Eos Airlines Case (Cost-Volume-Profit)

[redacted]

[redacted] See next page for additional information.

Required:

For questions 1 and 2, do NOT use Excel. You should be able to solve them directly – without resorting to trial and error.

Basic.

1a. Assuming that Eos charges $5,000 per ticket and operates only a single aircraft, what is Eos' break-even volume in passenger-trips per day? Is this feasible?

1b. If Eos can fill every flight, how much would Eos have to charge to break even with a single aircraft?

2a. Assume that Eos raises their price to $6,500 per ticket. What is their break-even volume in passenger-trips per day now? Is this feasible?

2b. Assume that Eos leaves the price at $5,000, but leases a second aircraft. What is their break-even volume in passenger-trips per day now? Is this feasible?

2c. In fact, Eos plans to do both (raise the price to $6,500 AND lease a second aircraft). What will be their break-even volume in passenger-trips per day? Is this feasible?

For questions 3 through 5 you may want to use Excel (although it is not necessary).

3. At $5,000 per ticket, and for no more than four aircraft, at what volume (i.e., how many aircraft) does Eos maximize their profit?

4a. Continue to assume a price of $5,000 per ticket, but assume (unrealistically) that the cost of a ground crew is $56,000,000 rather than $12,000,000. What are the breakeven points for Eos now? Hint: There are three of them!

4b. Under the same assumptions as in 4a, at what volume (i.e., how many aircraft) does Eos maximize their profit?

Advanced

5. Go back to the assumptions in part 3 (i.e., that EOS charges $6,500, and can run up to four aircraft). However, replace part (f) with the following assumptions about fuel costs. In addition, rather than assuming that all aircraft will be at full capacity, make the following assumptions about capacity.

How many aircraft would Eos choose to run at each fuel cost? What number of aircraft maximizes expected profit?

Possible Fuel costs per pound	Probability
$0.15	32%
$0.20	62%
$0.40	5%
$0.80	1%

If Eos Runs this many aircraft	Total passengers (on all flights) per day will be
1	45
2	75
3	95
4	115

Assume the following information about Eos' operations and costs during their first year of operations (some of this was taken from the article, some from Eos' filings with the U.S. Department of Transportation (Docket # OST-2004-19617) and some of it was estimated, by reference to Southwest Airlines' financial statements).

1. Eos intends to operate a single airplane, with 48 seats, making a daily (round-trip) run between JFK and Stansted. Assume 360 round-trip flights per year.

2. Start with the "introductory" price of $5,000 per round-trip flight. Assume that all customers are round-trip customers.

3. Assume that Eos pays no income taxes.

4. Eos' costs during the first year are estimated to be the following:

Type of Cost	Amount	Behavior of Cost
Salaries, Administrative and Executive	$22,000,000	Fixed (a)
Salaries, Pilot and Air Crew	$3,000,000	Semi-Variable (b)
Salaries, Ground Crew	$12,000,000	Semi-Variable (c)
Other SG&A (Marketing, Administration, Reservations, etc.)	$18,000,000 $100	Fixed (a) Per Passenger (d)
Aircraft Lease	$9,000,000	Semi-Variable (b)
Aircraft Maintenance and Repair	$4,000,000	Semi-Variable (b)
Landing Fees	$6,000,000	Semi-Variable (e)
Fuel	$0.20/pound	Semi-Variable (f)

(a) Fixed costs do not depend on the number of passengers or on the number of aircraft operated, so long as Eos operates no more than FOUR aircraft.

(b) Based on a single aircraft. This does not depend on the number of passengers, but increases proportionately for each additional aircraft. Thus, this number will double when a second aircraft is added, etc. Assume that all costs for the "spare" aircraft mentioned in the article are included in the other fixed cost of $18,000,000.

(c) Based on a single aircraft. The $12 million is the sum of $7 million at JFK and $5 million at Stansted. This does not depend on the number of passengers, but does depend on the number of aircraft. Each ground crew can handle up to three aircraft per day, but you cannot hire a fraction of a ground crew. Therefore, this amount will not change when a second and third aircraft are added, but will double when a fourth aircraft is added to the fleet.

(d) This cost is incurred per round-trip passenger, and is in addition to the fixed cost listed above it.

(e) Eos pays a total of $5 million for the right to have a presence at JFK and Stansted. It pays an additional $1 million (in total) for each aircraft that it runs.

(f) Eos incurs $0.20 per pound for each round-trip flight. Assume that the aircraft (and crew) weighs 200,000 pounds with no passengers, and each passenger (including luggage) weighs 250 pounds.