STATIC EQUIVALENT LOADING: 926 STYLE BACKSTOP

CEILING SUSPENDED, STATIONARY, CEILING BRACED

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INTRODUCTION

The following pages show the estimated reaction forces of a backstop- up to the point of structure that is custom designed for each individual project. Custom-designed structure may add overall weight to the assembly, but normally distributes these reaction forces to the building attachment points.

Final reaction magnitude and locations cannot be determined until the backstop is engineered, but this document is meant to serve as a worst-case guide for your project. The reaction forces are based on the weight of the backstop (including the heaviest backboard, height adjuster, etc) and a 0.7 Seismic Factor.

CLICK ON YOUR ATTACHMENT HEIGHT BELOW:

18' Attachment Height	23' Attachment Height	28' Attachment Height
19' Attachment Height	24' Attachment Height	29' Attachment Height
20' Attachment Height	25' Attachment Height	30' Attachment Height
21' Attachment Height	26' Attachment Height	31' Attachment Height
22' Attachment Height	27' Attachment Height	32' Attachment Height

STATIC EQUIVALENT LOADING SHEET

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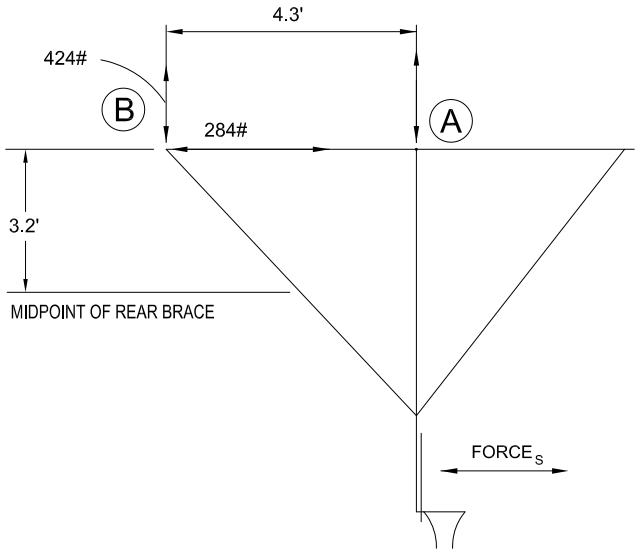
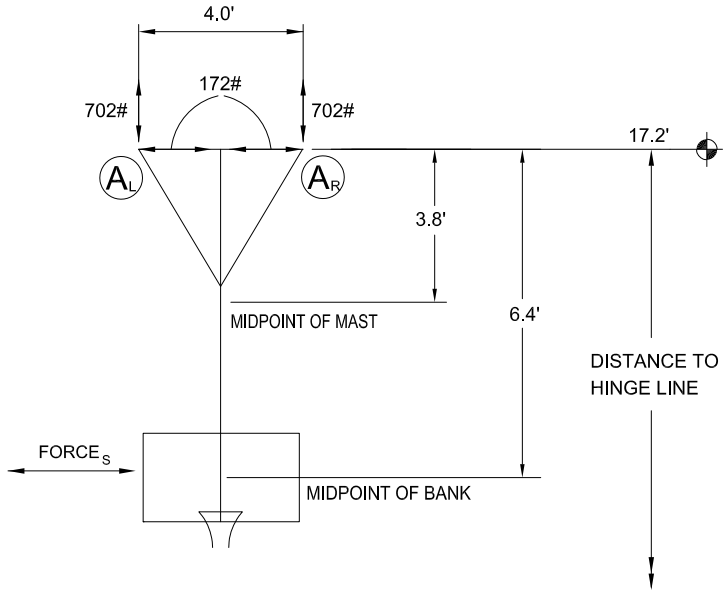


FORCES PERPENDICULAR TO BANK FIGURE 1



FORCES PARALLEL TO BANK FIGURE 2

WEIGHT LOAD CALCULATIONS

BACKSTOP'S TOTAL WEIGHT LOAD = 506 lbs (WEIGHT OF REAR BRACE + WEIGHT OF MAST + WEIGHT OF BANK

WEIGHT LOAD AT POINT "A" = 491 lbs $\left(\frac{\text{WEIGHT OF REAR BRACE}}{2}\right)$ + WEIGHT OF MAST + WEIGHT OF BANK

WEIGHT LOAD AT POINT "B" = 15 lbs $\left(\frac{\text{WEIGHT OF REAR BRACE}}{2}\right)$ + WEIGHT OF PULLEY

SEISMIC FACTORED MOMENTS AND SUM OF MOMENTS FOR BACKSTOP ELEMENTS

SEISMIC FACTOR = 0.7 (VARIES WITH SEISMIC ZONE, RIGIDITY OF SUPPORT & ROOM USE)

WEIGHT OF BANK (WB)	264 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF BANK (DB)	=	1188 ft.lbs	SEISMIC MOMENT (MB) (FT.LBS.)
WEIGHT OF REAR BRACE (WFRB)	30 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF REAR BRACE (DRB)	=	67 ft.lbs	SEISMIC MOMENT (MRB) (FT.LBS.)
WEIGHT OF MAST (WM)	212 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF MAST (DM)	=	570 ft.lbs	SEISMIC MOMENT (MM) (FT.LBS.)
WB + WFRB + WM = BACKSTOP'S TOTAL WEIGHT LOAD				=	1825 ft.lbs	SUM OF THE MOMENTS = MB + MFB + MM

POINT REACTIONS FROM WEIGHT LOADS AND SEISMIC

REACTIONS AT HINGE LINE AT POINT A FROM WEIGHT LOADS AND SEISMIC PARALLEL TO BANK (FIG. 2)

BANK DOWN

R^A_{VER} VERTICAL REACTIONS AT POINT A: 702 lbs = $\frac{\text{WEIGHT LOAD AT POINT "A"}}{\text{2 SUPPORTS}} \pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS } (A_L\text{-}A)_R}$

R^A_{HOR} HORIZONTAL REACTION AT POINT A: 172 lbs = $\frac{\text{BACKSTOP'S TOTAL WEIGHT LOAD X SEISMIC FACTOR}}{\text{2 SUPPORTS}}$

REACTIONS AT HINGE LINE AT POINT B FROM WEIGHT LOADS AND SEISMIC PERPENDICULAR TO BANK (FIG. 1)

BANK DOWN

R^B_{VER} VERTICAL REACTION AT POINT B: 424 lbs = $\frac{\text{WEIGHT OF F/R BRACE}}{\text{2 SUPPORTS}}$ + WEIGHT OF PULLEY $\pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS (A-B)}}$

R^B_{HOR} HORIZONTAL REACTION AT POINT B: 284 lbs = $\frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE TO MIDPOINT OF FRONT BRACE X 2}}$

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18' Attachment Height

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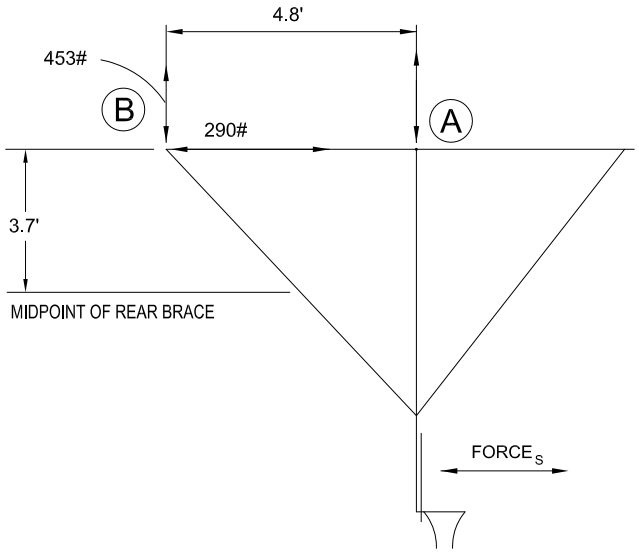
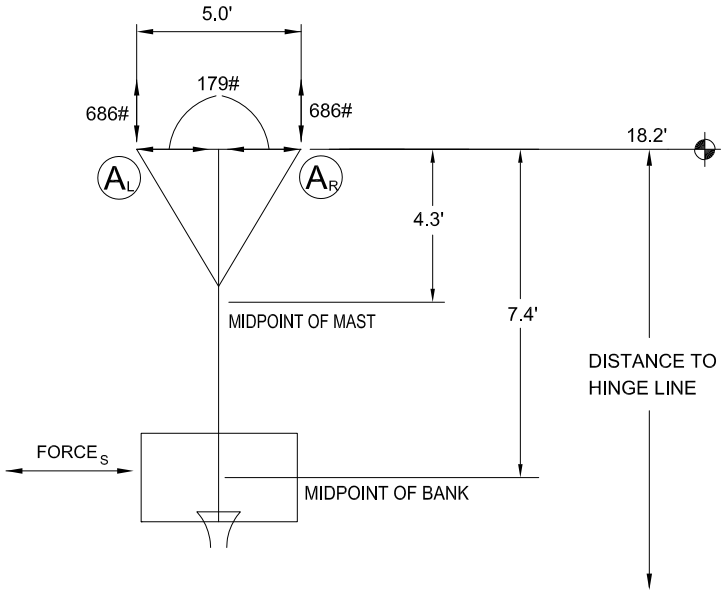


FORCES PERPENDICULAR TO BANK FIGURE 1



FORCES PARALLEL TO BANK FIGURE 2

WEIGHT LOAD CALCULATIONS

BACKSTOP'S TOTAL WEIGHT LOAD = 525 lbs (WEIGHT OF REAR BRACE + WEIGHT OF MAST + WEIGHT OF BANK

WEIGHT LOAD AT POINT "A" = 510 lbs $\left(\frac{\text{WEIGHT OF REAR BRACE}}{2}\right)$ + WEIGHT OF MAST + WEIGHT OF BANK

WEIGHT LOAD AT POINT "B" = 15 lbs $\left(\frac{\text{WEIGHT OF REAR BRACE}}{2}\right)$ + WEIGHT OF PULLEY

SEISMIC FACTORED MOMENTS AND SUM OF MOMENTS FOR BACKSTOP ELEMENTS

SEISMIC FACTOR = 0.7 (VARIES WITH SEISMIC ZONE, RIGIDITY OF SUPPORT & ROOM USE)

WEIGHT OF BANK (WB)	264 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF BANK (DB)	=	1373 ft.lbs	SEISMIC MOMENT (MB) (FT.LBS.)
WEIGHT OF REAR BRACE (WFRB)	30 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF REAR BRACE (DRB)	=	78 ft.lbs	SEISMIC MOMENT (MRB) (FT.LBS.)
WEIGHT OF MAST (WM)	231 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF MAST (DM)	=	703 ft.lbs	SEISMIC MOMENT (MM) (FT.LBS.)
WB + WFRB + WM = BACKSTOP'S TOTAL WEIGHT LOAD				=	2153 ft.lbs	SUM OF THE MOMENTS = MB + MFB + MM

