



## Mountain Manufacturing

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### MEMORANDUM

TO: Mickey Chelini, Production Engineer  
 FROM: Julia Southwick, Industrial Engineer  
 DATE: January 28, 2017

SUBJECT: COMPARISON OF ELECTRIC AND GASOLINE FORKLIFTS

#### Summary

I have acquired all important data to compare the electric and gasoline forklifts. This report compares the initial, repair, and maintenance costs of each as well as compares their physical attributes and abilities to the one currently in use.

#### Cost Analysis

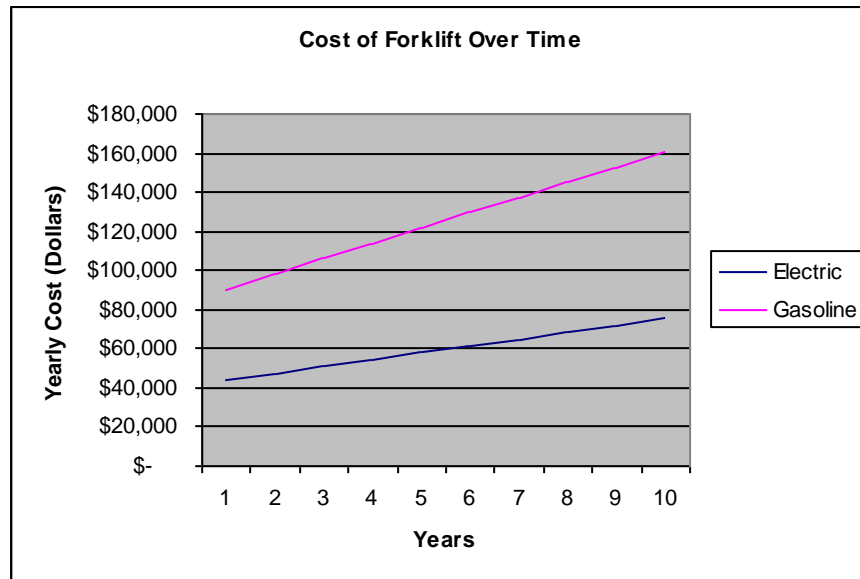
	Electric Forklift	Gasoline Forklift
Unit Price	\$37,250	\$79,000
Ramp	\$1,600	-
Fan	-	\$1,870
Battery Charger	\$1,500	-
Building Modifications	-	\$1,800
<i>Total Initial Costs</i>	<i>\$40,350</i>	<i>\$82,670</i>
Annual Electricity	\$2,000	-
Annual Gasoline	-	\$1,800
Annual Preventive Maintenance	\$700	\$3,400
Annual Repairs	\$800	\$2,600
<i>Total Annual Costs</i>	<i>\$3,500</i>	<i>\$7,800</i>
<b>Total Costs</b>	<b>\$43,850</b>	<b>\$90,470</b>

Notes:

- Electric
  - 2-foot ramp to improve lift height would need **three days of halted production** to be installed, could be done over a **long weekend**.

- **Repair parts** are available from a warehouse **500 miles away**, are ordered by phone, and **delivered next day**.
- Gasoline
  - A **concrete doorway** needs to be **widened** to accommodate the size of the gasoline forklift and would need **two days of halted production**, could be done over a weekend.
  - A **ventilation fan** is required by the Occupational Safety and Health Administration to **carry exhaust fumes away** from the hopper area
  - **Repair parts** are available from the factory **17 miles away**.

Costs Over Time



Physical Properties

	Current Forklift	Electric Forklift	Gasoline Forklift
Color	Red	Blue, Red	Green
Maximum Load	600 pounds	1,000 pounds	1 ton
Speed (miles per hour)	10	30	40
Lift Height (feet)	8	6	12
Associated Injuries	None	None	None
Damage to Goods	Very little	Very little	None

Notes:

- The current forklifts speed can be increased to 15 mph through improvements in the production line in the next two months.
- A 2 foot ramp can be added to improve the reach of the electric forklift as indicated above.

Conclusions

- The electric forklift's initial, annual, and overall costs are less than half that of the gasoline forklift.
- The gasoline forklift has greater lift height and speed than the current or electric forklifts.
- The gasoline forklift has less damage to goods.

END OF REPORT

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If you need more information, do not hesitate to contact me.