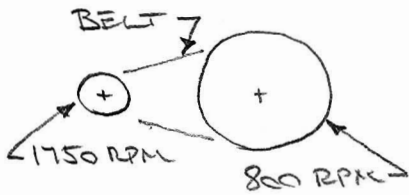


MECH 153 - ASSIGNMENT 1 SOLUTION

#1 1.1 kW, 1750 RPM



800 RPM.

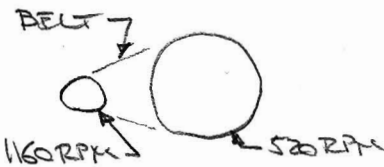
NORMAL DUTY, So S.F. = 1

V-BELT

C/C = 340 mm.

- TABLE 10-2 → 1.07 kW GIVES DRIVER O.D = 114 mm.
AND "O" SIZES BELT.
- TABLE 20-3 → AT 765 RPM ONE GETS 254 mm φ
368 mm TOTAL.
- TABLE 20-4 → USING $SUM = 355 / C/C = 358 \rightarrow L = 1320$
 $370 / C/C = 351 \rightarrow \underline{L = 1320.}$

#2 0.5 hp, 1160 RPM



520 RPM AND 65 RPM.

SF = 1

C/C = 22" (HIGHER SPEED).

- TABLE 10-2 → 0.54 hp GIVES DRIVER O.D = 3.25"
AND "A" SIZES BELT.
- TABLE 20-3 → AT 524 RPM GIVES 7" φ DRIVER.
SUM 10.25" φ
AT 65 RPM GIVES ... OUT OF RANGE!
- TABLE 20-4 → USE 10.5" AND 21.7" C/C → 60" LENGTH
INSTALLATION ALLOWANCE = 0.88"
∴ USE AN ADJUSTMENT OF ABOUT 4.0"

520 RPM } $\frac{n_1}{n_2} = \frac{D_2}{D_1}$ $D_2 = D_1 \left(\frac{n_1}{n_2} \right) = 3.25" \left(\frac{1160}{520} \right) = 7.25"$ IS BEST.

65 RPM } $D_2 = 3.25 \left(\frac{1160}{65} \right) = 58" \phi$ WOW IS THAT BIG!