POINT REACTIONS FROM WEIGHT LOADS AND SEISMIC

REACTIONS AT HINGE LINE AT POINT A FROM WEIGHT LOADS AND SEISMIC PARALLEL TO BANK (FIG. 2)

BANK DOWN

R^A_{VER} VERTICAL REACTIONS AT POINT A: 686 lbs = $\frac{\text{WEIGHT LOAD AT POINT "A"}}{\text{2 SUPPORTS}} \pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS } (A_L\text{-}A)_R}$

R^A_{HOR} HORIZONTAL REACTION AT POINT A: 179 lbs = $\frac{\text{BACKSTOP'S TOTAL WEIGHT LOAD X SEISMIC FACTOR}}{\text{2 SUPPORTS}}$

REACTIONS AT HINGE LINE AT POINT B FROM WEIGHT LOADS AND SEISMIC PERPENDICULAR TO BANK (FIG. 1)

BANK DOWN

R^B_{VER} VERTICAL REACTION AT POINT B: 453 lbs = $\frac{\text{WEIGHT OF F/R BRACE}}{\text{2 SUPPORTS}}$ + WEIGHT OF PULLEY $\pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS (A-B)}}$

R^B_{HOR} HORIZONTAL REACTION AT POINT B: 290 lbs = $\frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE TO MIDPOINT OF FRONT BRACE X 2}}$

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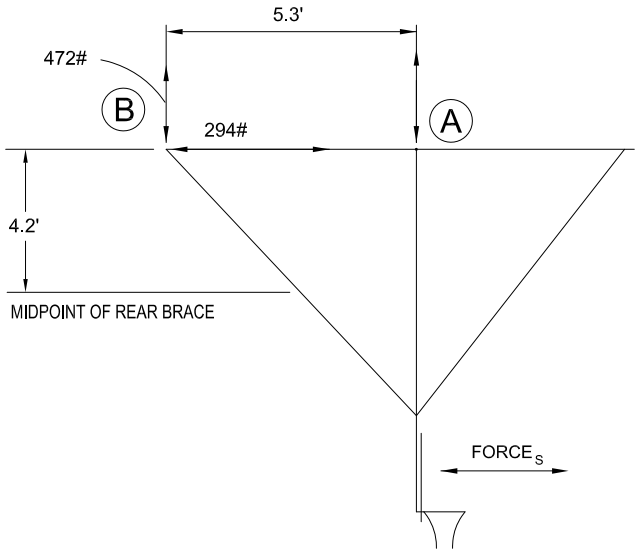
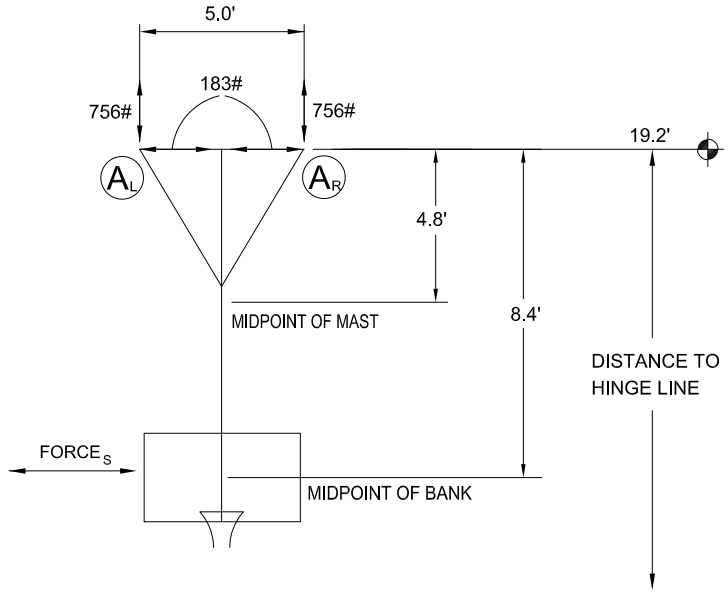


FORCES PERPENDICULAR TO BANK FIGURE 1



FORCES PARALLEL TO BANK FIGURE 2

WEIGHT LOAD CALCULATIONS

BACKSTOP'S TOTAL WEIGHT LOAD = 540 lbs (WEIGHT OF REAR BRACE + WEIGHT OF MAST + WEIGHT OF BANK

WEIGHT LOAD AT POINT "A" = 522 lbs $\left(\frac{\text{WEIGHT OF REAR BRACE}}{2}\right)$ + WEIGHT OF MAST + WEIGHT OF BANK

WEIGHT LOAD AT POINT "B" = 18 lbs $\left(\frac{\text{WEIGHT OF REAR BRACE}}{2}\right)$ + WEIGHT OF PULLEY

SEISMIC FACTORED MOMENTS AND SUM OF MOMENTS FOR BACKSTOP ELEMENTS

SEISMIC FACTOR = 0.7 (VARIES WITH SEISMIC ZONE, RIGIDITY OF SUPPORT & ROOM USE)

WEIGHT OF BANK (WB)	264 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF BANK (DB)	=	1557 ft.lbs	SEISMIC MOMENT (MB) (FT.LBS.)
WEIGHT OF REAR BRACE (WFRB)	35 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF REAR BRACE (DRB)	=	103 ft.lbs	SEISMIC MOMENT (MRB) (FT.LBS.)
WEIGHT OF MAST (WM)	241 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF MAST (DM)	=	816 ft.lbs	SEISMIC MOMENT (MM) (FT.LBS.)
WB + WFRB + WM = BACKSTOP'S TOTAL WEIGHT LOAD				=	2476 ft.lbs	SUM OF THE MOMENTS = MB + MFB + MM

POINT REACTIONS FROM WEIGHT LOADS AND SEISMIC

REACTIONS AT HINGE LINE AT POINT A FROM WEIGHT LOADS AND SEISMIC PARALLEL TO BANK (FIG. 2)

BANK DOWN

R^A_{VER} VERTICAL REACTIONS AT POINT A: 756 lbs = $\frac{\text{WEIGHT LOAD AT POINT "A"}}{\text{2 SUPPORTS}} \pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS } (A_L\text{-}A)_R}$

R^A_{HOR} HORIZONTAL REACTION AT POINT A: 183 lbs = $\frac{\text{BACKSTOP'S TOTAL WEIGHT LOAD X SEISMIC FACTOR}}{\text{2 SUPPORTS}}$

REACTIONS AT HINGE LINE AT POINT B FROM WEIGHT LOADS AND SEISMIC PERPENDICULAR TO BANK (FIG. 1)

BANK DOWN

R^B_{VER} VERTICAL REACTION AT POINT B: 472 lbs = $\frac{\text{WEIGHT OF F/R BRACE}}{\text{2 SUPPORTS}}$ + WEIGHT OF PULLEY $\pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS (A-B)}}$

R^B_{HOR} HORIZONTAL REACTION AT POINT B: 294 lbs = $\frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE TO MIDPOINT OF FRONT BRACE X 2}}$

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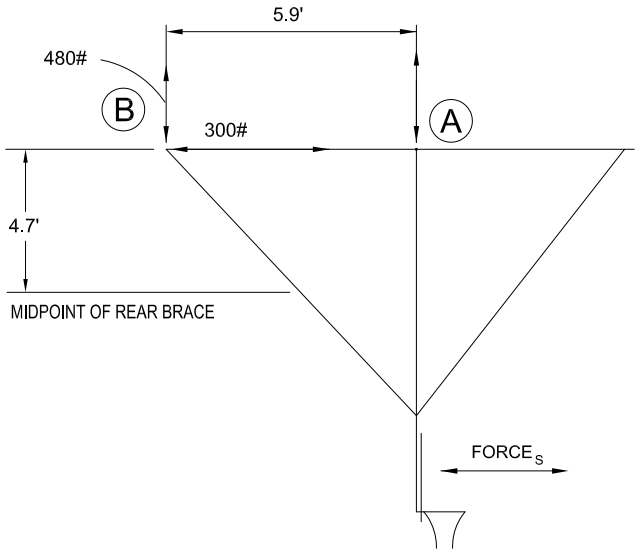
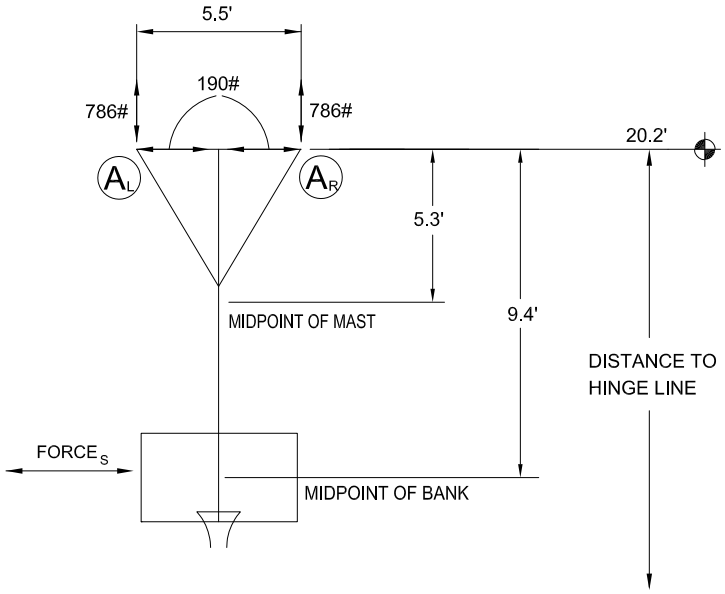


FORCES PERPENDICULAR TO BANK FIGURE 1



FORCES PARALLEL TO BANK FIGURE 2

WEIGHT LOAD CALCULATIONS

BACKSTOP'S TOTAL WEIGHT LOAD = 559 lbs (WEIGHT OF REAR BRACE + WEIGHT OF MAST + WEIGHT OF BANK

WEIGHT LOAD AT POINT "A" = 542 lbs $\left(\frac{\text{WEIGHT OF REAR BRACE}}{2}\right)$ + WEIGHT OF MAST + WEIGHT OF BANK

WEIGHT LOAD AT POINT "B" = 18 lbs $\left(\frac{\text{WEIGHT OF REAR BRACE}}{2}\right)$ + WEIGHT OF PULLEY

