

ABSTRACT

PT. Tanjung Kreasi Parquet Industri (Teka Parquet) is a wood processing company which produces parquet flooring. Based on the data of machinery's breakdown from August 2009 to December 2009, the damage of the Optima Press machine was 97.83% due to spare parts damages and it requires replacement parts, while another 2.17% is caused by changes due to the using of machine settings.

The component needs that cannot be immediately filled will cause the delay of production. The booking of a component parts with a fixed amount at the exact time were not sufficient to meet demand, because the needs of component parts were not constant. To be able to meet the needs of the components, need to design an appropriate inventory system so that the companies would not suffer losses because of loss of production and the activity of back order.

The model of inventory is using the fixed order quantity model with back orders, adjusted for the rate of damage that requires replacement of engine components. The variable number of lots optimal ordering (Q) and reorder point (r) are obtained from partial reduction formula for the total cost of inventory adjustments have been made with the rate of damage in the intervening time has been determined based on the average age of spare parts.

Here is the list of decision variables and the total cost of supply of critical components at each planning period:

	Plastik Foil 1080x6420			Plastik Foil 1080x6400		
	1 bulan	2 bulan	3 bulan	1 bulan	2 bulan	3 bulan
Q	32	42	52	13	19	23
r	58	68	76	30	30	30
ss	28	32	36	15	15	15
ms	90	110	128	43	49	53
OT	Rp 14,106,793.49	Rp 33,749,527.05	Rp 56,194,917.13	Rp 6,807,780.95	Rp 13,579,397.65	Rp 20,349,890.32

	karet kopel MH-65		karet kopel GR-45		
	2 bulan	3 bulan	2 bulan	3 bulan	4 bulan
Q	9	27	9	15	27
r	33	114	24	39	99
ss	24	57	18	27	54
ms	42	141	33	54	126
OT	Rp 79,899,100.08	Rp 756,528,884.64	Rp 36,746,786.15	Rp 146,251,051.34	Rp 730,077,922.09

The inventory costs increase together with the increasing of the length of time planning in accordance with the needs of each component. The decision of implementation strategies is done according to the company's financial condition.

Keyword: inventory, failure rate