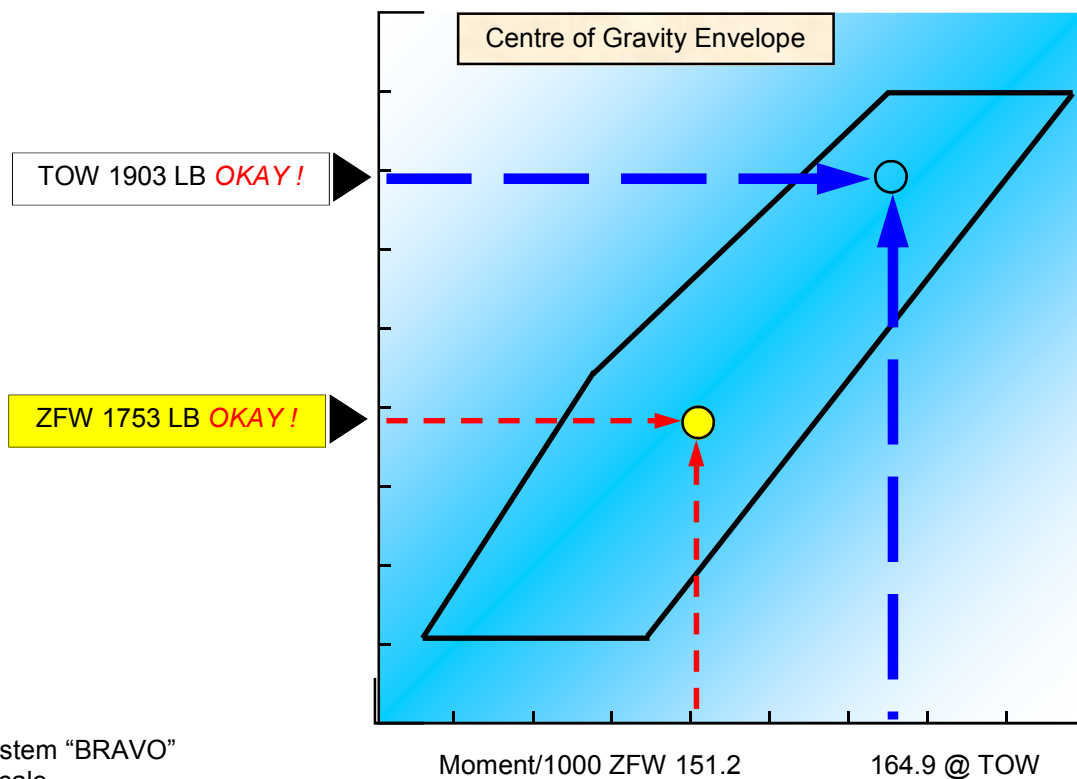


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**Q3.**

(2 marks) Refer Loading System "Bravo" in the VFR day Booklet.

Given: ZFW 1880 lb/CG moment/1000 is 166.

Adding full optional fuel would make the TOW CG moment closest to ?

**WORKING**

Station	Weight (LB)	Arm	Moment x 1000
<b>ZFW</b>	<b>1880</b>		<b>166</b>
Full Optional Fuel (51 USG = 306 lb)	306		29
<b>Total</b>	<b>2186</b>		<b>195</b>

**Q4.**

(2 marks) Refer Loading System "Bravo" in the VFR day Booklet.

Given: ZFW 1900 lb/CG moment/1000 is 166.

Loading the maximum standard fuel allowable would see the CG moment closest to ?

**WORKING**

Station	Weight (LB)	Arm	Moment x 1000
<b>ZFW</b>	<b>1900</b>		<b>166</b>
Full Standard Fuel (37 USG = 222 lb)	222		20.2
<b>Total</b>	<b>2122</b>		<b>186.2</b>

**Q5.**

(3 marks) Refer Loading System "Bravo" in the VFR day Booklet.

Given: ZFW 893 kg.

Assuming CG position is not limiting, and that "Optional Fuel Tanks" are fitted, the maximum fuel which can legally be loaded is closest to ?

