

Cost to Capital Conversion Examples for a Popular Dump Truck Wheel Loader Match

6 wheel truck: CAT 793F with 40 R 57 bare tires, truck costs \$ 3.5M, tires cost \$ 74K ea.

4 wheel loader: CAT 994K with 53.5/85-57 tires with chain, truck costs \$ 3M, tires cost \$ 92K.

6 pass match: tires last 6,000 hrs, chains last 12,000 hrs, lost time costs \$ 3,200/hr (copper mine).

Labor: tire changing 8 hrs/truck, 6 hrs/loader, 2 hrs/loader treading off pit (zero hrs in pit).

ASW (Air Suspension wheel) retreading on trucks can be done in pit stops, while the truck is refueling.

Loaders have marginal waiting time for retreading, but retreading is fast. No chains to remove.

Replacement ASW costs \$ 148K truck, \$ 185K loader, both last 120,000 hrs.

Replacement treads for ASW: costs \$ 30K truck, \$ 47K loader, both last 24,000 hrs.

Truck tire operation cost per tires:

Tire \$ 74,000/6,000 hrs = \$ 12.33/hr

Change (8/6) (3,200/6,000) = \$ 0.71/hr

Total 13.04(1.2) = \$ 15.65/hr

ASW wheel operation per wheels:

Wheel \$ 148,000/120,000 hrs = \$ 1.23/hr

Tread \$ 30,000/24,000 hrs = \$ 1.25/hr

Total \$ 2.48/hr

Savings per tire by ASW use: \$ 15.65 - \$ 2.48 = \$ 13.17/hr (84%)

Savings per truck by ASW use: 6(13.17)120,000 = \$ 9.48M enough to buy 9.48/3.5 = 2.71 trucks more

Production boost when savings buy new trucks: 2.71(120,000)3,200 = \$ 1.04B/trucks

Loader tire operation cost per tires:

Tire \$ 92,000/6,000 hrs = \$ 15.33/hr

Change (6/4) (3,200/6,000) = \$ 0.80/hr

Chain \$ 96,000 /12,000 hrs = \$ 8.00/hr

Total \$ 24.13/hr

ASW wheel operation per wheels:

Wheel \$ 185,000/120,000 hrs = \$ 1.54/hr

Treading (2/4)(3,200/6,000)h = \$ 0.27/hr

Treads \$ 47,000/24,000 hrs = \$ 1.96/hr

Total \$ 3.77/hr

Savings per tire by ASW use: \$ 24.13 - \$ 3.77 = \$ 20.36/hr (84%)

Savings per truck by ASW use: 4(20.36)120,000 = \$ 9.77M enough to buy 9.77/3.0 = 3.26 loaders more

Production boost when savings buy new trucks: 3.26(120,000)3,200 = \$ 1.25B/loaders

Sources of additional 10% savings: shipping, tire management, emergency, rim, environmental, tax.