Abkaber plc

Abkaber plc assembles three types of motorcycle at the same factory: the 50cc Sunshine; the 250cc Roadster and the 1000cc Fireball. It sells the motorcycles throughout the world. In response to market pressures Abkaber plc has invested heavily in new manufacturing technology in recent years and, as a result, has significantly reduced the size of its workforce.

Historically, the company has allocated all overhead costs using total direct labour hours, but is now considering introducing Activity Based Costing (ABC). Abkaber plc's accountant has produced the following analysis.

	Annual Output (units)	Annual Direct Labour Hours	Selling Price ($ per unit)	Raw material cost ($ per unit)
Sunshine	2,000	200,000	4,000	400
Roadster	1,600	220,000	6,000	600
Fireball	400	80,000	8,000	900

The three cost drivers that generate overheads are:

Deliveries to retailers	– the number of deliveries of motorcycles to retail showrooms
Set-ups	– the number of times the assembly line process is re-set to accommodate a production run of a different type of motorcycle
Purchase orders	– the number of purchase orders.

The annual cost driver volumes relating to each activity and for each type of motorcycle are as follows:

	Number of deliveries to retailers	Number of set-ups	Number of purchase orders
Sunshine	100	35	400
Roadster	80	40	300
Fireball	70	25	100

The annual overhead costs relating to these activities are as follows:

	$
Deliveries to retailers	2,400,000
Set-up costs	6,000,000
Purchase orders	3,600,000

All direct labour is paid at $5 per hour. The company holds no stocks.

At a board meeting there was some concern over the introduction of activity based costing.

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(a) (i) Labour hours

Total overhead cost = $12,000,000

Total labour hours = 500,000 hours

Overhead per labour hour = $12,000,000/500,000 = $24

	Sunshine £	Roadster £	Fireball £
Direct labour (£5 p.h.)	1,000,000	1,100,000	400,000
Materials (at £400/600/900)	800,000	960,000	360,000
Overheads (at £24)	4,800,000	5,280,000	1,920,000
Total Costs	6,600,000	7,340,000	2,680,000
Output (Units)	2,000	1,600	400
Cost per unit	£3,300	£4,587·5	£6,700
Selling price	£4,000	£6,000	£8,000
Profit/(loss) per unit	£700	£1,412·5	£1,300
Total Profit/(loss)	£1,400,000	£2,260,000	£520,000
Total Profit	£4,180,000		

(ii) Activity Based Costing

Deliveries to retailers $2,400,000/250 = $9,600

Set-ups $6,000,000/100 = $60,000

Deliveries inwards $3,600,000/800 = $4,500

	Sunshine £	Roadster £	Fireball £
Direct labour (£5 p.h.)	1,000,000	1,100,000	400,000
Materials (at £400/600/900)	800,000	960,000	360,000
Overheads:			
Deliveries at £9,600	960,000	768,000	672,000
Set-ups at £60,000	2,100,000	2,400,000	1,500,000
Purchase orders at £4,500	1,800,000	1,350,000	450,000
	6,660,000	6,578,000	3,382,000
Output (Units)	2,000	1,600	400
Cost per unit	£3,330	£4,111·25	£8,455
Selling price	£4,000	£6,000	£8,000
Profit/(loss) per unit	£670	£1,888·75	(£455)
Total Profit/(loss)	£1,340,000	£3,022,000	(£182,000)
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