SEISMIC FACTORED MOMENTS AND SUM OF MOMENTS FOR BACKSTOP ELEMENTS

SEISMIC FACTOR = 0.7 (VARIES WITH SEISMIC ZONE, RIGIDITY OF SUPPORT & ROOM USE)

WEIGHT OF BANK (WB)	264 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF BANK (DB)	=	1742 ft.lbs	SEISMIC MOMENT (MB) (FT.LBS.)
WEIGHT OF REAR BRACE (WFRB)	35 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF REAR BRACE (DRB)	=	115 ft.lbs	SEISMIC MOMENT (MRB) (FT.LBS.)
WEIGHT OF MAST (WM)	260 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF MAST (DM)	=	973 ft.lbs	SEISMIC MOMENT (MM) (FT.LBS.)
WB + WFRB + WM = BACKSTOP'S TOTAL WEIGHT LOAD				=	2831 ft.lbs	SUM OF THE MOMENTS = MB + MFB + MM

POINT REACTIONS FROM WEIGHT LOADS AND SEISMIC

REACTIONS AT HINGE LINE AT POINT A FROM WEIGHT LOADS AND SEISMIC PARALLEL TO BANK (FIG. 2)

BANK DOWN

R^A_{VER} VERTICAL REACTIONS AT POINT A: 786 lbs = $\frac{\text{WEIGHT LOAD AT POINT "A"}}{\text{2 SUPPORTS}} \pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS } (A_L\text{-}A)_R}$

R^A_{HOR} HORIZONTAL REACTION AT POINT A: 190 lbs = $\frac{\text{BACKSTOP'S TOTAL WEIGHT LOAD X SEISMIC FACTOR}}{\text{2 SUPPORTS}}$

REACTIONS AT HINGE LINE AT POINT B FROM WEIGHT LOADS AND SEISMIC PERPENDICULAR TO BANK (FIG. 1)

BANK DOWN

R^B_{VER} VERTICAL REACTION AT POINT B: 480 lbs = $\frac{\text{WEIGHT OF F/R BRACE}}{\text{2 SUPPORTS}}$ + WEIGHT OF PULLEY $\pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS (A-B)}}$

R^B_{HOR} HORIZONTAL REACTION AT POINT B: 300 lbs = $\frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE TO MIDPOINT OF FRONT BRACE X 2}}$

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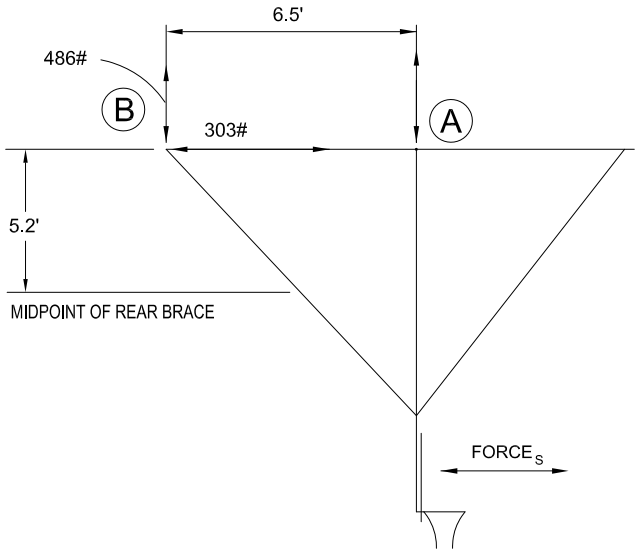
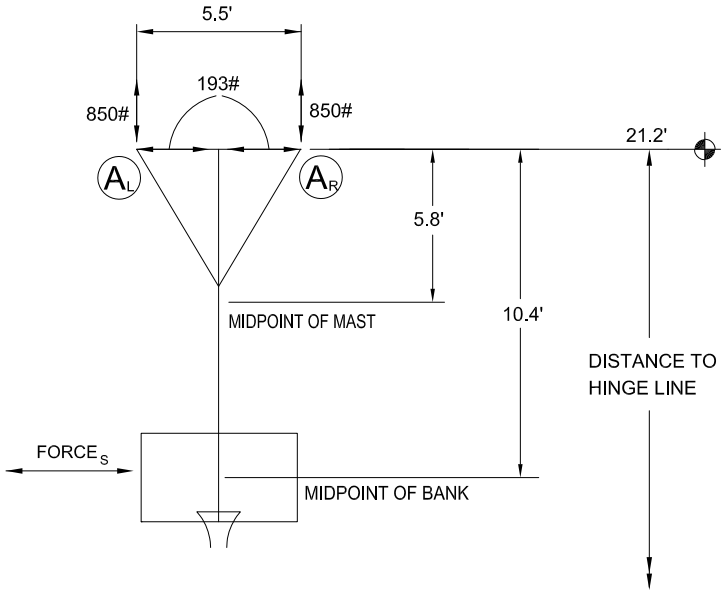


FORCES PERPENDICULAR TO BANK FIGURE 1



FORCES PARALLEL TO BANK FIGURE 2

WEIGHT LOAD CALCULATIONS

BACKSTOP'S TOTAL WEIGHT LOAD = 569 lbs (WEIGHT OF REAR BRACE + WEIGHT OF MAST + WEIGHT OF BANK

WEIGHT LOAD AT POINT "A" = 551 lbs $\left(\frac{\text{WEIGHT OF REAR BRACE}}{2}\right)$ + WEIGHT OF MAST + WEIGHT OF BANK

WEIGHT LOAD AT POINT "B" = 18 lbs $\left(\frac{\text{WEIGHT OF REAR BRACE}}{2}\right)$ + WEIGHT OF PULLEY

SEISMIC FACTORED MOMENTS AND SUM OF MOMENTS FOR BACKSTOP ELEMENTS

SEISMIC FACTOR = 0.7 (VARIES WITH SEISMIC ZONE, RIGIDITY OF SUPPORT & ROOM USE)

WEIGHT OF BANK (WB)	264 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF BANK (DB)	=	1927 ft.lbs	SEISMIC MOMENT (MB) (FT.LBS.)
WEIGHT OF REAR BRACE (WFRB)	35 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF REAR BRACE (DRB)	=	128 ft.lbs	SEISMIC MOMENT (MRB) (FT.LBS.)
WEIGHT OF MAST (WM)	270 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF MAST (DM)	=	1103 ft.lbs	SEISMIC MOMENT (MM) (FT.LBS.)
WB + WFRB + WM = BACKSTOP'S TOTAL WEIGHT LOAD				=	3157 ft.lbs	SUM OF THE MOMENTS = MB + MFB + MM

POINT REACTIONS FROM WEIGHT LOADS AND SEISMIC

REACTIONS AT HINGE LINE AT POINT A FROM WEIGHT LOADS AND SEISMIC PARALLEL TO BANK (FIG. 2)

BANK DOWN

R^A_{VER} VERTICAL REACTIONS AT POINT A: 850 lbs = $\frac{\text{WEIGHT LOAD AT POINT "A"}}{\text{2 SUPPORTS}} \pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS } (A_L\text{-}A)_R}$

R^A_{HOR} HORIZONTAL REACTION AT POINT A: 193 lbs = $\frac{\text{BACKSTOP'S TOTAL WEIGHT LOAD X SEISMIC FACTOR}}{\text{2 SUPPORTS}}$

REACTIONS AT HINGE LINE AT POINT B FROM WEIGHT LOADS AND SEISMIC PERPENDICULAR TO BANK (FIG. 1)

BANK DOWN

R^B_{VER} VERTICAL REACTION AT POINT B: 486 lbs = $\frac{\text{WEIGHT OF F/R BRACE}}{\text{2 SUPPORTS}}$ + WEIGHT OF PULLEY $\pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS (A-B)}}$

R^B_{HOR} HORIZONTAL REACTION AT POINT B: 303 lbs = $\frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE TO MIDPOINT OF FRONT BRACE X 2}}$

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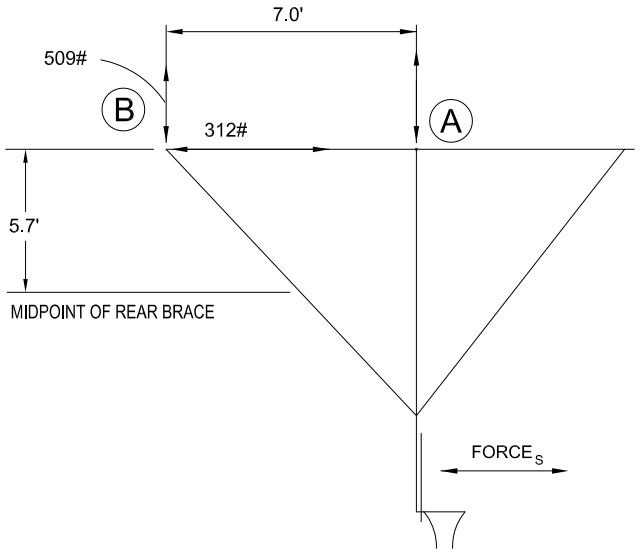
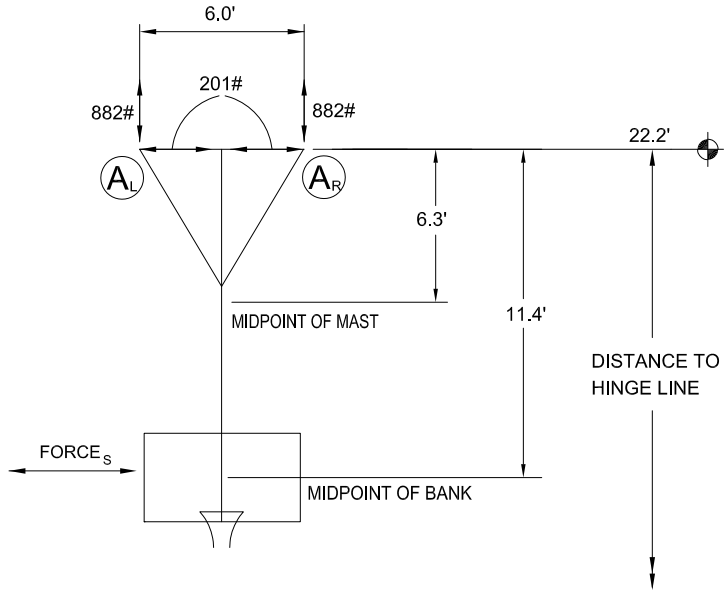


