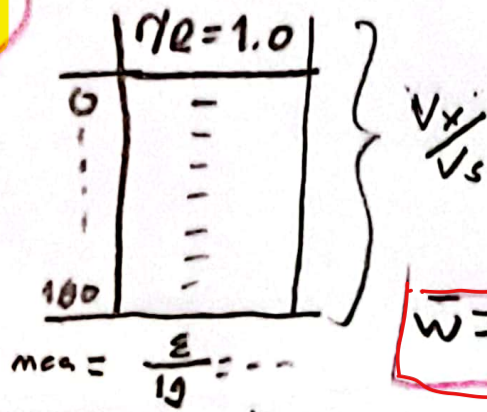


(1) WAKE ASSUMPTION



$$W_{\Delta} = \left(\frac{\Delta w}{1 - \bar{w}} \right)_{1.0R}$$

$$= \frac{W_{max} - W_{min}}{1 - \frac{\bar{w}}{2}}$$

$$= \frac{\left(\frac{V_x}{V_s} \right)_{max} - \left(\frac{V_x}{V_s} \right)_{min}}{1 - \left(1 - \left(\frac{V_x}{V_s} \right)_{min} \right)}$$

$$p - V_{\infty} = 1 - \bar{w}$$

$$\bar{w} = 1 - \left(\frac{V_x}{V_s} \right)_{min}$$

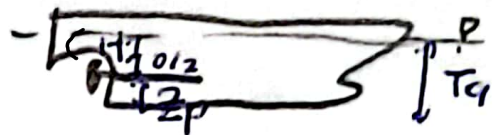
$\bar{w}$

$$\sigma_n = \frac{P_a - P_v + P_H}{\frac{1}{2} \rho (\pi n D)^2}$$

1025!!

994

$$H = T_a \cdot \frac{D}{2} - 2p$$



(2) PROPELLER WEIGHT

value

$$\frac{r_1}{r_2} = \frac{r_1}{r_2} \rightarrow 0.2 = \frac{r}{R} \rightarrow r = 0.2 \cdot \frac{D}{2}$$

i	r(i) cm	Ax(i) cm ²	m(i) kg
1	r ₁		0
2	r ₂		m ₂
...			
11			

$$\Sigma = m_{blade}$$

$$m_2 = \frac{A_2 + A_1}{2} \cdot (r_2 - r_1) \cdot \rho \cdot \frac{1}{10^6}$$

m³ → cm³

$$M_{total} = m_{blade} \times 2 \times 1.03$$

0.3 increase in blade mass

blade mass

Mass mom. of inertia

i	r(i) cm	Ax(i) cm ²	m(i) kg	I _{ox}
1	r ₁		0	0
2	r ₂		m ₂	I ₂
...				
11				

$$I_2 = m_2 \cdot \left(\frac{r_2 + r_1}{2} \right)^2$$

$$m_2 = \left(\frac{A_1 + A_2}{2} \right) \cdot (r_2 - r_1) \cdot \rho \cdot \frac{1}{10^6}$$

③ BODEN'S CRITERIA

$$J_2 = M_2 \cdot \left(\frac{r_1 + r_2}{2.00} \right)^2$$

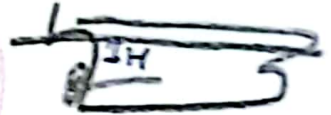
$$\textcircled{1} \underline{q_T} = (11.66 \text{ V}_A)^2 + (0.928 \text{ ND})^2$$

$$\underline{V_A = V_S \cdot (1 - W_T)}$$

Ship Speed (sim)

$$\textcircled{2} \underline{P_0 - C} = 99629 + 1012241 \rightarrow$$

$$H = T_0 - \frac{D}{2} - Z_r$$



$$\textcircled{3} \underline{\sigma_R} = \frac{P_0 - C}{q_T}$$

$$\textcircled{4} \tau \left\{ \begin{array}{l} \text{suggested} \\ \text{upper limit} \\ \text{method} \end{array} \right\} \underline{z} = \dots$$

$$\textcircled{5} \underline{\Delta_P} = \frac{P_0 \cdot \eta_0 \cdot 1941.3}{V_A \cdot \frac{I}{\Delta_P}} \rightarrow \frac{I}{\Delta_P} = \tau \cdot q_T = \dots$$

$$\textcircled{6} \underline{A_D} = \frac{\Delta_P}{1.062 - 0.223 (P/D)} = \dots$$

$$\textcircled{7} \underline{EAR} = \frac{A_D}{A_0} = \frac{A_D}{\frac{\pi D^2}{4}} = \dots$$

~ KELLER'S METHOD ~

$$\frac{AE}{A_0} = \frac{(1.3 + 0.32) T}{(P_0 - P_v) D^2} + K$$

N
 $0.2 \rightarrow$ single screw
 $0.1 \rightarrow$ twin screw
 $P_{\text{stat}} + 0.5L$
 $10^5 + 0.5L$
 1700

✓ EFEKTIF İZ : Geni ykasındaki permain etkilinin ihmal edilmediği izle etkilediği iz dstr. (effective water)

$w = w_p + v_f + w_w$ dolğu isə: Dolğu içindəki su potensialının hesabından
dünən isə.

pot. iz: idat obige, sartımsız ve
doluslu durumdaki iz

• İTME AZALMASI: Person çalışırken emmedeki su baskısında en az yastır. Bu durum geni dirseğinde artıf yastır. Bu direns artışı, itme azalması olarak ifade edilir.

$$t = \frac{T - P_T}{T}$$

RELATIVE ROTATIVE EFFICIENCY: Aynı devir ve iletim hızına sahip geri akışlı bir pervane veriminin ağırlıklı verim oranıdır.

$$\gamma_R = \frac{\gamma_B}{\gamma_D}$$

