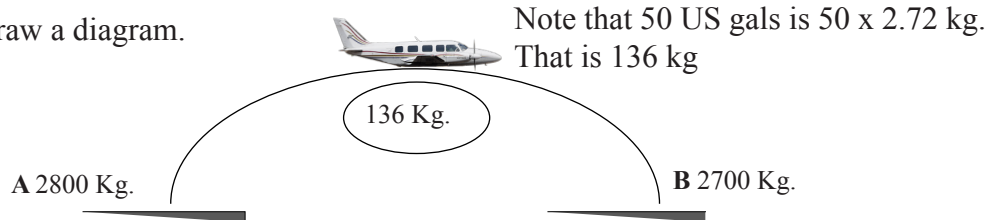


Here is an example of the method.

If departure is with minimum fuel, and the trip fuel is 50 US gallons, find the maximum permissible take-off weight if the performance take-off limit (from the P Chart) is 2800 kg, and the performance landing weight limit (from the P Chart) is 2700 kg [Fig 5.6].

STEP 1 - Draw a diagram.

Fig 5.6



191kg Departure is with minimum fuel so fuel on board at take-off is:
 $136 \times 1.1 + 41 \text{ kg} = 190.6\text{kg}.$

The maximum take-off weight will always be controlled by one of three possible cases.

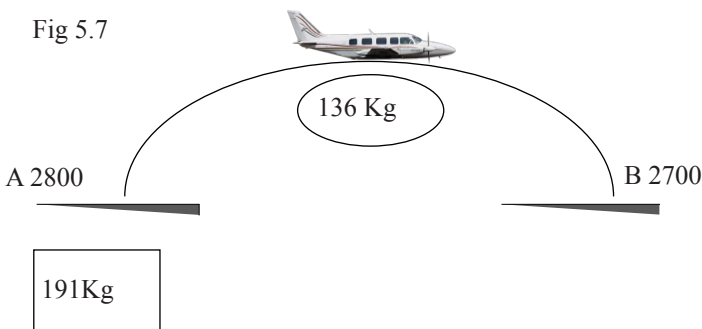
- (1) Considering only the take-off at A, you can depart at 2800 kg.
- (2) Considering only the landing at B, you can depart at $2700 + 136 = \underline{2836 \text{ kg}}$ i.e. you would burn off 136 kg on the way, and be right on maximum landing weight of 2700 kg when you land.
- (3) Considering only the zero fuel weight limit, you could load the aircraft to 2630 kg, (maximum allowable zero-fuel weight see Supplement Page 18 para 3) and then add the weight of all the fuel on board at take-off: $2630 + 191 = \underline{2821 \text{ kg}}.$

If you always check these three possibilities, the smallest one will control the take-off weight for a particular flight. In this case, the maximum take-off weight is the least of :-

Take-off limit	2800 kg
Landing limit + burn-off	2836 kg
2630 + all fuel at take-off	2821 kg

2800 kg is the smallest, so the maximum take-off weight for this flight is **2800 kg**

Your working is set out as shown in Fig 5.7

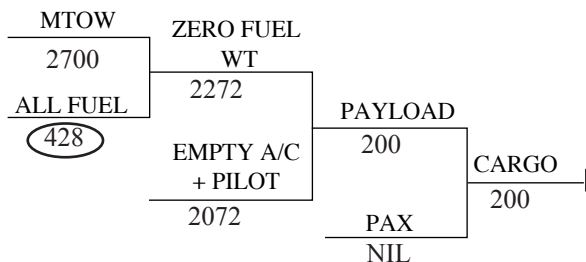


MTOW at A is the least of :-

Take-off limit	2800 kg
Landing limit + burn-off	2836 kg
2630 + all fuel at take-off	2821 kg

2800 kg is the maximum take-off weight.