FORCES PERPENDICULAR TO BANK FIGURE 1



FORCES PARALLEL TO BANK FIGURE 2

WEIGHT LOAD CALCULATIONS

BACKSTOP'S TOTAL WEIGHT LOAD = 596 lbs (WEIGHT OF REAR BRACE + WEIGHT OF MAST + WEIGHT OF BANK

WEIGHT LOAD AT POINT "A" = 575 lbs $\left(\frac{\text{WEIGHT OF REAR BRACE}}{2}\right)$ + WEIGHT OF MAST + WEIGHT OF BANK

WEIGHT LOAD AT POINT "B" = 21 lbs $\left(\frac{\text{WEIGHT OF REAR BRACE}}{2}\right)$ + WEIGHT OF PULLEY

SEISMIC FACTORED MOMENTS AND SUM OF MOMENTS FOR BACKSTOP ELEMENTS

SEISMIC FACTOR = 0.7 (VARIES WITH SEISMIC ZONE, RIGIDITY OF SUPPORT & ROOM USE)

WEIGHT OF BANK (WB)	264 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF BANK (DB)	=	2112 ft.lbs	SEISMIC MOMENT (MB) (FT.LBS.)
WEIGHT OF REAR BRACE (WFRB)	42 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF REAR BRACE (DRB)	=	168 ft.lbs	SEISMIC MOMENT (MRB) (FT.LBS.)
WEIGHT OF MAST (WM)	290 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF MAST (DM)	=	1286 ft.lbs	SEISMIC MOMENT (MM) (FT.LBS.)
WB + WFRB + WM = BACKSTOP'S TOTAL WEIGHT LOAD				=	3566 ft.lbs	SUM OF THE MOMENTS = MB + MFB + MM

POINT REACTIONS FROM WEIGHT LOADS AND SEISMIC

REACTIONS AT HINGE LINE AT POINT A FROM WEIGHT LOADS AND SEISMIC PARALLEL TO BANK (FIG. 2)

BANK DOWN

R^A_{VER} VERTICAL REACTIONS AT POINT A: 882 lbs = $\frac{\text{WEIGHT LOAD AT POINT "A"}}{\text{2 SUPPORTS}} \pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS } (A_L\text{-}A)_R}$

R^A_{HOR} HORIZONTAL REACTION AT POINT A: 201 lbs = $\frac{\text{BACKSTOP'S TOTAL WEIGHT LOAD X SEISMIC FACTOR}}{\text{2 SUPPORTS}}$

REACTIONS AT HINGE LINE AT POINT B FROM WEIGHT LOADS AND SEISMIC PERPENDICULAR TO BANK (FIG. 1)

BANK DOWN

R^B_{VER} VERTICAL REACTION AT POINT B: 509 lbs = $\frac{\text{WEIGHT OF F/R BRACE}}{\text{2 SUPPORTS}}$ + WEIGHT OF PULLEY $\pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS (A-B)}}$

R^B_{HOR} HORIZONTAL REACTION AT POINT B: 312 lbs = $\frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE TO MIDPOINT OF FRONT BRACE X 2}}$

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23' Attachment Height

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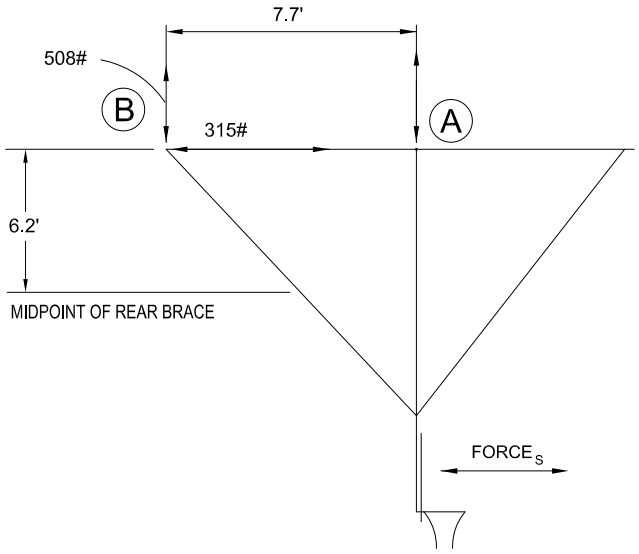
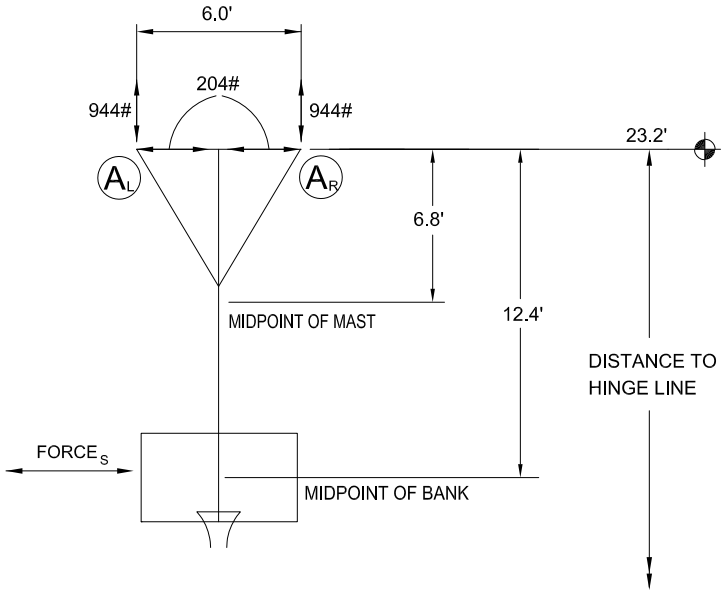


FORCES PERPENDICULAR TO BANK FIGURE 1



FORCES PARALLEL TO BANK FIGURE 2

WEIGHT LOAD CALCULATIONS

BACKSTOP'S TOTAL WEIGHT LOAD = 605 lbs (WEIGHT OF REAR BRACE + WEIGHT OF MAST + WEIGHT OF BANK

WEIGHT LOAD AT POINT "A" = 584 lbs $\left(\frac{\text{WEIGHT OF REAR BRACE}}{2}\right)$ + WEIGHT OF MAST + WEIGHT OF BANK

WEIGHT LOAD AT POINT "B" = 21 lbs $\left(\frac{\text{WEIGHT OF REAR BRACE}}{2}\right)$ + WEIGHT OF PULLEY

SEISMIC FACTORED MOMENTS AND SUM OF MOMENTS FOR BACKSTOP ELEMENTS

SEISMIC FACTOR = 0.7 (VARIES WITH SEISMIC ZONE, RIGIDITY OF SUPPORT & ROOM USE)

WEIGHT OF BANK (WB)	264 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF BANK (DB)	=	2297 ft.lbs	SEISMIC MOMENT (MB) (FT.LBS.)
WEIGHT OF REAR BRACE (WFRB)	42 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF REAR BRACE (DRB)	=	183 ft.lbs	SEISMIC MOMENT (MRB) (FT.LBS.)
WEIGHT OF MAST (WM)	299 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF MAST (DM)	=	1432 ft.lbs	SEISMIC MOMENT (MM) (FT.LBS.)
WB + WFRB + WM = BACKSTOP'S TOTAL WEIGHT LOAD				=	3911 ft.lbs	SUM OF THE MOMENTS = MB + MFB + MM

POINT REACTIONS FROM WEIGHT LOADS AND SEISMIC

REACTIONS AT HINGE LINE AT POINT A FROM WEIGHT LOADS AND SEISMIC PARALLEL TO BANK (FIG. 2)

BANK DOWN

R^A_{VER} VERTICAL REACTIONS AT POINT A: 944 lbs = $\frac{\text{WEIGHT LOAD AT POINT "A"}}{\text{2 SUPPORTS}} \pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS } (A_L\text{-}A)_R}$

R^A_{HOR} HORIZONTAL REACTION AT POINT A: 204 lbs = $\frac{\text{BACKSTOP'S TOTAL WEIGHT LOAD X SEISMIC FACTOR}}{\text{2 SUPPORTS}}$

REACTIONS AT HINGE LINE AT POINT B FROM WEIGHT LOADS AND SEISMIC PERPENDICULAR TO BANK (FIG. 1)

BANK DOWN

R^B_{VER} VERTICAL REACTION AT POINT B: 508 lbs = $\frac{\text{WEIGHT OF F/R BRACE}}{\text{2 SUPPORTS}}$ + WEIGHT OF PULLEY $\pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS (A-B)}}$

R^B_{HOR} HORIZONTAL REACTION AT POINT B: 315 lbs = $\frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE TO MIDPOINT OF FRONT BRACE X 2}}$

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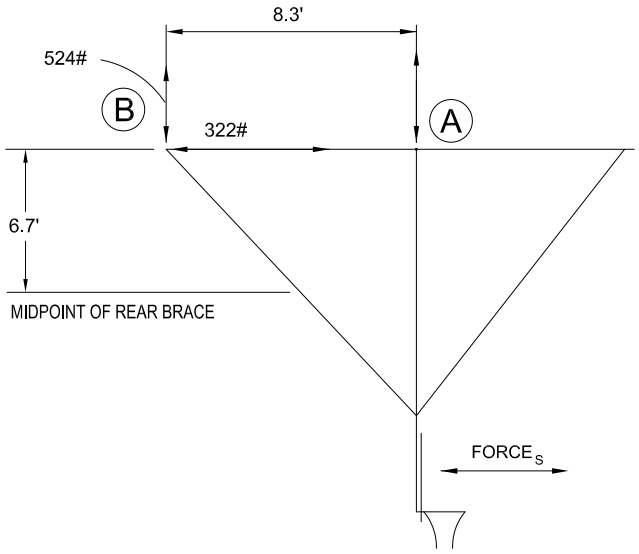
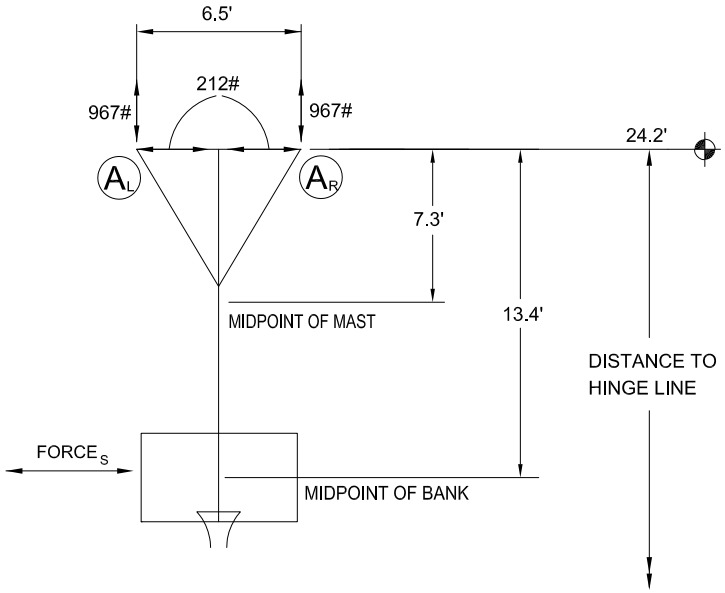