**WORKING**

Station	Weight (LB)
<b>MTOW</b>	<b>2200</b>
<b>ZFW</b>	1965
<b>Fuel</b>	<b>235</b>

Refer ERSA Conv tables  
 →→ 235 lb of fuel = 39.16 USG = 148 L **ANSWER ! (rounded down)!**

**Q6.**

Q6. (3 marks)

Refer Loading System "Bravo" in the VFR day Booklet.

Given:

Aircraft Empty weight is 640 kg.

Oil: Full

Pilot: 70 kg.

Row 1 Pax: 70 kg.

Row 2 Pax: 100 kg.

Fuel load: Full Std tanks.

Considering structural and maximum area loading limits only, the maximum weight that may be loaded into the baggage area is closest to ?

**WORKING**

Station	Weight (lb)
Aircraft Empty Weight (640 kg)	1410
Oil	15
Pilot and front passenger (Row 1)	308
Rear row passengers (Row 2)	220
Fuel 185 L	222
<b>Sub total (no bags)</b>	<b>2175</b>
<b>MTOW</b>	<b>2200</b>
<b>Maximum Bags</b>	<b>25</b>

**Q7.**

(3 marks)

Refer Loading System "Bravo" in the VFR day Booklet.

CG at takeoff is 2050 lb/186. The rear cargo area is empty.

The maximum bags that can be loaded in the rear compartment is closest to ?

**WORKING**

1. Plot CG position 2050/186. It is forward of rear envelope limit.
2. Add 100 lb to rear baggage area = 15.1 rearward moment (aft).
3. Plot trend line. It crosses rear envelope at about 2110 lb.
4. So min bags to add to rear baggage area is 60 lb (2110 - 2050). = **27 kg !! ANSWER !**

