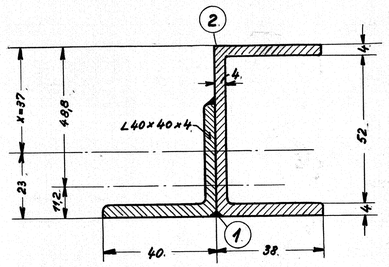
Beregning af forstærkede tagbuer:

Buer ved III udføres af [60×38×4 forstærket med L40×40×4



$F = 2\times3,8\times0,4 + 5,2\times0,4 + 3,08 = 3,04 + 2,08 + 3,08 = \underline{8,20\ cm^2}$

$X = \frac{(3,04+2,08)\times3 + 3,08\times4,88}{8,20} = 1,87 + 1,83 = 3,70\ cm \backsim \underline{37mm}$

$J_x = 2\times\left(\frac{1}{12}\times3,8\times0,4^3 + 1,52\times(3,5^2+2,3^2) + \frac{1}{12}\times0,4\times5,2^3 + 2,08\times0,7^2 + 4,48 + 3,08\times1,18^2\right) = 0,04 + 18,6 + 6,7 + 4,69 + 1,02 + 4,48 + 4,28 = \underline{39,81\ cm^4}$

$W_{x-1} = \frac{39,81}{2,3} = \underline{17,3\ cm^3}$ $\qquad W_{x-2} = \frac{39,81}{3,7} = \underline{10,75\ cm^3}$

$h = 422,5 + 110 - 51 - 37 = \underline{444,5\ mm}$

Maximal Xkraft $= X_4 = \underline{-10116,0\ kg}$

Tagbuen skal optage en kraft Q = 2,5 % af X_4

$Q = 0,025\times10116,0 \backsim \underline{253\ kg}$

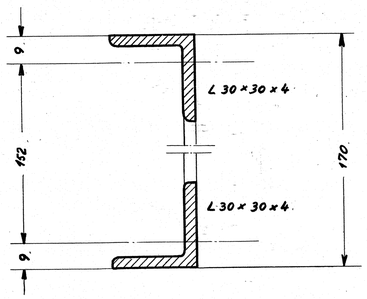
$M = 253\times44,45 = \underline{11250\ kg\,cm}$

$\sigma_1 = -\frac{11250}{17,3} - \frac{253}{8,20} = -650 - 31 = \underline{-681\ kg/cm^2}$

$\sigma_2 = +\frac{11250}{10,75} - \frac{253}{8,20} = +1048 - 31 = \underline{1017\ kg/cm^2}$

Da de øvrige buer optager en del af kraften, maa en tilladelig paavirkning paa 1100 kg/cm² regnes som passende.

Tagbuerne fra kedelrum til motorende udføres af 2 stk. L 30×30×4.



Maximale X kraft $= X_5 = 10692\ kg$.

Tagbuen skal optage en kraft Q = 2,5 % af X_5

$Q = 0,025\times10692 \backsim \underline{267\ kg}$

$Q_1 = \frac{267\times(320,5+152)}{152} = \underline{830\ kg}$

$Q_2 = \frac{267\times320,5}{152} = \underline{563\ kg}$

L 30×30×4; $F = 2,27\ cm^2$ $l = 2\times535 \backsim 1070\ mm$

$\pi = 1000\ kg/cm^2$ $\pi_0 = 1000\times0,8 = 800\ kg/cm^2$

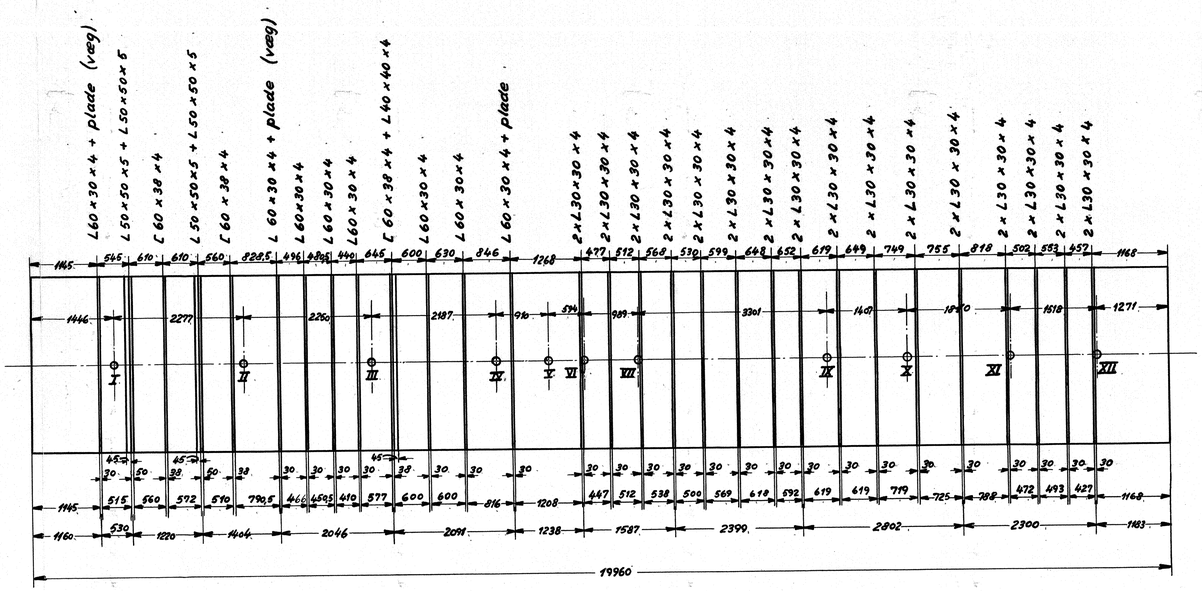
$F_0 = \frac{Q_1}{\pi_0} = \frac{830}{800} = \underline{1,04\ cm^2}$ $\qquad \zeta = \frac{F^2}{J_x} = \frac{2,27^2}{1,81} = 2,85$