FORCES PERPENDICULAR TO BANK FIGURE 1



FORCES PARALLEL TO BANK FIGURE 2

WEIGHT LOAD CALCULATIONS

BACKSTOP'S TOTAL WEIGHT LOAD = 626 lbs (WEIGHT OF REAR BRACE + WEIGHT OF MAST + WEIGHT OF BANK

WEIGHT LOAD AT POINT "A" = 605 lbs $\left(\frac{\text{WEIGHT OF REAR BRACE}}{2}\right)$ + WEIGHT OF MAST + WEIGHT OF BANK

WEIGHT LOAD AT POINT "B" = 21 lbs $\left(\frac{\text{WEIGHT OF REAR BRACE}}{2}\right)$ + WEIGHT OF PULLEY

SEISMIC FACTORED MOMENTS AND SUM OF MOMENTS FOR BACKSTOP ELEMENTS

SEISMIC FACTOR = 0.7 (VARIES WITH SEISMIC ZONE, RIGIDITY OF SUPPORT & ROOM USE)

WEIGHT OF BANK (WB)	264 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF BANK (DB)	=	2481 ft.lbs	SEISMIC MOMENT (MB) (FT.LBS.)
WEIGHT OF REAR BRACE (WFRB)	42 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF REAR BRACE (DRB)	=	197 ft.lbs	SEISMIC MOMENT (MRB) (FT.LBS.)
WEIGHT OF MAST (WM)	320 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF MAST (DM)	=	1642 ft.lbs	SEISMIC MOMENT (MM) (FT.LBS.)
WB + WFRB + WM = BACKSTOP'S TOTAL WEIGHT LOAD				=	4321 ft.lbs	SUM OF THE MOMENTS = MB + MFB + MM

POINT REACTIONS FROM WEIGHT LOADS AND SEISMIC

REACTIONS AT HINGE LINE AT POINT A FROM WEIGHT LOADS AND SEISMIC PARALLEL TO BANK (FIG. 2)

BANK DOWN

R^A_{VER} VERTICAL REACTIONS AT POINT A: 967 lbs = $\frac{\text{WEIGHT LOAD AT POINT "A"}}{\text{2 SUPPORTS}} \pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS } (A_L\text{-}A)_R}$

R^A_{HOR} HORIZONTAL REACTION AT POINT A: 212 lbs = $\frac{\text{BACKSTOP'S TOTAL WEIGHT LOAD X SEISMIC FACTOR}}{\text{2 SUPPORTS}}$

REACTIONS AT HINGE LINE AT POINT B FROM WEIGHT LOADS AND SEISMIC PERPENDICULAR TO BANK (FIG. 1)

BANK DOWN

R^B_{VER} VERTICAL REACTION AT POINT B: 524 lbs = $\frac{\text{WEIGHT OF F/R BRACE}}{\text{2 SUPPORTS}}$ + WEIGHT OF PULLEY $\pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS (A-B)}}$

R^B_{HOR} HORIZONTAL REACTION AT POINT B: 322 lbs = $\frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE TO MIDPOINT OF FRONT BRACE X 2}}$

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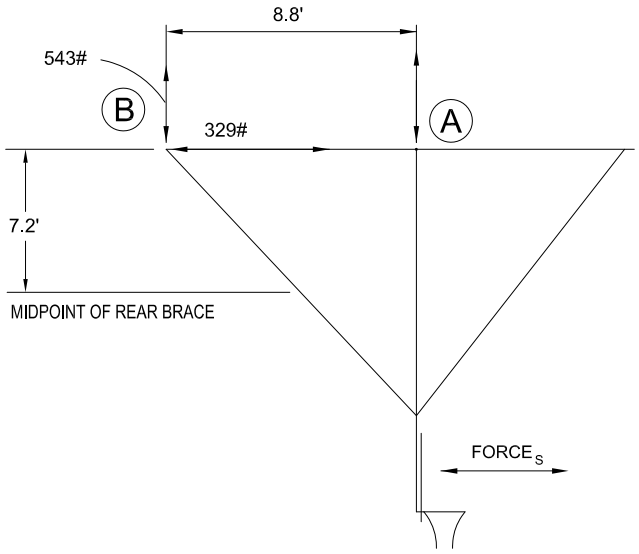
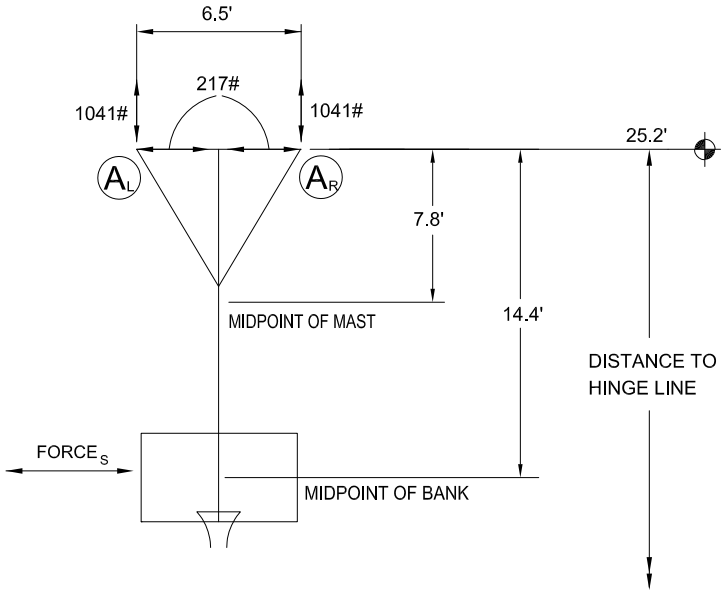


FORCES PERPENDICULAR TO BANK FIGURE 1



FORCES PARALLEL TO BANK FIGURE 2

WEIGHT LOAD CALCULATIONS

BACKSTOP'S TOTAL WEIGHT LOAD = 648 lbs (WEIGHT OF REAR BRACE + WEIGHT OF MAST + WEIGHT OF BANK

WEIGHT LOAD AT POINT "A" = 620 lbs $\left(\frac{\text{WEIGHT OF REAR BRACE}}{2}\right)$ + WEIGHT OF MAST + WEIGHT OF BANK

WEIGHT LOAD AT POINT "B" = 28 lbs $\left(\frac{\text{WEIGHT OF REAR BRACE}}{2}\right)$ + WEIGHT OF PULLEY

SEISMIC FACTORED MOMENTS AND SUM OF MOMENTS FOR BACKSTOP ELEMENTS

SEISMIC FACTOR = 0.7 (VARIES WITH SEISMIC ZONE, RIGIDITY OF SUPPORT & ROOM USE)

WEIGHT OF BANK (WB)	264 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF BANK (DB)	=	2666 ft.lbs	SEISMIC MOMENT (MB) (FT.LBS.)
WEIGHT OF REAR BRACE (WFRB)	55 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF REAR BRACE (DRB)	=	278 ft.lbs	SEISMIC MOMENT (MRB) (FT.LBS.)
WEIGHT OF MAST (WM)	329 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF MAST (DM)	=	1805 ft.lbs	SEISMIC MOMENT (MM) (FT.LBS.)
WB + WFRB + WM = BACKSTOP'S TOTAL WEIGHT LOAD				=	4749 ft.lbs	SUM OF THE MOMENTS = MB + MFB + MM

POINT REACTIONS FROM WEIGHT LOADS AND SEISMIC

REACTIONS AT HINGE LINE AT POINT A FROM WEIGHT LOADS AND SEISMIC PARALLEL TO BANK (FIG. 2)

BANK DOWN

R^A_{VER} VERTICAL REACTIONS AT POINT A: 1041 lbs = $\frac{\text{WEIGHT LOAD AT POINT "A"}}{\text{2 SUPPORTS}} \pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS } (A_L\text{-}A)_R}$

R^A_{HOR} HORIZONTAL REACTION AT POINT A: 217 lbs = $\frac{\text{BACKSTOP'S TOTAL WEIGHT LOAD X SEISMIC FACTOR}}{\text{2 SUPPORTS}}$

REACTIONS AT HINGE LINE AT POINT B FROM WEIGHT LOADS AND SEISMIC PERPENDICULAR TO BANK (FIG. 1)

BANK DOWN

R^B_{VER} VERTICAL REACTION AT POINT B: 543 lbs = $\frac{\text{WEIGHT OF F/R BRACE}}{\text{2 SUPPORTS}}$ + WEIGHT OF PULLEY $\pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS (A-B)}}$

R^B_{HOR} HORIZONTAL REACTION AT POINT B: 329 lbs = $\frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE TO MIDPOINT OF FRONT BRACE X 2}}$

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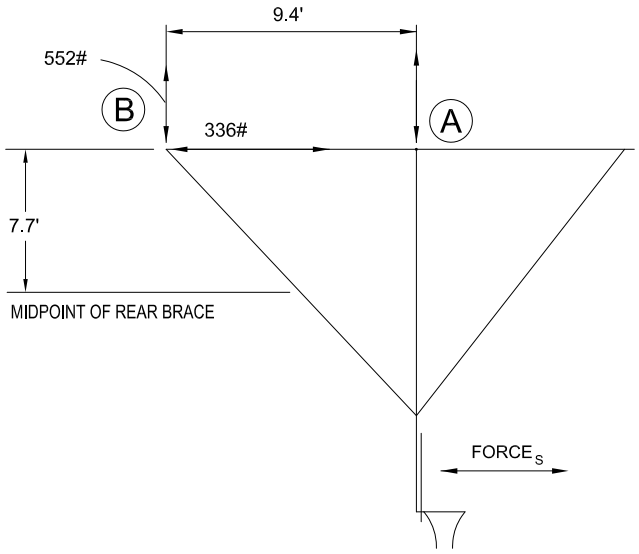
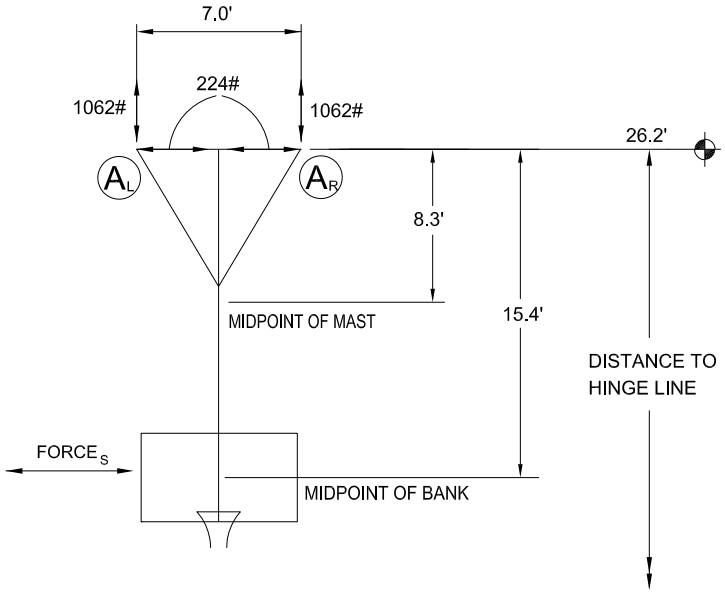