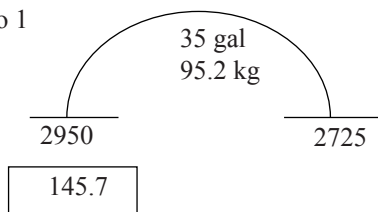
6



428 kg at T/O 428 + 8 = 436 kg at S/U

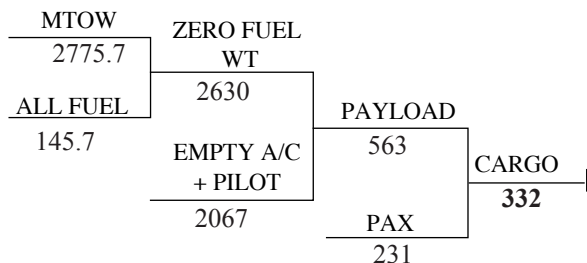
EXERCISE 5.4

No 1

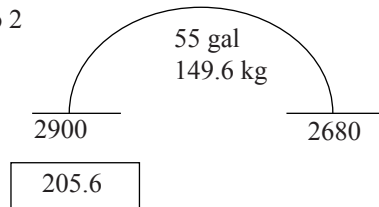


Max take-off weight is the least of:
 Take off limit ----- 2950
 Landing Wt + Burn-off
 2725 + 95 ----- 2820
 Zero Fuel WT + All fuel
 2630 + 145.7 ----- 2775.7

The maximum take-off weight is 2760.4kg

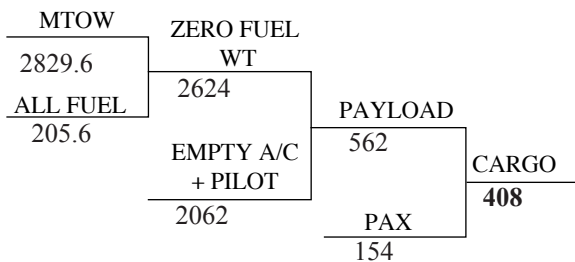


No 2

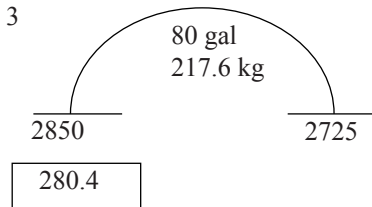


Max take-off weight is the least of:
 Take off limit ----- 2900
 Landing Wt + Burn-off
 2680 + 149.6 ----- 2829.6
 Zero Fuel WT + All fuel
 2630 + 205.6 ----- 2835.6

The maximum take-off weight is 2829.6 kg

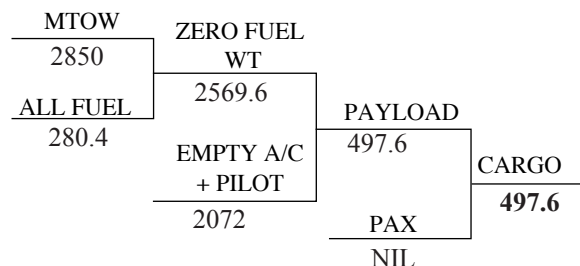


No 3



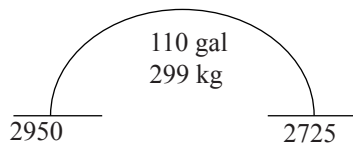
Max take-off weight is the least of:
 Take off limit ----- 2850
 Landing Wt + Burn-off
 2725 + 217.6 ----- 2942.6
 Zero Fuel WT + All fuel
 2630 + 280.4 ----- 2910.4

The maximum take-off weight is 2850 kg



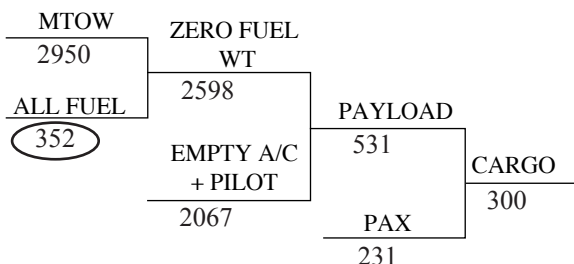
EXERCISE 5.5

No 1



Max take-off weight is the least of:
 Take off limit ----- 2950
 Landing Wt + Burn-off
 2725 + 299 ----- 3024

The maximum take-off weight is 2950 kg



Maximum fuel at take-off is 352 kg. [This is less than the minimum fuel required, so you could not do this flight.]