Turing Machine for a palindrome

$Q = \{s, h_p, h_{np},$
$\Sigma = \{a,b\} \cup \{\triangleright, \sqcup\}$
$\Sigma_0 = \{a,b\}$
$s = s$
$H = \{h_p, h_{np},$

$\delta =$

$(s, \triangleright) \to (s, \to)$
$(s, a) \to (p_a, \sqcup)$
$(s, b) \to (p_b, \sqcup)$
$(s, \sqcup) \to (h_p, \sqcup)$

$(p_a, \triangleright)$
(p_a, a)
(p_a, b)
$(p_a, \sqcup) \to (q_a, \to)$

$(q_a, \triangleright)$
$(q_a, a) \to (q_a, \to)$
$(q_a, b) \to (q_a, \to)$
$(q_a, \sqcup) \to (r_a, \leftarrow)$

$(p_b, \triangleright)$
(p_b, a)
(p_b, b)
$(p_b, \sqcup) \to (q_b, \to)$

$(q_b, \triangleright)$
$(q_b, a) \to (q_b, \to)$
$(q_b, b) \to (q_b, \to)$
$(q_b, \sqcup) \to (r_b, \leftarrow)$

$(r_a, \triangleright)$
$(r_a, a) \to (t, \sqcup)$
$(r_a, b) \to (h_{np}, b)$
$(r_a, \sqcup) \to (h_p, \sqcup)$

$(t, \triangleright)$
(t, a)
(t, b)
$(t, \sqcup) \to (u, \leftarrow)$

$(r_b, \triangleright)$
$(r_b, a) \to (h_{np}, a)$
$(r_b, b) \to (t, \sqcup)$
$(r_b, \sqcup) \to (h_p, \sqcup)$

$(u, \triangleright)$
$(u, a) \to (u, \leftarrow)$
$(u, b) \to (u, \leftarrow)$
$(u, \sqcup) \to (s, \to)$

Is ababa a palindrome?

$(s, \triangleright ababa)$
$(s, \triangleright \underline{a}baba)$
$(p_a, \triangleright \sqcup baba)$
$(q_a, \triangleright \sqcup \underline{b}aba)$
$(q_a, \triangleright \sqcup b\underline{a}ba)$
$(q_a, \triangleright \sqcup ba\underline{b}a)$
$(q_a, \triangleright \sqcup baba\underline{\sqcup})$
$(r_a, \triangleright \sqcup baba)$
$(t, \triangleright \sqcup bab\sqcup)$
$(u, \triangleright \sqcup ba\underline{b}\sqcup)$
$(u, \triangleright \sqcup b\underline{a}b\sqcup)$
$(u, \triangleright \sqcup \underline{b}ab\sqcup)$
$(u, \triangleright \underline{\sqcup} bab\sqcup)$
$(s, \triangleright \sqcup \underline{b}ab\sqcup)$
$(p_b, \triangleright \sqcup\sqcup ab\sqcup)$
$(q_b, \triangleright \sqcup\sqcup \underline{a}b\sqcup)$
$(q_b, \triangleright \sqcup\sqcup a\underline{b}\sqcup)$
$(q_b, \triangleright \sqcup\sqcup ab\underline{\sqcup})$
$(r_b, \triangleright \sqcup\sqcup a\underline{b}\sqcup)$
$(t, \triangleright \sqcup\sqcup a\underline{\sqcup}\sqcup)$
$(u, \triangleright \sqcup\sqcup \underline{a}\sqcup\sqcup)$
$(u, \triangleright \sqcup \underline{\sqcup} a\sqcup\sqcup)$
$(s, \triangleright \sqcup\sqcup \underline{a}\sqcup\sqcup)$
$(p_a, \triangleright \sqcup\sqcup\underline{\sqcup}\sqcup\sqcup)$
$(q_a, \triangleright \sqcup\sqcup\sqcup\underline{\sqcup}\sqcup)$
$(r_a, \triangleright \sqcup\sqcup\underline{\sqcup}\sqcup\sqcup)$
$(h_p, \triangleright \sqcup\sqcup\underline{\sqcup}\sqcup\sqcup)$

yes!