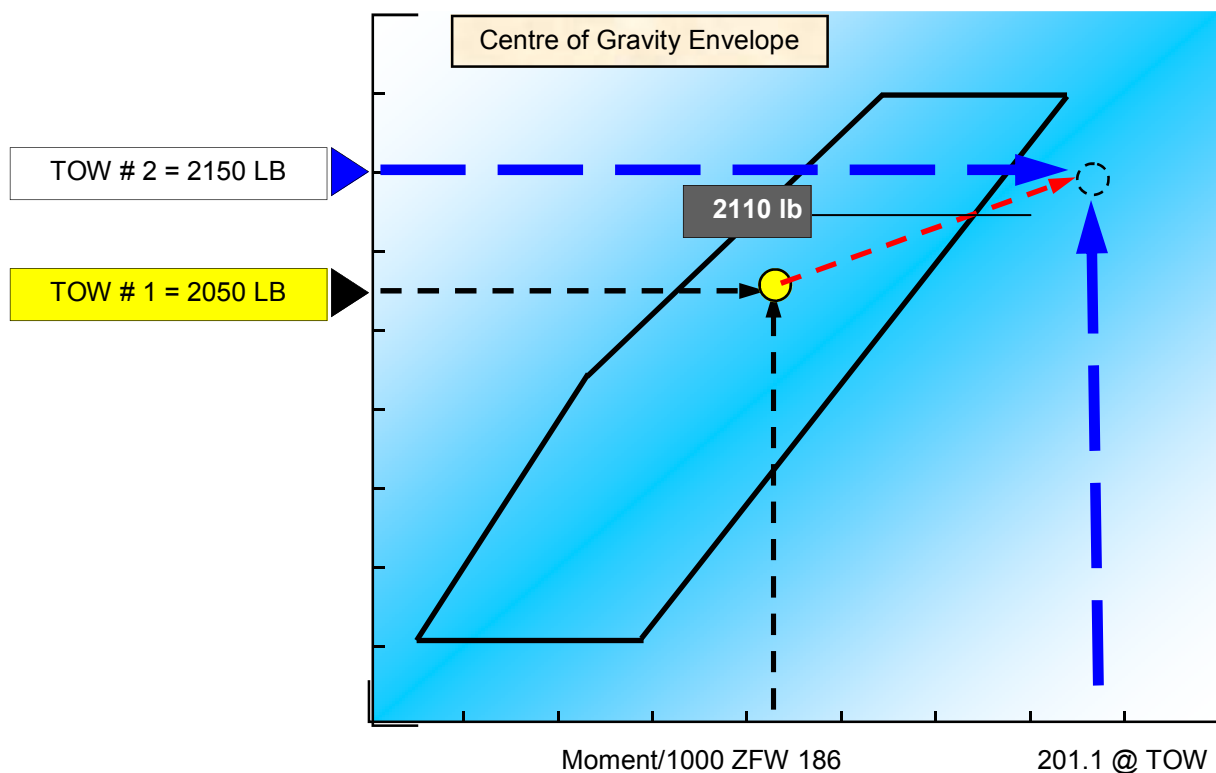


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**Q8.**

(3 marks)

Given: GW 2025 lb/Moment 166.

Rear cargo area empty.

The minimum bags or ballast that needs to be loaded to bring the TOW CG within the forward envelope limit is closest to ?

**WORKING**

1. Plot CG position 2025/166. It is forward of front envelope limit.
2. Add 100 lb to rear baggage area = 15.1 rearward moment (aft).
3. Plot trend line. It crosses forward envelope at about 2100 lb.
4. So minimum bags to add to rear baggage area is 75 lb (2100 - 2025). **ANSWER !**

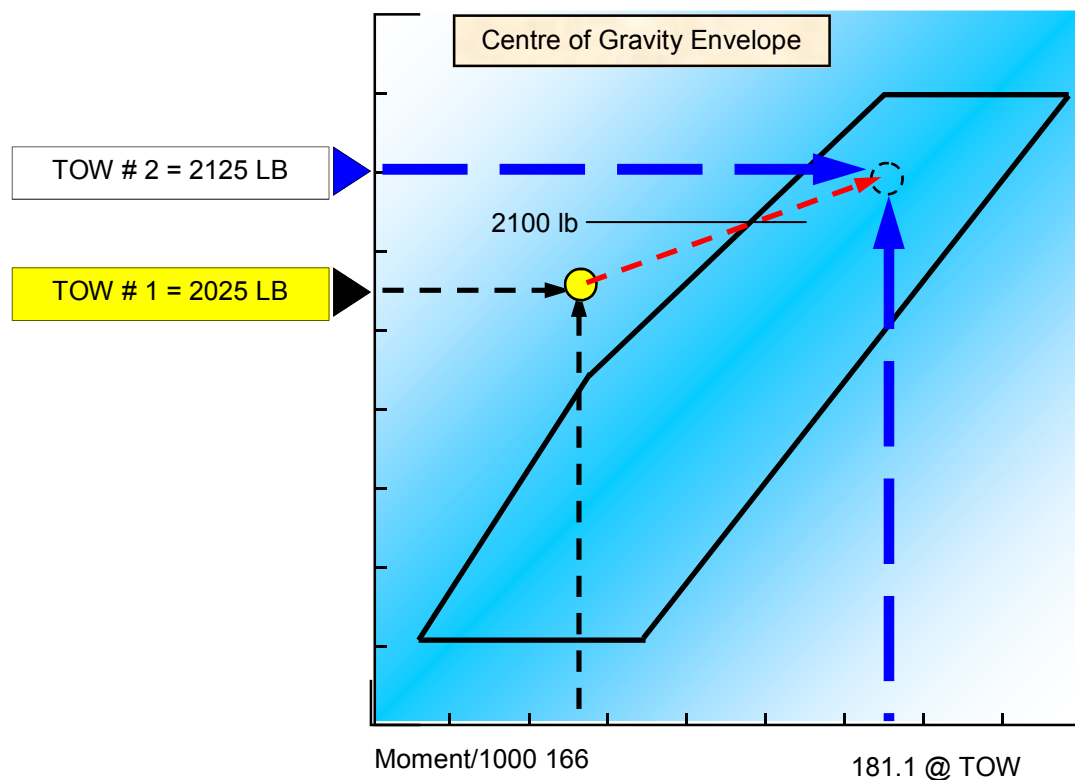
**NOTE: If anything round up, not down here, and make sure you do not exceed any limits.**

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**LOADING "BRAVO"**