FORCES PERPENDICULAR TO BANK FIGURE 1



FORCES PARALLEL TO BANK FIGURE 2

WEIGHT LOAD CALCULATIONS

BACKSTOP'S TOTAL WEIGHT LOAD = 669 lbs (WEIGHT OF REAR BRACE + WEIGHT OF MAST + WEIGHT OF BANK

WEIGHT LOAD AT POINT "A" = 641 lbs $\left(\frac{\text{WEIGHT OF REAR BRACE}}{2}\right)$ + WEIGHT OF MAST + WEIGHT OF BANK

WEIGHT LOAD AT POINT "B" = 28 lbs $\left(\frac{\text{WEIGHT OF REAR BRACE}}{2}\right)$ + WEIGHT OF PULLEY

SEISMIC FACTORED MOMENTS AND SUM OF MOMENTS FOR BACKSTOP ELEMENTS

SEISMIC FACTOR = 0.7 (VARIES WITH SEISMIC ZONE, RIGIDITY OF SUPPORT & ROOM USE)

WEIGHT OF BANK (WB)	264 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF BANK (DB)	=	2851 ft.lbs	SEISMIC MOMENT (MB) (FT.LBS.)
WEIGHT OF REAR BRACE (WFRB)	55 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF REAR BRACE (DRB)	=	297 ft.lbs	SEISMIC MOMENT (MRB) (FT.LBS.)
WEIGHT OF MAST (WM)	350 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF MAST (DM)	=	2041 ft.lbs	SEISMIC MOMENT (MM) (FT.LBS.)
WB + WFRB + WM = BACKSTOP'S TOTAL WEIGHT LOAD				=	5189 ft.lbs	SUM OF THE MOMENTS = MB + MFB + MM

POINT REACTIONS FROM WEIGHT LOADS AND SEISMIC

REACTIONS AT HINGE LINE AT POINT A FROM WEIGHT LOADS AND SEISMIC PARALLEL TO BANK (FIG. 2)

BANK DOWN

R^A_{VER} VERTICAL REACTIONS AT POINT A: 1062 lbs = $\frac{\text{WEIGHT LOAD AT POINT "A"}}{\text{2 SUPPORTS}} \pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS } (A_L\text{-}A)_R}$

R^A_{HOR} HORIZONTAL REACTION AT POINT A: 224 lbs = $\frac{\text{BACKSTOP'S TOTAL WEIGHT LOAD X SEISMIC FACTOR}}{\text{2 SUPPORTS}}$

REACTIONS AT HINGE LINE AT POINT B FROM WEIGHT LOADS AND SEISMIC PERPENDICULAR TO BANK (FIG. 1)

BANK DOWN

R^B_{VER} VERTICAL REACTION AT POINT B: 552 lbs = $\frac{\text{WEIGHT OF F/R BRACE}}{\text{2 SUPPORTS}}$ + WEIGHT OF PULLEY $\pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS (A-B)}}$

R^B_{HOR} HORIZONTAL REACTION AT POINT B: 336 lbs = $\frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE TO MIDPOINT OF FRONT BRACE X 2}}$

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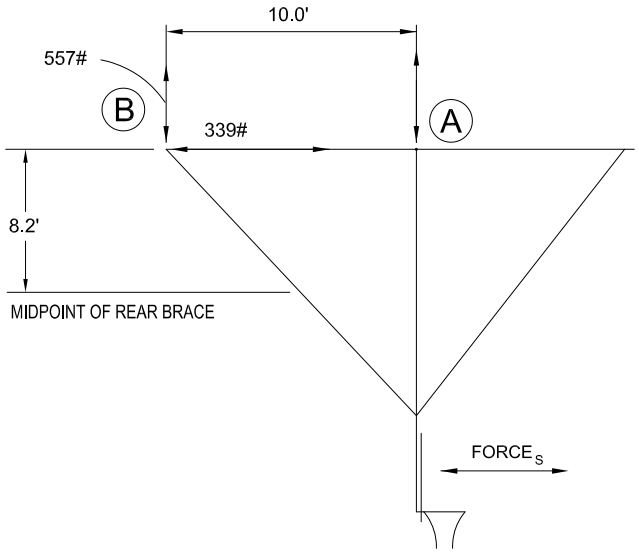
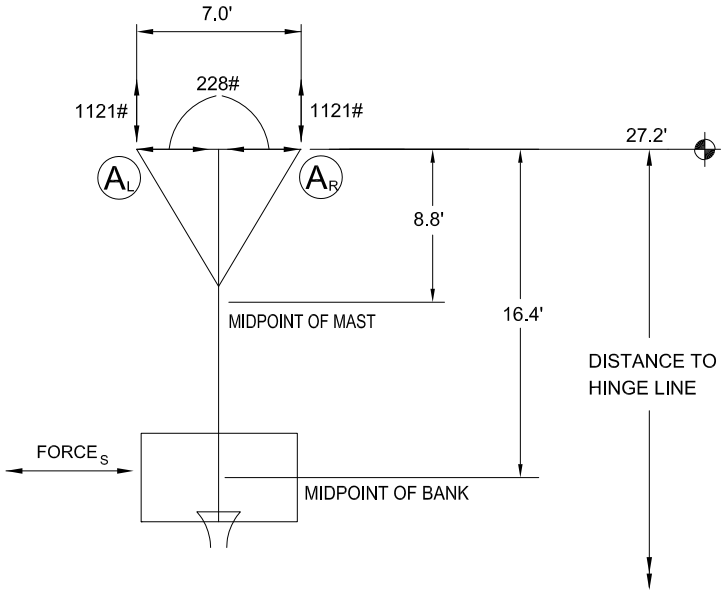


FORCES PERPENDICULAR TO BANK FIGURE 1



FORCES PARALLEL TO BANK FIGURE 2

WEIGHT LOAD CALCULATIONS

BACKSTOP'S TOTAL WEIGHT LOAD = 678 lbs (WEIGHT OF REAR BRACE + WEIGHT OF MAST + WEIGHT OF BANK

WEIGHT LOAD AT POINT "A" = 651 lbs $\left(\frac{\text{WEIGHT OF REAR BRACE}}{2}\right)$ + WEIGHT OF MAST + WEIGHT OF BANK

WEIGHT LOAD AT POINT "B" = 28 lbs $\left(\frac{\text{WEIGHT OF REAR BRACE}}{2}\right)$ + WEIGHT OF PULLEY

SEISMIC FACTORED MOMENTS AND SUM OF MOMENTS FOR BACKSTOP ELEMENTS

SEISMIC FACTOR = 0.7 (VARIES WITH SEISMIC ZONE, RIGIDITY OF SUPPORT & ROOM USE)

WEIGHT OF BANK (WB)	264 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF BANK (DB)	=	3036 ft.lbs	SEISMIC MOMENT (MB) (FT.LBS.)
WEIGHT OF REAR BRACE (WFRB)	55 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF REAR BRACE (DRB)	=	316 ft.lbs	SEISMIC MOMENT (MRB) (FT.LBS.)
WEIGHT OF MAST (WM)	359 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF MAST (DM)	=	2221 ft.lbs	SEISMIC MOMENT (MM) (FT.LBS.)
WB + WFRB + WM = BACKSTOP'S TOTAL WEIGHT LOAD				=	5573 ft.lbs	SUM OF THE MOMENTS = MB + MFB + MM

POINT REACTIONS FROM WEIGHT LOADS AND SEISMIC

REACTIONS AT HINGE LINE AT POINT A FROM WEIGHT LOADS AND SEISMIC PARALLEL TO BANK (FIG. 2)

BANK DOWN

R^A_{VER} VERTICAL REACTIONS AT POINT A: 1121 lbs = $\frac{\text{WEIGHT LOAD AT POINT "A"}}{\text{2 SUPPORTS}} \pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS } (A_L\text{-}A)_R}$

R^A_{HOR} HORIZONTAL REACTION AT POINT A: 228 lbs = $\frac{\text{BACKSTOP'S TOTAL WEIGHT LOAD X SEISMIC FACTOR}}{\text{2 SUPPORTS}}$

REACTIONS AT HINGE LINE AT POINT B FROM WEIGHT LOADS AND SEISMIC PERPENDICULAR TO BANK (FIG. 1)

BANK DOWN

R^B_{VER} VERTICAL REACTION AT POINT B: 557 lbs = $\frac{\text{WEIGHT OF F/R BRACE}}{\text{2 SUPPORTS}}$ + WEIGHT OF PULLEY $\pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS (A-B)}}$

R^B_{HOR} HORIZONTAL REACTION AT POINT B: 339 lbs = $\frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE TO MIDPOINT OF FRONT BRACE X 2}}$

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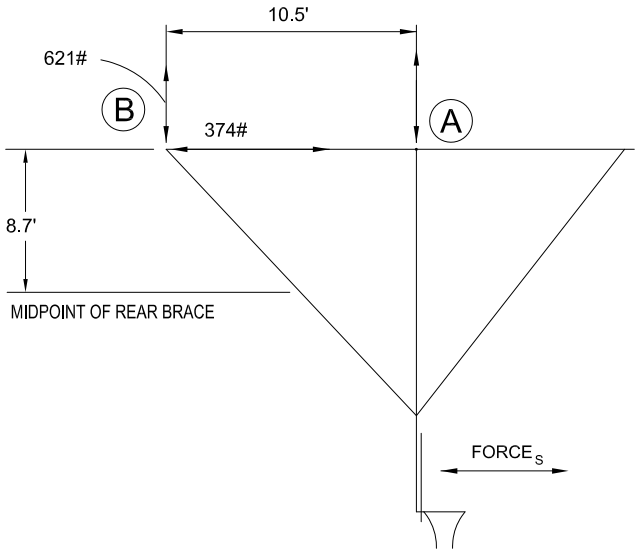
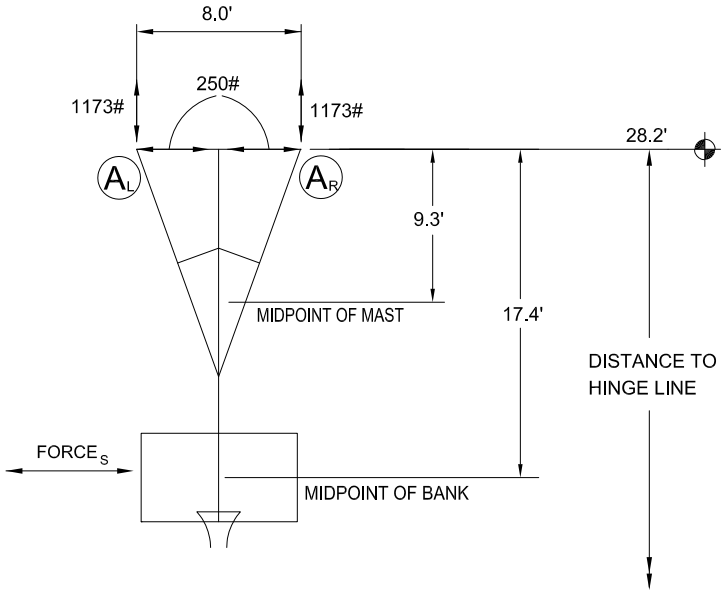


FORCES PERPENDICULAR TO BANK FIGURE 1



FORCES PARALLEL TO BANK FIGURE 2

WEIGHT LOAD CALCULATIONS

BACKSTOP'S TOTAL WEIGHT LOAD = 761 lbs (WEIGHT OF REAR BRACE + WEIGHT OF MAST + WEIGHT OF BANK

WEIGHT LOAD AT POINT "A" = 716 lbs $\left(\frac{\text{WEIGHT OF REAR BRACE}}{2}\right)$ + WEIGHT OF MAST + WEIGHT OF BANK

WEIGHT LOAD AT POINT "B" = 46 lbs $\left(\frac{\text{WEIGHT OF REAR BRACE}}{2}\right)$ + WEIGHT OF PULLEY

SEISMIC FACTORED MOMENTS AND SUM OF MOMENTS FOR BACKSTOP ELEMENTS

SEISMIC FACTOR = 0.7 (VARIES WITH SEISMIC ZONE, RIGIDITY OF SUPPORT & ROOM USE)

WEIGHT OF BANK (WB)	280 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF BANK (DB)	=	3416 ft.lbs	SEISMIC MOMENT (MB) (FT.LBS.)
WEIGHT OF REAR BRACE (WFRB)	91 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF REAR BRACE (DRB)	=	555 ft.lbs	SEISMIC MOMENT (MRB) (FT.LBS.)
WEIGHT OF MAST (WM)	390 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF MAST (DM)	=	2551 ft.lbs	SEISMIC MOMENT (MM) (FT.LBS.)
WB + WFRB + WM = BACKSTOP'S TOTAL WEIGHT LOAD				=	6521 ft.lbs	SUM OF THE MOMENTS = MB + MFB + MM

POINT REACTIONS FROM WEIGHT LOADS AND SEISMIC

REACTIONS AT HINGE LINE AT POINT A FROM WEIGHT LOADS AND SEISMIC PARALLEL TO BANK (FIG. 2)

BANK DOWN

R^A_{VER} VERTICAL REACTIONS AT POINT A: 1173 lbs = $\frac{\text{WEIGHT LOAD AT POINT "A"}}{\text{2 SUPPORTS}} \pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS } (A_L\text{-}A)_R}$

R^A_{HOR} HORIZONTAL REACTION AT POINT A: 250 lbs = $\frac{\text{BACKSTOP'S TOTAL WEIGHT LOAD X SEISMIC FACTOR}}{\text{2 SUPPORTS}}$

REACTIONS AT HINGE LINE AT POINT B FROM WEIGHT LOADS AND SEISMIC PERPENDICULAR TO BANK (FIG. 1)

BANK DOWN

R^B_{VER} VERTICAL REACTION AT POINT B: 621 lbs = $\frac{\text{WEIGHT OF F/R BRACE}}{\text{2 SUPPORTS}}$ + WEIGHT OF PULLEY $\pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS (A-B)}}$

R^B_{HOR} HORIZONTAL REACTION AT POINT B: 374 lbs = $\frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE TO MIDPOINT OF FRONT BRACE X 2}}$

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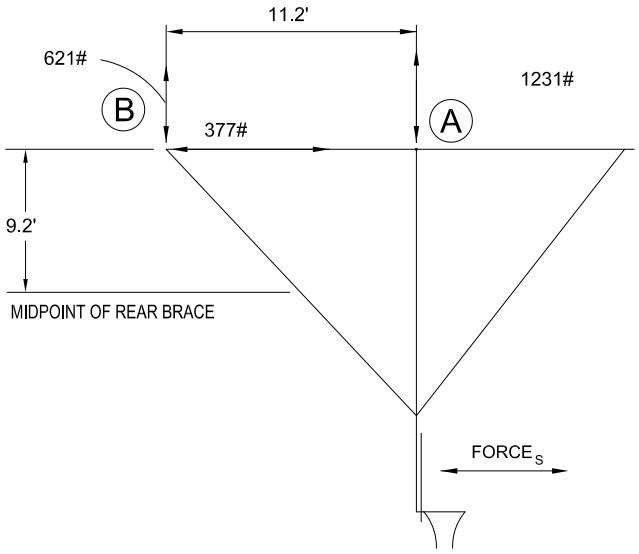
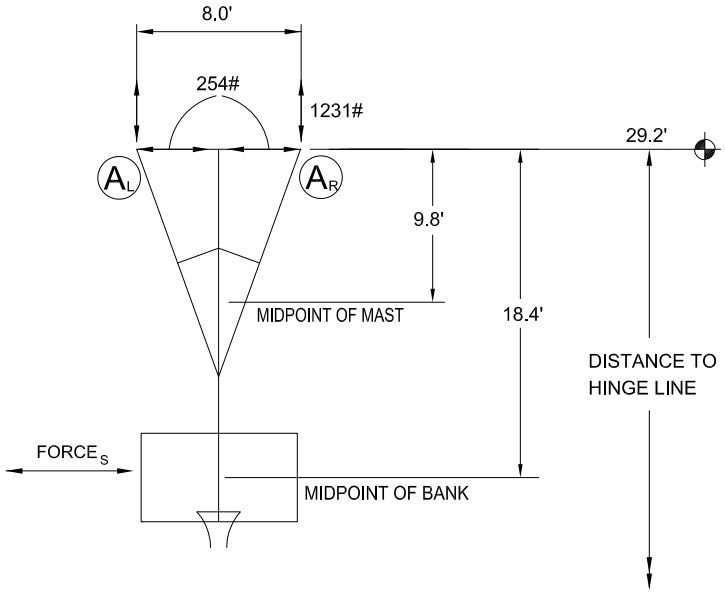


FORCES PERPENDICULAR TO BANK FIGURE 1



FORCES PARALLEL TO BANK FIGURE 2

WEIGHT LOAD CALCULATIONS

BACKSTOP'S TOTAL WEIGHT LOAD = 771 lbs (WEIGHT OF REAR BRACE + WEIGHT OF MAST + WEIGHT OF BANK

WEIGHT LOAD AT POINT "A" = 725 lbs $\left(\frac{\text{WEIGHT OF REAR BRACE}}{2}\right)$ + WEIGHT OF MAST + WEIGHT OF BANK

WEIGHT LOAD AT POINT "B" = 46 lbs $\left(\frac{\text{WEIGHT OF REAR BRACE}}{2}\right)$ + WEIGHT OF PULLEY

SEISMIC FACTORED MOMENTS AND SUM OF MOMENTS FOR BACKSTOP ELEMENTS

SEISMIC FACTOR = 0.7 (VARIES WITH SEISMIC ZONE, RIGIDITY OF SUPPORT & ROOM USE)

WEIGHT OF BANK (WB)	280 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF BANK (DB)	=	3612 ft.lbs	SEISMIC MOMENT (MB) (FT.LBS.)
WEIGHT OF REAR BRACE (WFRB)	91 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF REAR BRACE (DRB)	=	587 ft.lbs	SEISMIC MOMENT (MRB) (FT.LBS.)
WEIGHT OF MAST (WM)	400 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF MAST (DM)	=	2751 ft.lbs	SEISMIC MOMENT (MM) (FT.LBS.)
WB + WFRB + WM = BACKSTOP'S TOTAL WEIGHT LOAD				=	6950 ft.lbs	SUM OF THE MOMENTS = MB + MFB + MM

POINT REACTIONS FROM WEIGHT LOADS AND SEISMIC

REACTIONS AT HINGE LINE AT POINT A FROM WEIGHT LOADS AND SEISMIC PARALLEL TO BANK (FIG. 2)

BANK DOWN

R^A_{VER} VERTICAL REACTIONS AT POINT A: 1231 lbs = $\frac{\text{WEIGHT LOAD AT POINT "A"}}{\text{2 SUPPORTS}} \pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS } (A_L\text{-}A)_R}$

R^A_{HOR} HORIZONTAL REACTION AT POINT A: 254 lbs = $\frac{\text{BACKSTOP'S TOTAL WEIGHT LOAD X SEISMIC FACTOR}}{\text{2 SUPPORTS}}$

REACTIONS AT HINGE LINE AT POINT B FROM WEIGHT LOADS AND SEISMIC PERPENDICULAR TO BANK (FIG. 1)

BANK DOWN

R^B_{VER} VERTICAL REACTION AT POINT B: 621 lbs = $\frac{\text{WEIGHT OF F/R BRACE}}{\text{2 SUPPORTS}}$ + WEIGHT OF PULLEY $\pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS (A-B)}}$

R^B_{HOR} HORIZONTAL REACTION AT POINT B: 377 lbs = $\frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE TO MIDPOINT OF FRONT BRACE X 2}}$

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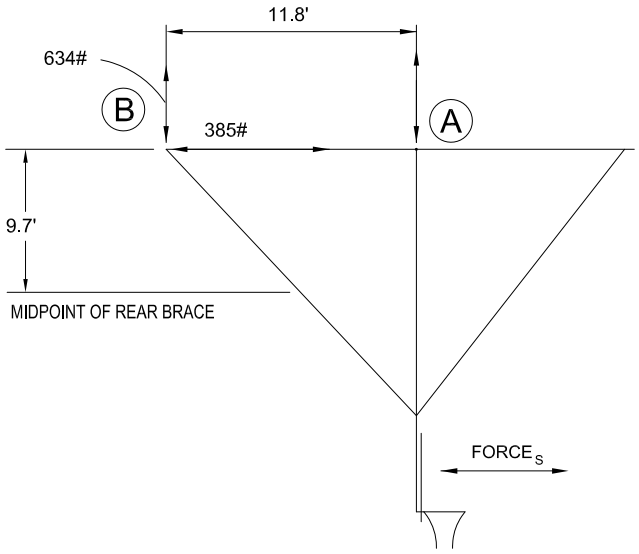
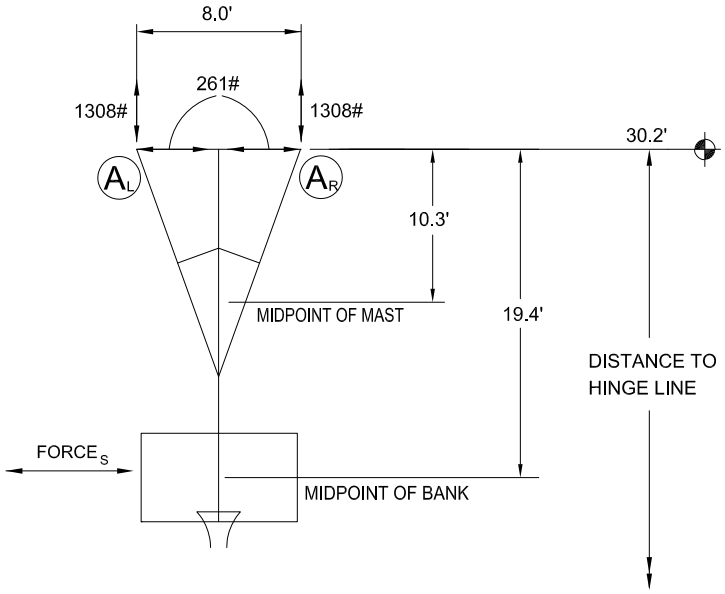


FORCES PERPENDICULAR TO BANK FIGURE 1



FORCES PARALLEL TO BANK FIGURE 2

WEIGHT LOAD CALCULATIONS

BACKSTOP'S TOTAL WEIGHT LOAD = 794 lbs (WEIGHT OF REAR BRACE + WEIGHT OF MAST + WEIGHT OF BANK

WEIGHT LOAD AT POINT "A" = 745 lbs $\left(\frac{\text{WEIGHT OF REAR BRACE}}{2}\right)$ + WEIGHT OF MAST + WEIGHT OF BANK

WEIGHT LOAD AT POINT "B" = 49 lbs $\left(\frac{\text{WEIGHT OF REAR BRACE}}{2}\right)$ + WEIGHT OF PULLEY

SEISMIC FACTORED MOMENTS AND SUM OF MOMENTS FOR BACKSTOP ELEMENTS

SEISMIC FACTOR = 0.7 (VARIES WITH SEISMIC ZONE, RIGIDITY OF SUPPORT & ROOM USE)

WEIGHT OF BANK (WB)	280 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF BANK (DB)	=	3808 ft.lbs	SEISMIC MOMENT (MB) (FT.LBS.)
WEIGHT OF REAR BRACE (WFRB)	97 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF REAR BRACE (DRB)	=	660 ft.lbs	SEISMIC MOMENT (MRB) (FT.LBS.)
WEIGHT OF MAST (WM)	417 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF MAST (DM)	=	3015 ft.lbs	SEISMIC MOMENT (MM) (FT.LBS.)
WB + WFRB + WM = BACKSTOP'S TOTAL WEIGHT LOAD				=	7482 ft.lbs	SUM OF THE MOMENTS = MB + MFB + MM

POINT REACTIONS FROM WEIGHT LOADS AND SEISMIC

REACTIONS AT HINGE LINE AT POINT A FROM WEIGHT LOADS AND SEISMIC PARALLEL TO BANK (FIG. 2)

BANK DOWN

R^A_{VER} VERTICAL REACTIONS AT POINT A: 1308 lbs = $\frac{\text{WEIGHT LOAD AT POINT "A"}}{\text{2 SUPPORTS}} \pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS } (A_L\text{-}A)_R}$

R^A_{HOR} HORIZONTAL REACTION AT POINT A: 261 lbs = $\frac{\text{BACKSTOP'S TOTAL WEIGHT LOAD X SEISMIC FACTOR}}{\text{2 SUPPORTS}}$

REACTIONS AT HINGE LINE AT POINT B FROM WEIGHT LOADS AND SEISMIC PERPENDICULAR TO BANK (FIG. 1)

BANK DOWN

R^B_{VER} VERTICAL REACTION AT POINT B: 634 lbs = $\frac{\text{WEIGHT OF F/R BRACE}}{\text{2 SUPPORTS}}$ + WEIGHT OF PULLEY $\pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS (A-B)}}$

R^B_{HOR} HORIZONTAL REACTION AT POINT B: 385 lbs = $\frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE TO MIDPOINT OF FRONT BRACE X 2}}$

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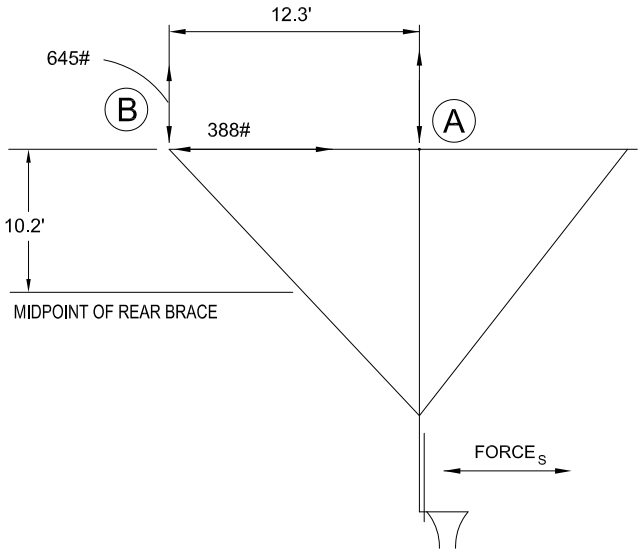
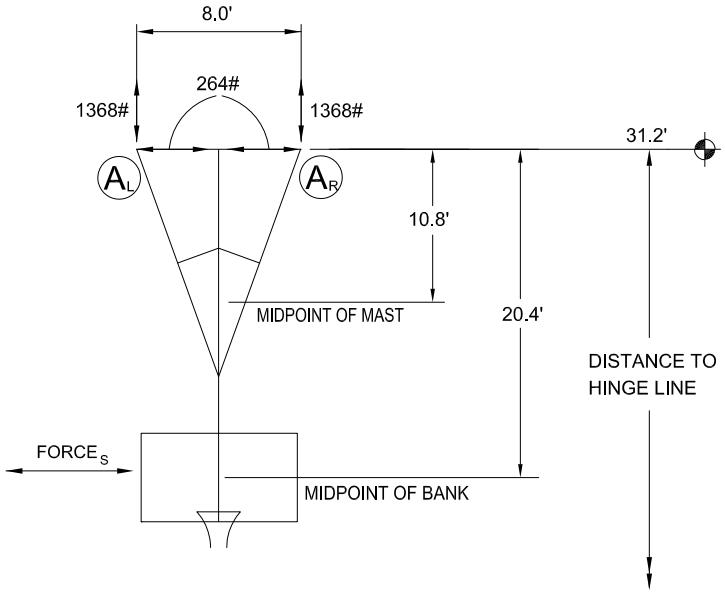


FORCES PERPENDICULAR TO BANK FIGURE 1



FORCES PARALLEL TO BANK FIGURE 2

WEIGHT LOAD CALCULATIONS

BACKSTOP'S TOTAL WEIGHT LOAD = 803 lbs (WEIGHT OF REAR BRACE + WEIGHT OF MAST + WEIGHT OF BANK

WEIGHT LOAD AT POINT "A" = 754 lbs $\left(\frac{\text{WEIGHT OF REAR BRACE}}{2}\right)$ + WEIGHT OF MAST + WEIGHT OF BANK

WEIGHT LOAD AT POINT "B" = 49 lbs $\left(\frac{\text{WEIGHT OF REAR BRACE}}{2}\right)$ + WEIGHT OF PULLEY

SEISMIC FACTORED MOMENTS AND SUM OF MOMENTS FOR BACKSTOP ELEMENTS

SEISMIC FACTOR = 0.7 (VARIES WITH SEISMIC ZONE, RIGIDITY OF SUPPORT & ROOM USE)

WEIGHT OF BANK (WB)	280 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF BANK (DB)	=	4004 ft.lbs	SEISMIC MOMENT (MB) (FT.LBS.)
WEIGHT OF REAR BRACE (WFRB)	97 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF REAR BRACE (DRB)	=	694 ft.lbs	SEISMIC MOMENT (MRB) (FT.LBS.)
WEIGHT OF MAST (WM)	426 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF MAST (DM)	=	3231 ft.lbs	SEISMIC MOMENT (MM) (FT.LBS.)
WB + WFRB + WM = BACKSTOP'S TOTAL WEIGHT LOAD				=	7929 ft.lbs	SUM OF THE MOMENTS = MB + MFB + MM

POINT REACTIONS FROM WEIGHT LOADS AND SEISMIC

REACTIONS AT HINGE LINE AT POINT A FROM WEIGHT LOADS AND SEISMIC PARALLEL TO BANK (FIG. 2)

BANK DOWN

R^A_{VER} VERTICAL REACTIONS AT POINT A: 1368 lbs = $\frac{\text{WEIGHT LOAD AT POINT "A"}}{\text{2 SUPPORTS}} \pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS } (A_L\text{-}A)_R}$

R^A_{HOR} HORIZONTAL REACTION AT POINT A: 264 lbs = $\frac{\text{BACKSTOP'S TOTAL WEIGHT LOAD X SEISMIC FACTOR}}{\text{2 SUPPORTS}}$

REACTIONS AT HINGE LINE AT POINT B FROM WEIGHT LOADS AND SEISMIC PERPENDICULAR TO BANK (FIG. 1)

BANK DOWN

R^B_{VER} VERTICAL REACTION AT POINT B: 645 lbs = $\frac{\text{WEIGHT OF F/R BRACE}}{\text{2 SUPPORTS}}$ + WEIGHT OF PULLEY $\pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS (A-B)}}$

R^B_{HOR} HORIZONTAL REACTION AT POINT B: 388 lbs = $\frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE TO MIDPOINT OF FRONT BRACE X 2}}$

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