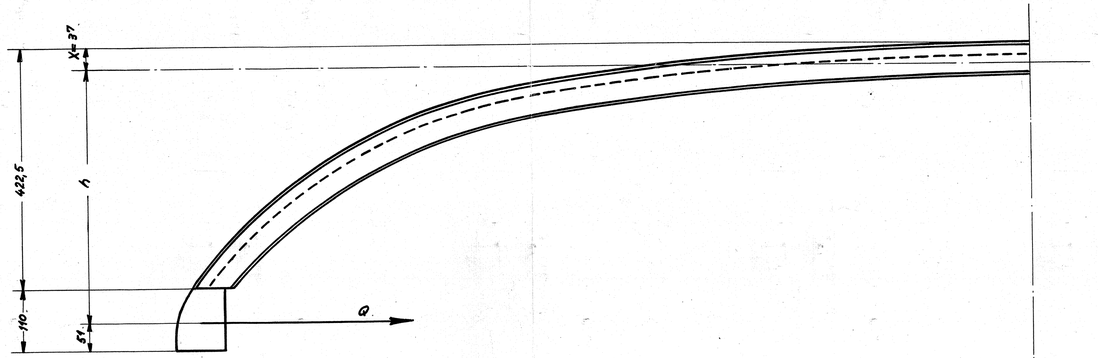
$\frac{1}{3}\times\zeta\times l^2 = \frac{1}{3}\times2,85\times1,07^2 = 1,09\ cm^2$

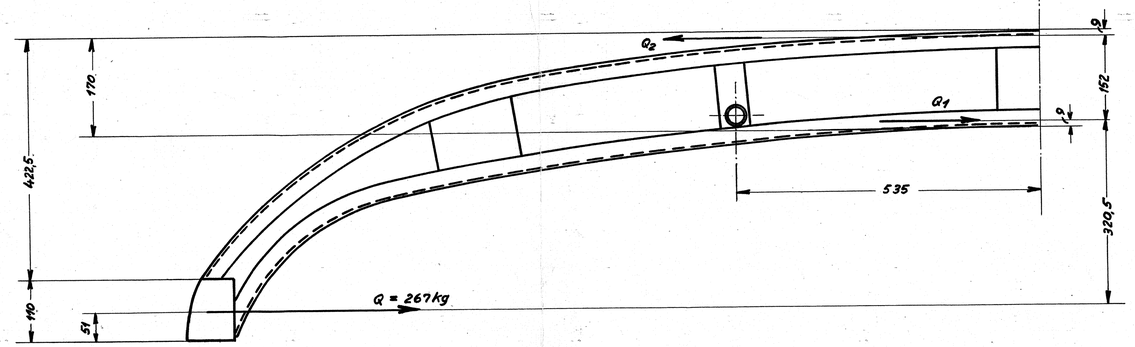
$F_0 < \frac{1}{3}\zeta\times l^2$ derfor anvendes eulerformlen

$P_{Ey} = \frac{2,1\times1,81}{1,07^2} = \underline{3,32\ tons}$

$n = \frac{3320}{830} = 4 > \frac{3700}{1000} = \underline{3,7}$







FRICHS nr. 147

Stk.	Betegnelse	Pos.	Materiale kvalitet	Model nr. eller materiale størrelse	rå / færdig Vægt/stk.
		5			
		4			
		3			
		2			
		1			

Tegn.	E.U. 6/3-51	Rev. 13-51 EU	Afd. EL
Kalk.	B.F. 7/3-51	Norm.	Dato
Dato	Rettelse	Indeks	

Målestok:

FRICHS

Anvendelse	Stykliste nr.
Diesel-el. 500/550hk. motorvogn.	—
Tegningens benævnelse	**Tegningens nummer**
Beregning af tagbuer.	18W – 1.146.

Indeks: