STATIC EQUIVALENT LOADING: 917 STYLE BACKSTOP

CEILING SUSPENDED, FORWARD FOLD, REAR BRACED UNIT

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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:

STATIC EQUIVALENT LOADING SHEET

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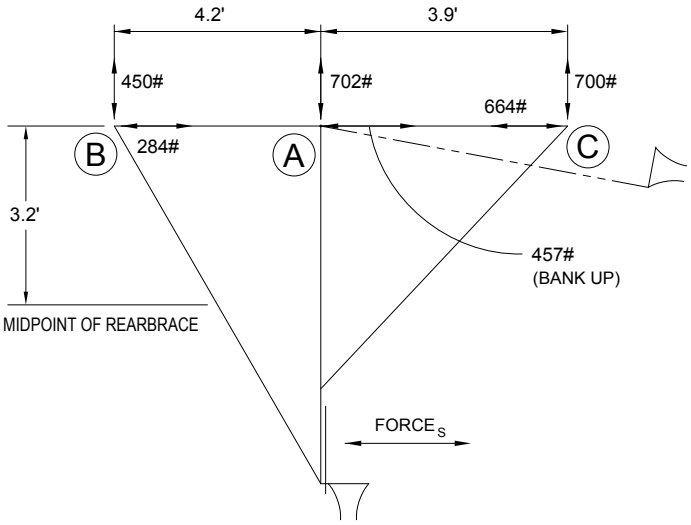
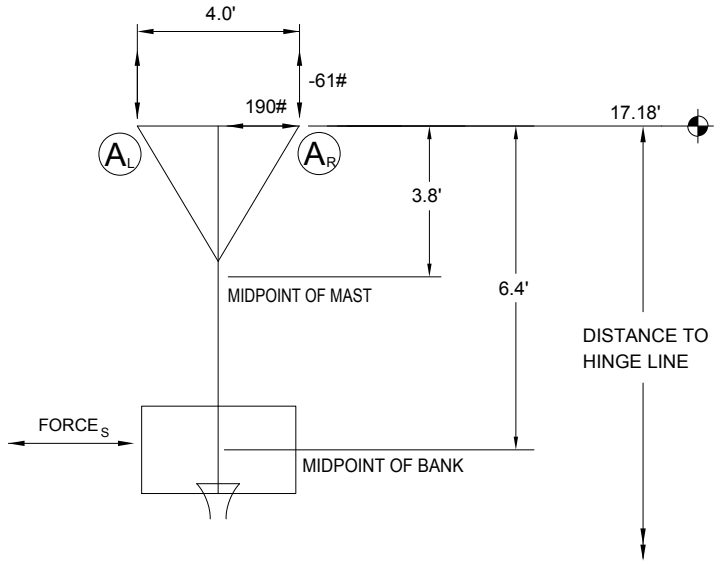


FORCES PERPENDICULAR TO BANK FIGURE 1



FORCES PARALLEL TO BANK FIGURE 2

WEIGHT LOAD CALCULATIONS (WITH BANK DOWN)

BACKSTOP'S TOTAL WEIGHT LOAD = 542 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 ASSEMBLY

WEIGHT LOAD AT POINT "B" = 15 lbs $\frac{\text{WEIGHT OF REAR BRACE}}{2}$

+PLEASE NOTE THESE ARE ESTIMATED WEIGHT LOADS FROM THE BACKSTOP MAST HANGERS TO THE FLOOR. THESE ESTIMATES DO NOT INCLUDE ANY SUPERSTRUCTURE WEIGHTS.

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)	=	1189 ft.lbs	SEISMIC MOMENT (MB) (FT.LBS.)
WEIGHT OF REAR BRACE (WRB)	30 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF REAR BRACE (DRB)	=	68 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 + WRB + WM = BACKSTOP'S TOTAL WEIGHT LOAD				=	1826 ft.lbs	SUM OF THE MOMENTS = MB + MRB + MM

POINT REACTIONS FROM WEIGHT LOADS AND SEISMIC WITH BANK DOWN

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: 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: 450 lbs = $\frac{\text{WEIGHT OF REAR BRACE}}{\text{2 SUPPORTS}} \pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS (A-B)}}$

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

POINT REACTIONS FROM WEIGHT LOADS AND SEISMIC WITH BANK UP

HOIST CABLE TENSION AT POINT C: 664 lbs = $\frac{\text{SUM OF THE MOMENTS}}{\text{SEISMIC FACTOR X DISTANCE FROM A TO C}}$

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

BANK UP

$R^{A\text{-}BU}_{VER}$ VERTICAL REACTION AT POINT A: -61 lbs = $\frac{\text{BACKSTOP'S TOTAL WEIGHT LOAD - HOIST CABLE TENSION}}{\text{2 SUPPORTS}}$

$R^{A\text{-}BU}_{HOR}$ HORIZONTAL REACTION AT POINT A: FROM SEISMIC PARALLEL TO BANK: 457 lbs = $\pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE FROM } A_L \text{ TO } A_R}$

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

BANK UP

$R^{C\text{-}BU}_{VER}$ VERTICAL REACTION AT POINT C: 700 lbs = HOIST CABLE TENSION + WEIGHT LOAD AT POINT "C"

$R^{C\text{-}BU}_{HOR}$ HORIZONTAL REACTION AT POINT C: 664 lbs = HOIST CABLE TENSION

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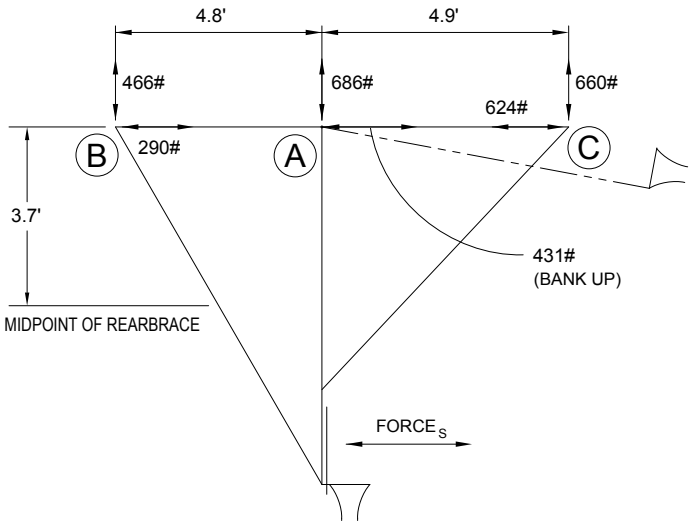
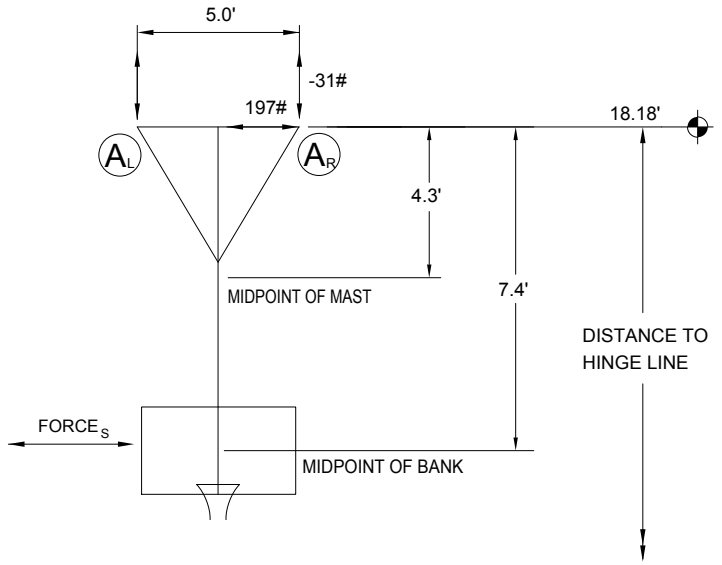


FORCES PERPENDICULAR TO BANK FIGURE 1



FORCES PARALLEL TO BANK FIGURE 2

WEIGHT LOAD CALCULATIONS (WITH BANK DOWN)

BACKSTOP'S TOTAL WEIGHT LOAD = 561 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 ASSEMBLY

WEIGHT LOAD AT POINT "B" = 15 lbs $\frac{\text{WEIGHT OF REAR BRACE}}{2}$

+PLEASE NOTE THESE ARE ESTIMATED WEIGHT LOADS FROM THE BACKSTOP MAST HANGERS TO THE FLOOR. THESE ESTIMATES DO NOT INCLUDE ANY SUPERSTRUCTURE WEIGHTS.

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 (WRB)	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 + WRB + WM = BACKSTOP'S TOTAL WEIGHT LOAD				=	2155 ft.lbs	SUM OF THE MOMENTS = MB + MRB + MM

POINT REACTIONS FROM WEIGHT LOADS AND SEISMIC WITH BANK DOWN

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 = $\frac{\text{WEIGHT LOAD AT POINT "A"}}{\text{2 SUPPORTS}} \pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS } (A_L A)_R}$

R^{A}_{HOR} HORIZONTAL REACTION AT POINT A: 197 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: 466 lbs = $\frac{\text{WEIGHT OF REAR BRACE}}{\text{2 SUPPORTS}} \pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS (A-B)}}$

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

POINT REACTIONS FROM WEIGHT LOADS AND SEISMIC WITH BANK UP

HOIST CABLE TENSION AT POINT C: 624 lbs = $\frac{\text{SUM OF THE MOMENTS}}{\text{SEISMIC FACTOR X DISTANCE FROM A TO C}}$

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

BANK UP

$R^{A\text{-}BU}_{VER}$ VERTICAL REACTION AT POINT A: -31 lbs = $\frac{\text{BACKSTOP'S TOTAL WEIGHT LOAD - HOIST CABLE TENSION}}{\text{2 SUPPORTS}}$

$R^{A\text{-}BU}_{HOR}$ HORIZONTAL REACTION AT POINT A: FROM SEISMIC PARALLEL TO BANK: 431 lbs = $\pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE FROM } A_L \text{ TO } A_R}$

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

BANK UP

$R^{C\text{-}BU}_{VER}$ VERTICAL REACTION AT POINT C: 660 lbs = HOIST CABLE TENSION + WEIGHT LOAD AT POINT "C"

$R^{C\text{-}BU}_{HOR}$ HORIZONTAL REACTION AT POINT C: 624 lbs = HOIST CABLE TENSION

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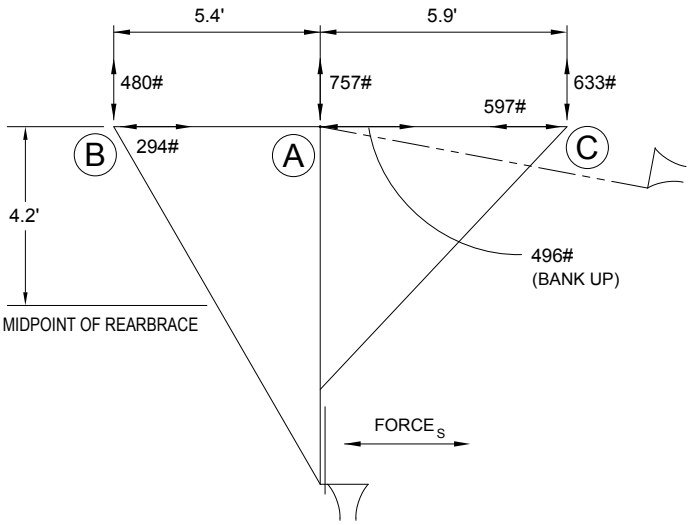
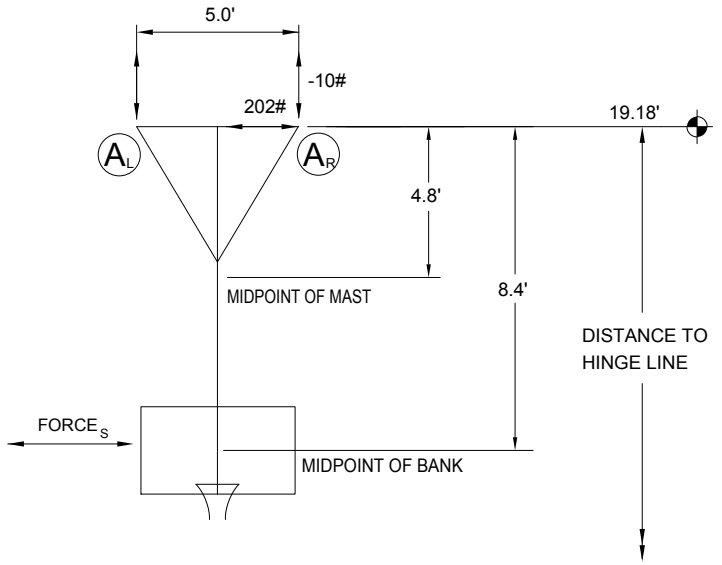


FORCES PERPENDICULAR TO BANK FIGURE 1



FORCES PARALLEL TO BANK FIGURE 2

WEIGHT LOAD CALCULATIONS (WITH BANK DOWN)

BACKSTOP'S TOTAL WEIGHT LOAD = 576 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 ASSEMBLY

WEIGHT LOAD AT POINT "B" = 18 lbs $\frac{\text{WEIGHT OF REAR BRACE}}{2}$

+PLEASE NOTE THESE ARE ESTIMATED WEIGHT LOADS FROM THE BACKSTOP MAST HANGERS TO THE FLOOR. THESE ESTIMATES DO NOT INCLUDE ANY SUPERSTRUCTURE WEIGHTS.

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)	=	1558 ft.lbs	SEISMIC MOMENT (MB) (FT.LBS.)
WEIGHT OF REAR BRACE (WRB)	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 + WRB + WM = BACKSTOP'S TOTAL WEIGHT LOAD				=	2478 ft.lbs	SUM OF THE MOMENTS = MB + MRB + MM

POINT REACTIONS FROM WEIGHT LOADS AND SEISMIC WITH BANK DOWN

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: 757 lbs = $\frac{\text{WEIGHT LOAD AT POINT "A"}}{\text{2 SUPPORTS}} \pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS } (A_L A)_R}$

R^{A}_{HOR} HORIZONTAL REACTION AT POINT A: 202 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 = $\frac{\text{WEIGHT OF REAR BRACE}}{\text{2 SUPPORTS}} \pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS (A-B)}}$

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

POINT REACTIONS FROM WEIGHT LOADS AND SEISMIC WITH BANK UP

HOIST CABLE TENSION AT POINT C: 597 lbs = $\frac{\text{SUM OF THE MOMENTS}}{\text{SEISMIC FACTOR X DISTANCE FROM A TO C}}$

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

BANK UP

$R^{A\text{-}BU}_{VER}$ VERTICAL REACTION AT POINT A: -10 lbs = $\frac{\text{BACKSTOP'S TOTAL WEIGHT LOAD - HOIST CABLE TENSION}}{\text{2 SUPPORTS}}$

$R^{A\text{-}BU}_{HOR}$ HORIZONTAL REACTION AT POINT A: FROM SEISMIC PARALLEL TO BANK: 496 lbs = $\pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE FROM } A_L \text{ TO } A_R}$

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

BANK UP

$R^{C\text{-}BU}_{VER}$ VERTICAL REACTION AT POINT C: 633 lbs = HOIST CABLE TENSION + WEIGHT LOAD AT POINT "C"

$R^{C\text{-}BU}_{HOR}$ HORIZONTAL REACTION AT POINT C: 597 lbs = HOIST CABLE TENSION

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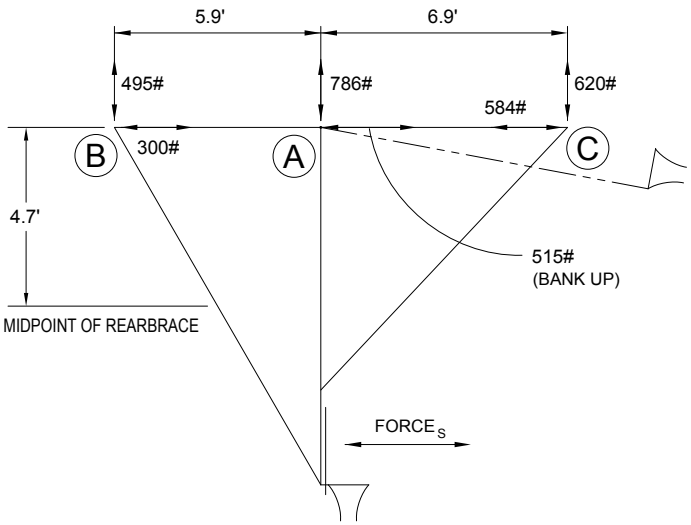
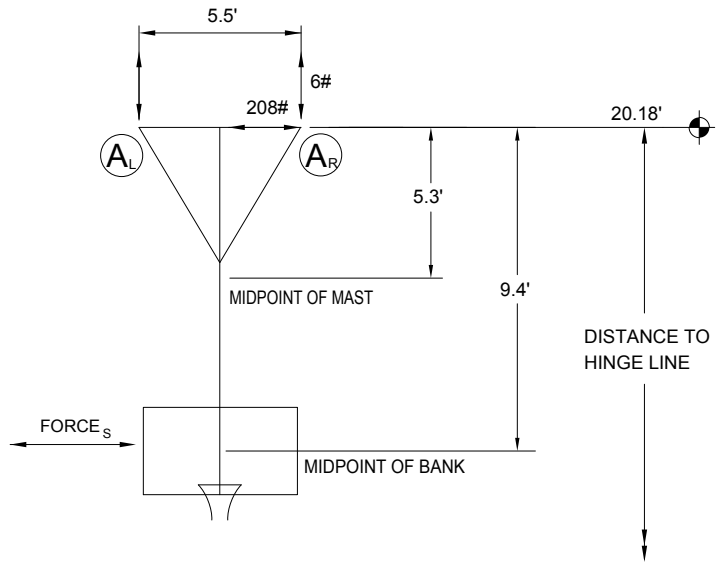


FORCES PERPENDICULAR TO BANK FIGURE 1



FORCES PARALLEL TO BANK FIGURE 2

WEIGHT LOAD CALCULATIONS (WITH BANK DOWN)

BACKSTOP'S TOTAL WEIGHT LOAD = 595 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 ASSEMBLY

WEIGHT LOAD AT POINT "B" = 18 lbs $\frac{\text{WEIGHT OF REAR BRACE}}{2}$

+PLEASE NOTE THESE ARE ESTIMATED WEIGHT LOADS FROM THE BACKSTOP MAST HANGERS TO THE FLOOR. THESE ESTIMATES DO NOT INCLUDE ANY SUPERSTRUCTURE WEIGHTS.

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)	=	1743 ft.lbs	SEISMIC MOMENT (MB) (FT.LBS.)
WEIGHT OF REAR BRACE (WRB)	35 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF REAR BRACE (DRB)	=	116 ft.lbs	SEISMIC MOMENT (MRB) (FT.LBS.)
WEIGHT OF MAST (WM)	260 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF MAST (DM)	=	974 ft.lbs	SEISMIC MOMENT (MM) (FT.LBS.)
WB + WRB + WM = BACKSTOP'S TOTAL WEIGHT LOAD				=	2832 ft.lbs	SUM OF THE MOMENTS = MB + MRB + MM

POINT REACTIONS FROM WEIGHT LOADS AND SEISMIC WITH BANK DOWN

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: 208 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: 495 lbs = $\frac{\text{WEIGHT OF REAR BRACE}}{\text{2 SUPPORTS}} \pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS (A-B)}}$

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

POINT REACTIONS FROM WEIGHT LOADS AND SEISMIC WITH BANK UP

HOIST CABLE TENSION AT POINT C: 584 lbs = $\frac{\text{SUM OF THE MOMENTS}}{\text{SEISMIC FACTOR X DISTANCE FROM A TO C}}$

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

BANK UP

$R^{A\text{-}BU}_{VER}$ VERTICAL REACTION AT POINT A: 6 lbs = $\frac{\text{BACKSTOP'S TOTAL WEIGHT LOAD - HOIST CABLE TENSION}}{\text{2 SUPPORTS}}$

$R^{A\text{-}BU}_{HOR}$ HORIZONTAL REACTION AT POINT A: FROM SEISMIC PARALLEL TO BANK: 515 lbs = $\pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE FROM } A_L \text{ TO } A_R}$

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

BANK UP

$R^{C\text{-}BU}_{VER}$ VERTICAL REACTION AT POINT C: 620 lbs = HOIST CABLE TENSION + WEIGHT LOAD AT POINT "C"

$R^{C\text{-}BU}_{HOR}$ HORIZONTAL REACTION AT POINT C: 584 lbs = HOIST CABLE TENSION

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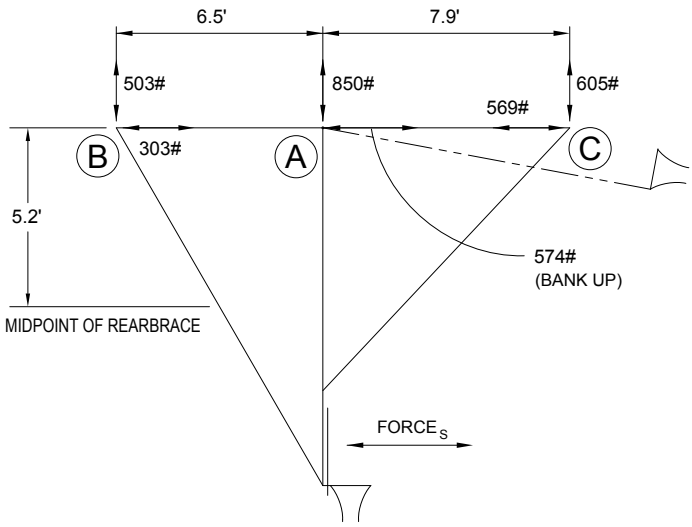
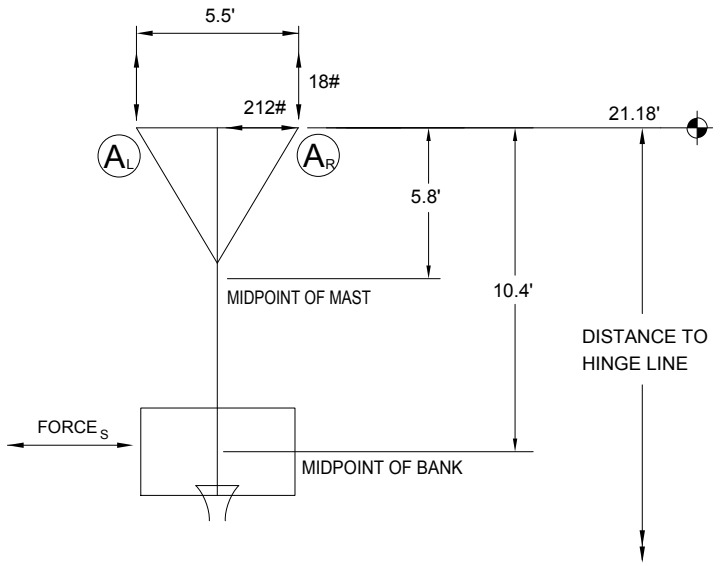


FORCES PERPENDICULAR TO BANK FIGURE 1



FORCES PARALLEL TO BANK FIGURE 2

WEIGHT LOAD CALCULATIONS (WITH BANK DOWN)

BACKSTOP'S TOTAL WEIGHT LOAD = 605 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 ASSEMBLY

WEIGHT LOAD AT POINT "B" = 18 lbs $\frac{\text{WEIGHT OF REAR BRACE}}{2}$

+PLEASE NOTE THESE ARE ESTIMATED WEIGHT LOADS FROM THE BACKSTOP MAST HANGERS TO THE FLOOR. THESE ESTIMATES DO NOT INCLUDE ANY SUPERSTRUCTURE WEIGHTS.

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)	=	1928 ft.lbs	SEISMIC MOMENT (MB) (FT.LBS.)
WEIGHT OF REAR BRACE (WRB)	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 + WRB + WM = BACKSTOP'S TOTAL WEIGHT LOAD				=	3159 ft.lbs	SUM OF THE MOMENTS = MB + MRB + MM

POINT REACTIONS FROM WEIGHT LOADS AND SEISMIC WITH BANK DOWN

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 = $\frac{\text{WEIGHT LOAD AT POINT "A"}}{\text{2 SUPPORTS}} \pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS } (A_L A)_R}$

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: 503 lbs = $\frac{\text{WEIGHT OF REAR BRACE}}{\text{2 SUPPORTS}} \pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS (A-B)}}$

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

POINT REACTIONS FROM WEIGHT LOADS AND SEISMIC WITH BANK UP

HOIST CABLE TENSION AT POINT C: 569 lbs = $\frac{\text{SUM OF THE MOMENTS}}{\text{SEISMIC FACTOR X DISTANCE FROM A TO C}}$

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

BANK UP

$R^{A\text{-}BU}_{VER}$ VERTICAL REACTION AT POINT A: 18 lbs = $\frac{\text{BACKSTOP'S TOTAL WEIGHT LOAD - HOIST CABLE TENSION}}{\text{2 SUPPORTS}}$

$R^{A\text{-}BU}_{HOR}$ HORIZONTAL REACTION AT POINT A: FROM SEISMIC PARALLEL TO BANK: 574 lbs = $\pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE FROM } A_L \text{ TO } A_R}$

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

BANK UP

$R^{C\text{-}BU}_{VER}$ VERTICAL REACTION AT POINT C: 605 lbs = HOIST CABLE TENSION + WEIGHT LOAD AT POINT "C"

$R^{C\text{-}BU}_{HOR}$ HORIZONTAL REACTION AT POINT C: 569 lbs = HOIST CABLE TENSION

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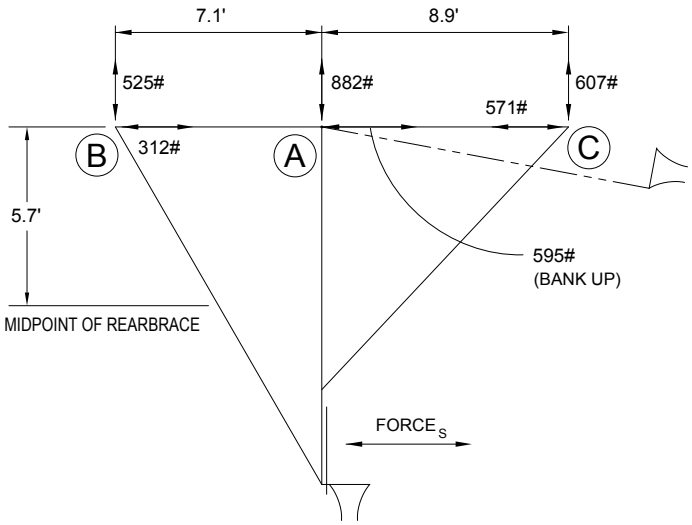
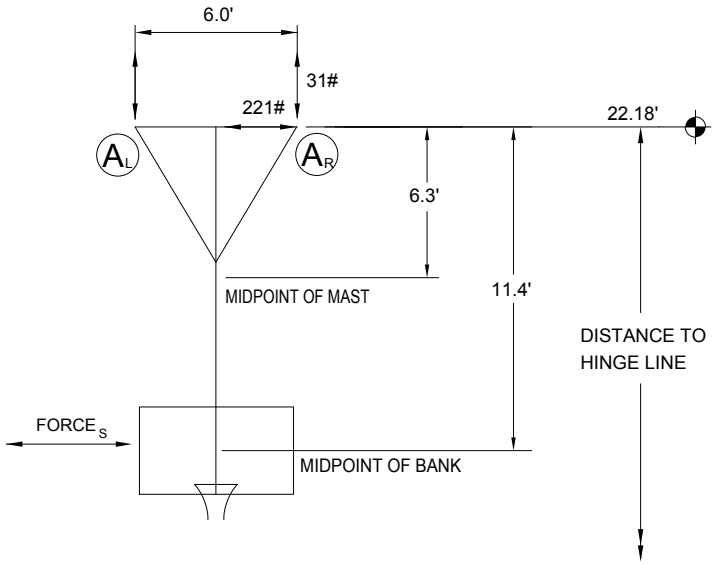


FORCES PERPENDICULAR TO BANK FIGURE 1



FORCES PARALLEL TO BANK FIGURE 2

WEIGHT LOAD CALCULATIONS (WITH BANK DOWN)

BACKSTOP'S TOTAL WEIGHT LOAD = 632 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 ASSEMBLY

WEIGHT LOAD AT POINT "B" = 21 lbs $\frac{\text{WEIGHT OF REAR BRACE}}{2}$

+PLEASE NOTE THESE ARE ESTIMATED WEIGHT LOADS FROM THE BACKSTOP MAST HANGERS TO THE FLOOR. THESE ESTIMATES DO NOT INCLUDE ANY SUPERSTRUCTURE WEIGHTS.

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)	=	2113 ft.lbs	SEISMIC MOMENT (MB) (FT.LBS.)
WEIGHT OF REAR BRACE (WRB)	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)	=	1287 ft.lbs	SEISMIC MOMENT (MM) (FT.LBS.)
WB + WRB + WM = BACKSTOP'S TOTAL WEIGHT LOAD				=	3567 ft.lbs	SUM OF THE MOMENTS = MB + MRB + MM

POINT REACTIONS FROM WEIGHT LOADS AND SEISMIC WITH BANK DOWN

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: 221 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: 525 lbs = $\frac{\text{WEIGHT OF REAR BRACE}}{\text{2 SUPPORTS}} \pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS (A-B)}}$

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

POINT REACTIONS FROM WEIGHT LOADS AND SEISMIC WITH BANK UP

HOIST CABLE TENSION AT POINT C: 571 lbs = $\frac{\text{SUM OF THE MOMENTS}}{\text{SEISMIC FACTOR X DISTANCE FROM A TO C}}$

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

BANK UP

$R^{A\text{-}BU}_{VER}$ VERTICAL REACTION AT POINT A: 31 lbs = $\frac{\text{BACKSTOP'S TOTAL WEIGHT LOAD - HOIST CABLE TENSION}}{\text{2 SUPPORTS}}$

$R^{A\text{-}BU}_{HOR}$ HORIZONTAL REACTION AT POINT A: FROM SEISMIC PARALLEL TO BANK: 595 lbs = $\pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE FROM } A_L \text{ TO } A_R}$

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

BANK UP

$R^{C\text{-}BU}_{VER}$ VERTICAL REACTION AT POINT C: 607 lbs = HOIST CABLE TENSION + WEIGHT LOAD AT POINT "C"

$R^{C\text{-}BU}_{HOR}$ HORIZONTAL REACTION AT POINT C: 571 lbs = HOIST CABLE TENSION

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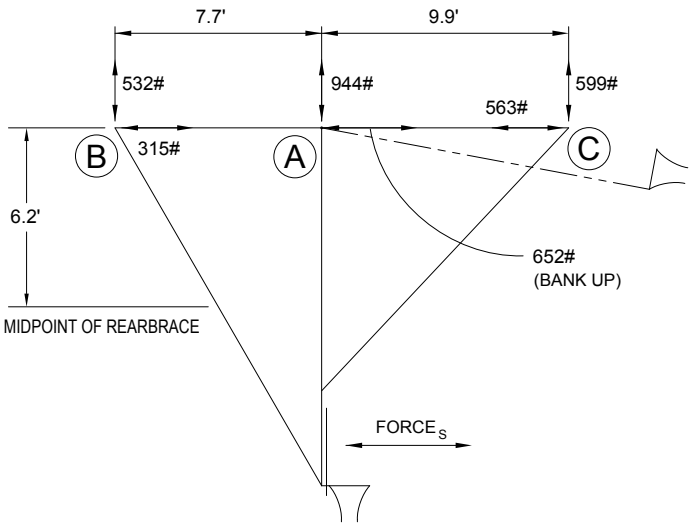
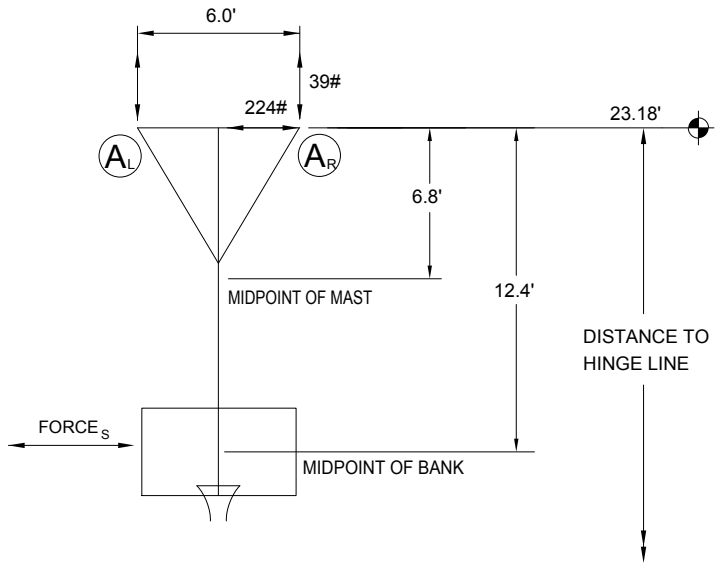


FORCES PERPENDICULAR TO BANK FIGURE 1



FORCES PARALLEL TO BANK FIGURE 2

WEIGHT LOAD CALCULATIONS (WITH BANK DOWN)

BACKSTOP'S TOTAL WEIGHT LOAD = 641 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 ASSEMBLY

WEIGHT LOAD AT POINT "B" = 21 lbs $\frac{\text{WEIGHT OF REAR BRACE}}{2}$

+PLEASE NOTE THESE ARE ESTIMATED WEIGHT LOADS FROM THE BACKSTOP MAST HANGERS TO THE FLOOR. THESE ESTIMATES DO NOT INCLUDE ANY SUPERSTRUCTURE WEIGHTS.

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 (WRB)	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)	=	1433 ft.lbs	SEISMIC MOMENT (MM) (FT.LBS.)
WB + WRB + WM = BACKSTOP'S TOTAL WEIGHT LOAD				=	3913 ft.lbs	SUM OF THE MOMENTS = MB + MRB + MM

POINT REACTIONS FROM WEIGHT LOADS AND SEISMIC WITH BANK DOWN

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 = $\frac{\text{WEIGHT LOAD AT POINT "A"}}{\text{2 SUPPORTS}} \pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS } (A_L A)_R}$

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: 532 lbs = $\frac{\text{WEIGHT OF REAR BRACE}}{\text{2 SUPPORTS}} \pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS (A-B)}}$

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

POINT REACTIONS FROM WEIGHT LOADS AND SEISMIC WITH BANK UP

HOIST CABLE TENSION AT POINT C: 563 lbs = $\frac{\text{SUM OF THE MOMENTS}}{\text{SEISMIC FACTOR X DISTANCE FROM A TO C}}$

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

BANK UP

$R^{A\text{-}BU}_{VER}$ VERTICAL REACTION AT POINT A: 39 lbs = $\frac{\text{BACKSTOP'S TOTAL WEIGHT LOAD - HOIST CABLE TENSION}}{\text{2 SUPPORTS}}$

$R^{A\text{-}BU}_{HOR}$ HORIZONTAL REACTION AT POINT A FROM SEISMIC PARALLEL TO BANK: 652 lbs = $\pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE FROM } A_L \text{ TO } A_R}$

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

BANK UP

$R^{C\text{-}BU}_{VER}$ VERTICAL REACTION AT POINT C: 599 lbs = HOIST CABLE TENSION + WEIGHT LOAD AT POINT "C"

$R^{C\text{-}BU}_{HOR}$ HORIZONTAL REACTION AT POINT C: 563 lbs = HOIST CABLE TENSION

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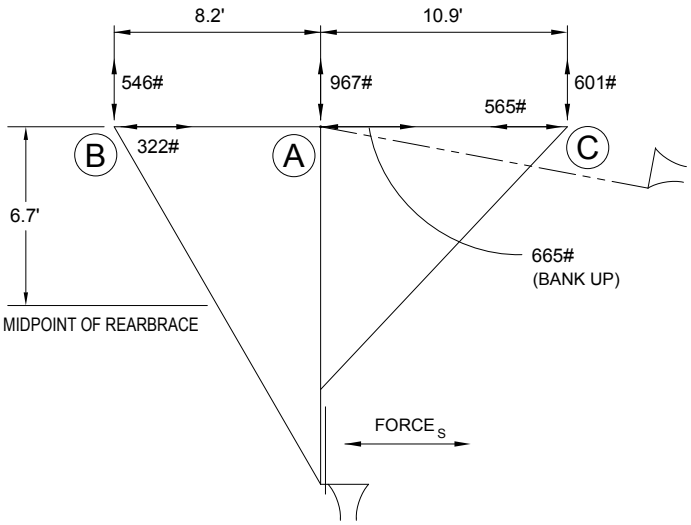
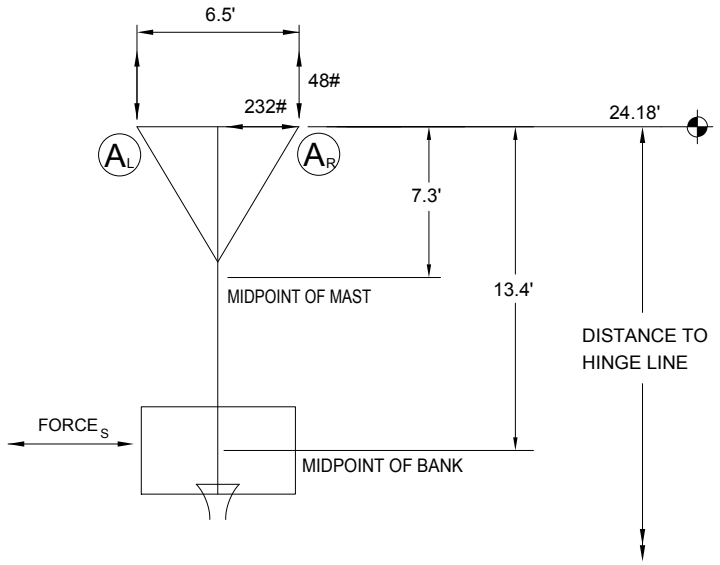


FORCES PERPENDICULAR TO BANK FIGURE 1



FORCES PARALLEL TO BANK FIGURE 2

WEIGHT LOAD CALCULATIONS (WITH BANK DOWN)

BACKSTOP'S TOTAL WEIGHT LOAD = 662 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 ASSEMBLY

WEIGHT LOAD AT POINT "B" = 21 lbs $\frac{\text{WEIGHT OF REAR BRACE}}{2}$

+PLEASE NOTE THESE ARE ESTIMATED WEIGHT LOADS FROM THE BACKSTOP MAST HANGERS TO THE FLOOR. THESE ESTIMATES DO NOT INCLUDE ANY SUPERSTRUCTURE WEIGHTS.

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)	=	2482 ft.lbs	SEISMIC MOMENT (MB) (FT.LBS.)
WEIGHT OF REAR BRACE (WRB)	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)	=	1643 ft.lbs	SEISMIC MOMENT (MM) (FT.LBS.)
WB + WRB + WM = BACKSTOP'S TOTAL WEIGHT LOAD				=	4322 ft.lbs	SUM OF THE MOMENTS = MB + MRB + MM

POINT REACTIONS FROM WEIGHT LOADS AND SEISMIC WITH BANK DOWN

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 = $\frac{\text{WEIGHT LOAD AT POINT "A"}}{\text{2 SUPPORTS}} \pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS } (A_L A)_R}$

R^{A}_{HOR} HORIZONTAL REACTION AT POINT A: 232 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: 546 lbs = $\frac{\text{WEIGHT OF REAR BRACE}}{\text{2 SUPPORTS}} \pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS (A-B)}}$

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

POINT REACTIONS FROM WEIGHT LOADS AND SEISMIC WITH BANK UP

HOIST CABLE TENSION AT POINT C: 565 lbs = $\frac{\text{SUM OF THE MOMENTS}}{\text{SEISMIC FACTOR X DISTANCE FROM A TO C}}$

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

BANK UP

$R^{A\text{-}BU}_{VER}$ VERTICAL REACTION AT POINT A: 48 lbs = $\frac{\text{BACKSTOP'S TOTAL WEIGHT LOAD - HOIST CABLE TENSION}}{\text{2 SUPPORTS}}$

$R^{A\text{-}BU}_{HOR}$ HORIZONTAL REACTION AT POINT A: FROM SEISMIC PARALLEL TO BANK: 665 lbs = $\pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE FROM } A_L \text{ TO } A_R}$

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

BANK UP

$R^{C\text{-}BU}_{VER}$ VERTICAL REACTION AT POINT C: 601 lbs = HOIST CABLE TENSION + WEIGHT LOAD AT POINT "C"

$R^{C\text{-}BU}_{HOR}$ HORIZONTAL REACTION AT POINT C: 565 lbs = HOIST CABLE TENSION

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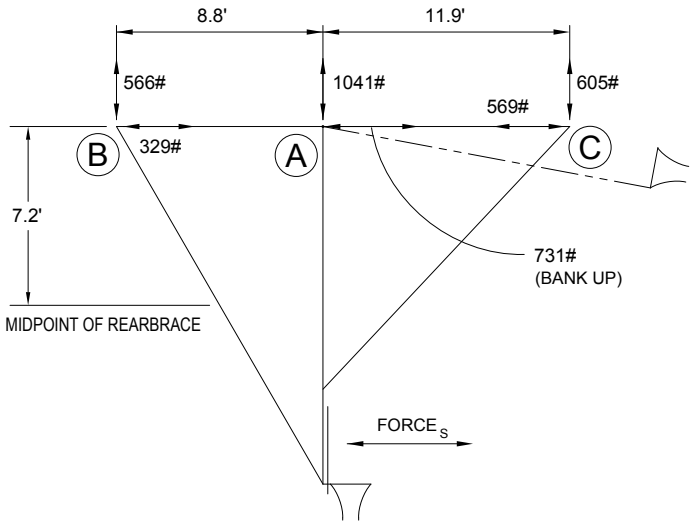
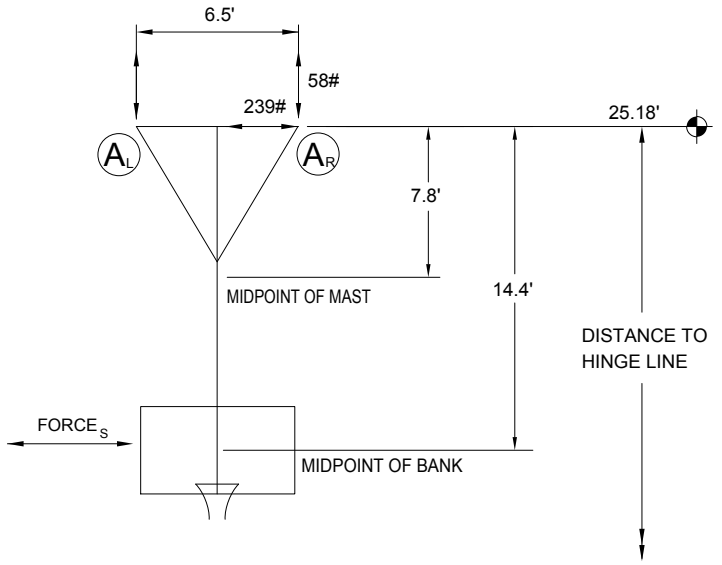


FORCES PERPENDICULAR TO BANK FIGURE 1



FORCES PARALLEL TO BANK FIGURE 2

WEIGHT LOAD CALCULATIONS (WITH BANK DOWN)

BACKSTOP'S TOTAL WEIGHT LOAD = 684 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 ASSEMBLY

WEIGHT LOAD AT POINT "B" = 28 lbs $\frac{\text{WEIGHT OF REAR BRACE}}{2}$

+PLEASE NOTE THESE ARE ESTIMATED WEIGHT LOADS FROM THE BACKSTOP MAST HANGERS TO THE FLOOR. THESE ESTIMATES DO NOT INCLUDE ANY SUPERSTRUCTURE WEIGHTS.

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)	=	2667 ft.lbs	SEISMIC MOMENT (MB) (FT.LBS.)
WEIGHT OF REAR BRACE (WRB)	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)	=	1806 ft.lbs	SEISMIC MOMENT (MM) (FT.LBS.)
WB + WRB + WM = BACKSTOP'S TOTAL WEIGHT LOAD				=	4751 ft.lbs	SUM OF THE MOMENTS = MB + MRB + MM

POINT REACTIONS FROM WEIGHT LOADS AND SEISMIC WITH BANK DOWN

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: 239 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: 566 lbs = $\frac{\text{WEIGHT OF REAR BRACE}}{\text{2 SUPPORTS}} \pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS (A-B)}}$

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

POINT REACTIONS FROM WEIGHT LOADS AND SEISMIC WITH BANK UP

HOIST CABLE TENSION AT POINT C: 569 lbs = $\frac{\text{SUM OF THE MOMENTS}}{\text{SEISMIC FACTOR X DISTANCE FROM A TO C}}$

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

BANK UP

$R^{A\text{-}BU}_{VER}$ VERTICAL REACTION AT POINT A: 58 lbs = $\frac{\text{BACKSTOP'S TOTAL WEIGHT LOAD - HOIST CABLE TENSION}}{\text{2 SUPPORTS}}$

$R^{A\text{-}BU}_{HOR}$ HORIZONTAL REACTION AT POINT A: FROM SEISMIC PARALLEL TO BANK: 731 lbs = $\pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE FROM } A_L \text{ TO } A_R}$

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

BANK UP

$R^{C\text{-}BU}_{VER}$ VERTICAL REACTION AT POINT C: 605 lbs = HOIST CABLE TENSION + WEIGHT LOAD AT POINT "C"

$R^{C\text{-}BU}_{HOR}$ HORIZONTAL REACTION AT POINT C: 569 lbs = HOIST CABLE TENSION

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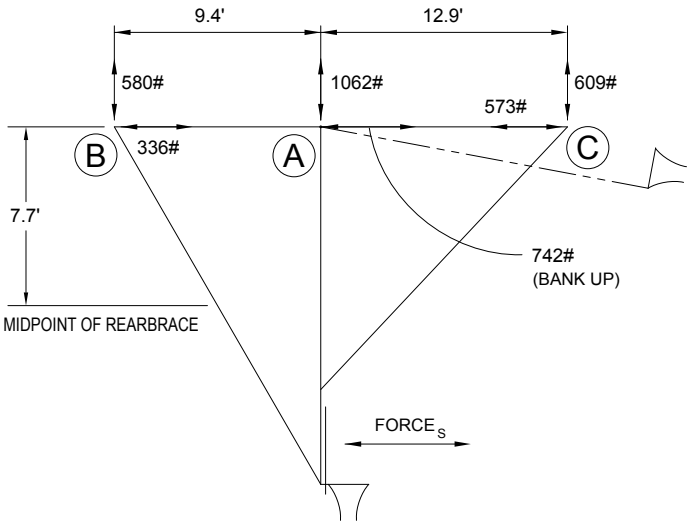
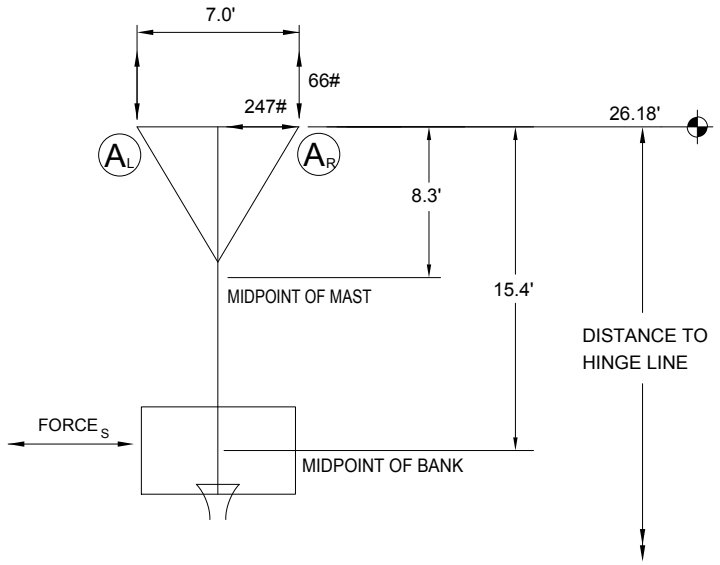


FORCES PERPENDICULAR TO BANK FIGURE 1



FORCES PARALLEL TO BANK FIGURE 2

WEIGHT LOAD CALCULATIONS (WITH BANK DOWN)

BACKSTOP'S TOTAL WEIGHT LOAD = 705 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 ASSEMBLY

WEIGHT LOAD AT POINT "B" = 28 lbs $\frac{\text{WEIGHT OF REAR BRACE}}{2}$

+PLEASE NOTE THESE ARE ESTIMATED WEIGHT LOADS FROM THE BACKSTOP MAST HANGERS TO THE FLOOR. THESE ESTIMATES DO NOT INCLUDE ANY SUPERSTRUCTURE WEIGHTS.

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)	=	2852 ft.lbs	SEISMIC MOMENT (MB) (FT.LBS.)
WEIGHT OF REAR BRACE (WRB)	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)	=	2042 ft.lbs	SEISMIC MOMENT (MM) (FT.LBS.)
WB + WRB + WM = BACKSTOP'S TOTAL WEIGHT LOAD				=	5191 ft.lbs	SUM OF THE MOMENTS = MB + MRB + MM

POINT REACTIONS FROM WEIGHT LOADS AND SEISMIC WITH BANK DOWN

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: 247 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: 580 lbs = $\frac{\text{WEIGHT OF REAR BRACE}}{\text{2 SUPPORTS}} \pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS (A-B)}}$

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

POINT REACTIONS FROM WEIGHT LOADS AND SEISMIC WITH BANK UP

HOIST CABLE TENSION AT POINT C: 573 lbs = $\frac{\text{SUM OF THE MOMENTS}}{\text{SEISMIC FACTOR X DISTANCE FROM A TO C}}$

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

BANK UP

$R^{A\text{-}BU}_{VER}$ VERTICAL REACTION AT POINT A: 66 lbs = $\frac{\text{BACKSTOP'S TOTAL WEIGHT LOAD - HOIST CABLE TENSION}}{\text{2 SUPPORTS}}$

$R^{A\text{-}BU}_{HOR}$ HORIZONTAL REACTION AT POINT A: FROM SEISMIC PARALLEL TO BANK: 742 lbs = $\pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE FROM } A_L \text{ TO } A_R}$

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

BANK UP

$R^{C\text{-}BU}_{VER}$ VERTICAL REACTION AT POINT C: 609 lbs = HOIST CABLE TENSION + WEIGHT LOAD AT POINT "C"

$R^{C\text{-}BU}_{HOR}$ HORIZONTAL REACTION AT POINT C: 573 lbs = HOIST CABLE TENSION

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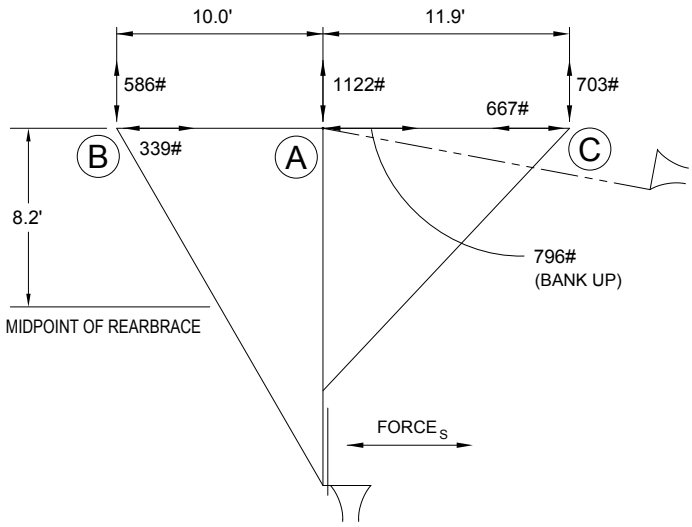
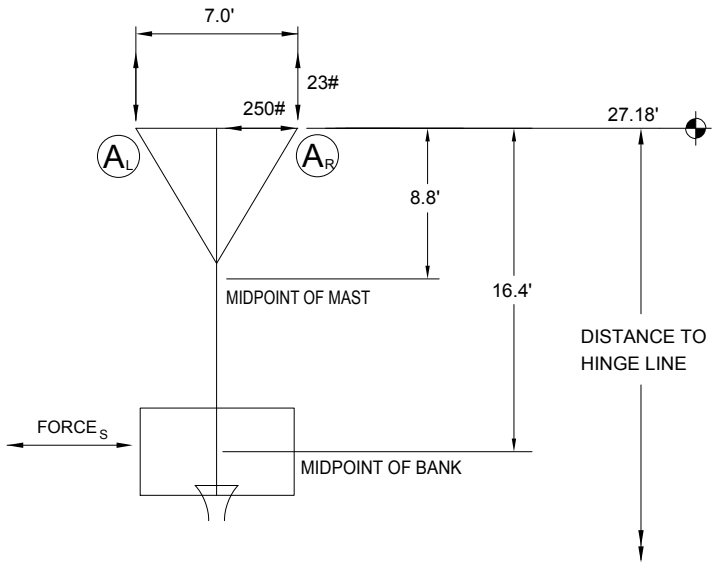


FORCES PERPENDICULAR TO BANK FIGURE 1



FORCES PARALLEL TO BANK FIGURE 2

WEIGHT LOAD CALCULATIONS (WITH BANK DOWN)

BACKSTOP'S TOTAL WEIGHT LOAD = 714 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 ASSEMBLY

WEIGHT LOAD AT POINT "B" = 28 lbs $\frac{\text{WEIGHT OF REAR BRACE}}{2}$

+PLEASE NOTE THESE ARE ESTIMATED WEIGHT LOADS FROM THE BACKSTOP MAST HANGERS TO THE FLOOR. THESE ESTIMATES DO NOT INCLUDE ANY SUPERSTRUCTURE WEIGHTS.

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)	=	3037 ft.lbs	SEISMIC MOMENT (MB) (FT.LBS.)
WEIGHT OF REAR BRACE (WRB)	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)	=	2222 ft.lbs	SEISMIC MOMENT (MM) (FT.LBS.)
WB + WRB + WM = BACKSTOP'S TOTAL WEIGHT LOAD				=	5575 ft.lbs	SUM OF THE MOMENTS = MB + MRB + MM

POINT REACTIONS FROM WEIGHT LOADS AND SEISMIC WITH BANK DOWN

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: 1122 lbs = $\frac{\text{WEIGHT LOAD AT POINT "A"}}{\text{2 SUPPORTS}} \pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS } (A_L A)_R}$

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: 586 lbs = $\frac{\text{WEIGHT OF REAR BRACE}}{\text{2 SUPPORTS}} \pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS (A-B)}}$

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

POINT REACTIONS FROM WEIGHT LOADS AND SEISMIC WITH BANK UP

HOIST CABLE TENSION AT POINT C: 667 lbs = $\frac{\text{SUM OF THE MOMENTS}}{\text{SEISMIC FACTOR X DISTANCE FROM A TO C}}$

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

BANK UP

$R^{A\text{-}BU}_{VER}$ VERTICAL REACTION AT POINT A: 23 lbs = $\frac{\text{BACKSTOP'S TOTAL WEIGHT LOAD - HOIST CABLE TENSION}}{\text{2 SUPPORTS}}$

$R^{A\text{-}BU}_{HOR}$ HORIZONTAL REACTION AT POINT A: FROM SEISMIC PARALLEL TO BANK: 796 lbs = $\pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE FROM } A_L \text{ TO } A_R}$

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

BANK UP

$R^{C\text{-}BU}_{VER}$ VERTICAL REACTION AT POINT C: 703 lbs = HOIST CABLE TENSION + WEIGHT LOAD AT POINT "C"

$R^{C\text{-}BU}_{HOR}$ HORIZONTAL REACTION AT POINT C: 667 lbs = HOIST CABLE TENSION

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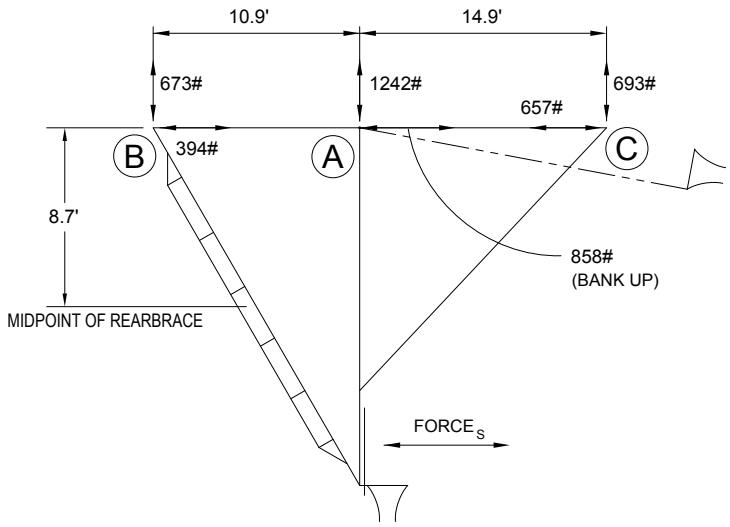
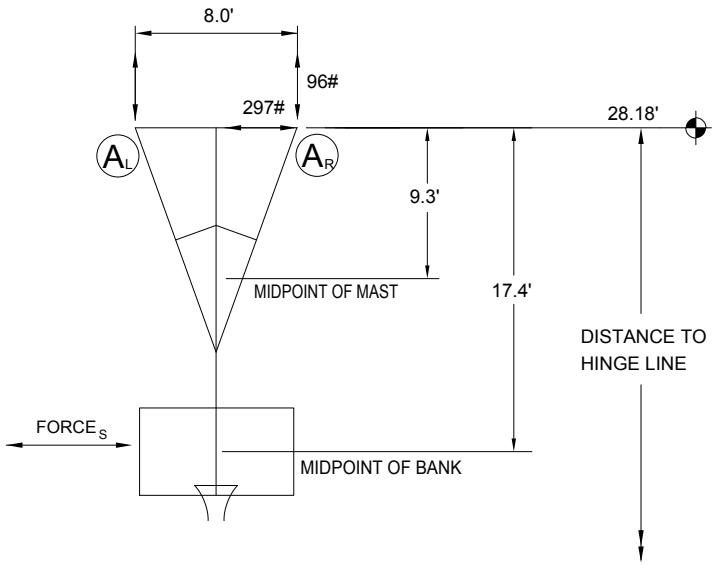


FORCES PERPENDICULAR TO BANK FIGURE 1



FORCES PARALLEL TO BANK FIGURE 2

WEIGHT LOAD CALCULATIONS (WITH BANK DOWN)

BACKSTOP'S TOTAL WEIGHT LOAD = 849 lbs WEIGHT OF REAR BRACE + WEIGHT OF MAST + WEIGHT OF BANK

WEIGHT LOAD AT POINT "A" = 768 lbs $\left(\frac{\text{WEIGHT OF REAR BRACE}}{2}\right)$ + WEIGHT OF MAST ASSEMBLY

WEIGHT LOAD AT POINT "B" = 46 lbs $\frac{\text{WEIGHT OF REAR BRACE}}{2}$

+PLEASE NOTE THESE ARE ESTIMATED WEIGHT LOADS FROM THE BACKSTOP MAST HANGERS TO THE FLOOR. THESE ESTIMATES DO NOT INCLUDE ANY SUPERSTRUCTURE WEIGHTS.

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)	=	3417 ft.lbs	SEISMIC MOMENT (MB) (FT.LBS.)
WEIGHT OF REAR BRACE (WRB)	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)	442 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF MAST (DM)	=	2891 ft.lbs	SEISMIC MOMENT (MM) (FT.LBS.)
WB + WRB + WM = BACKSTOP'S TOTAL WEIGHT LOAD				=	6863 ft.lbs	SUM OF THE MOMENTS = MB + MRB + MM

POINT REACTIONS FROM WEIGHT LOADS AND SEISMIC WITH BANK DOWN

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: 1242 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: 297 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: 673 lbs = $\frac{\text{WEIGHT OF REAR BRACE}}{\text{2 SUPPORTS}} \pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS (A-B)}}$

R^{B}_{HOR} HORIZONTAL REACTION AT POINT B: 394 lbs = $\frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE TO MIDPOINT OF REAR BRACE X 2}}$

POINT REACTIONS FROM WEIGHT LOADS AND SEISMIC WITH BANK UP

HOIST CABLE TENSION AT POINT C: 657 lbs = $\frac{\text{SUM OF THE MOMENTS}}{\text{SEISMIC FACTOR X DISTANCE FROM A TO C}}$

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

BANK UP

$R^{A\text{-}BU}_{VER}$ VERTICAL REACTION AT POINT A: 96 lbs = $\frac{\text{BACKSTOP'S TOTAL WEIGHT LOAD - HOIST CABLE TENSION}}{\text{2 SUPPORTS}}$

$R^{A\text{-}BU}_{HOR}$ HORIZONTAL REACTION AT POINT A: FROM SEISMIC PARALLEL TO BANK: 858 lbs = $\pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE FROM } A_L \text{ TO } A_R}$

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

BANK UP

$R^{C\text{-}BU}_{VER}$ VERTICAL REACTION AT POINT C: 693 lbs = HOIST CABLE TENSION + WEIGHT LOAD AT POINT "C"

$R^{C\text{-}BU}_{HOR}$ HORIZONTAL REACTION AT POINT C: 657 lbs = HOIST CABLE TENSION

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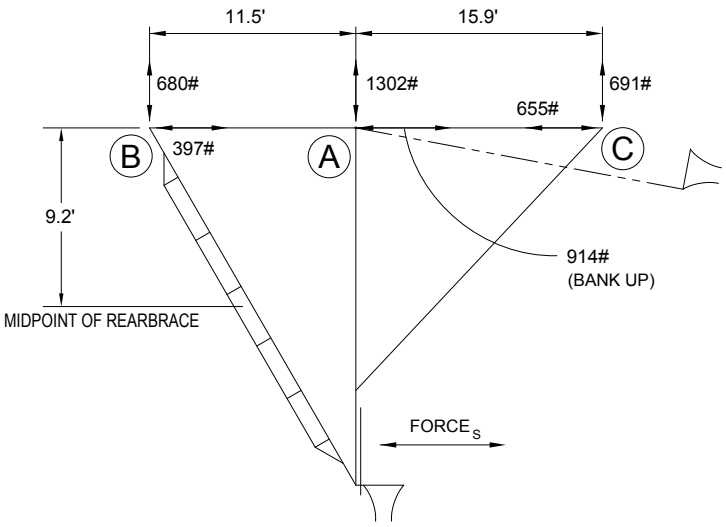
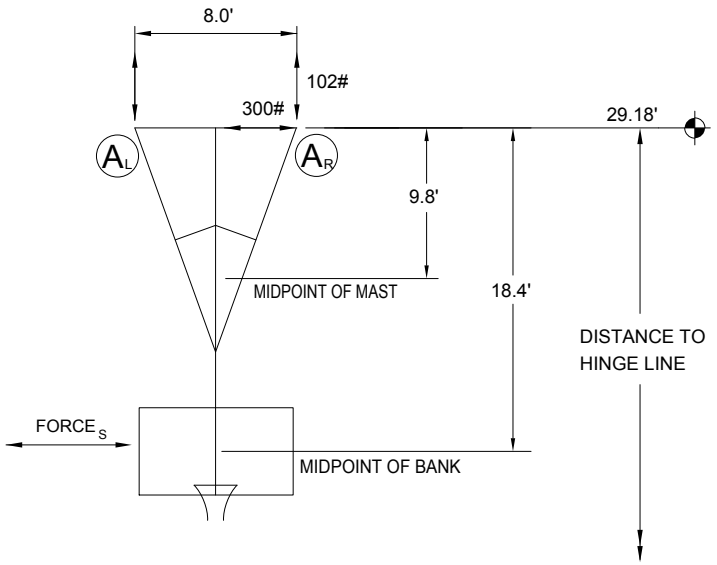


FORCES PERPENDICULAR TO BANK FIGURE 1



FORCES PARALLEL TO BANK FIGURE 2

WEIGHT LOAD CALCULATIONS (WITH BANK DOWN)

BACKSTOP'S TOTAL WEIGHT LOAD = 859 lbs WEIGHT OF REAR BRACE + WEIGHT OF MAST + WEIGHT OF BANK

WEIGHT LOAD AT POINT "A" = 777 lbs $\left(\frac{\text{WEIGHT OF REAR BRACE}}{2}\right)$ + WEIGHT OF MAST ASSEMBLY

WEIGHT LOAD AT POINT "B" = 46 lbs $\frac{\text{WEIGHT OF REAR BRACE}}{2}$

+PLEASE NOTE THESE ARE ESTIMATED WEIGHT LOADS FROM THE BACKSTOP MAST HANGERS TO THE FLOOR. THESE ESTIMATES DO NOT INCLUDE ANY SUPERSTRUCTURE WEIGHTS.

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)	=	3613 ft.lbs	SEISMIC MOMENT (MB) (FT.LBS.)
WEIGHT OF REAR BRACE (WRB)	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)	452 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF MAST (DM)	=	3110 ft.lbs	SEISMIC MOMENT (MM) (FT.LBS.)
WB + WRB + WM = BACKSTOP'S TOTAL WEIGHT LOAD				=	7310 ft.lbs	SUM OF THE MOMENTS = MB + MRB + MM

POINT REACTIONS FROM WEIGHT LOADS AND SEISMIC WITH BANK DOWN

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: 1302 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: 300 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: 680 lbs = $\frac{\text{WEIGHT OF REAR BRACE}}{\text{2 SUPPORTS}} \pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS (A-B)}}$

R^{B}_{HOR} HORIZONTAL REACTION AT POINT B: 397 lbs = $\frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE TO MIDPOINT OF REAR BRACE X 2}}$

POINT REACTIONS FROM WEIGHT LOADS AND SEISMIC WITH BANK UP

HOIST CABLE TENSION AT POINT C: 655 lbs = $\frac{\text{SUM OF THE MOMENTS}}{\text{SEISMIC FACTOR X DISTANCE FROM A TO C}}$

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

BANK UP

$R^{A\text{-}BU}_{VER}$ VERTICAL REACTION AT POINT A: 102 lbs = $\frac{\text{BACKSTOP'S TOTAL WEIGHT LOAD - HOIST CABLE TENSION}}{\text{2 SUPPORTS}}$

$R^{A\text{-}BU}_{HOR}$ HORIZONTAL REACTION AT POINT A: FROM SEISMIC PARALLEL TO BANK: 914 lbs = $\pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE FROM } A_L \text{ TO } A_R}$

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

BANK UP

$R^{C\text{-}BU}_{VER}$ VERTICAL REACTION AT POINT C: 691 lbs = HOIST CABLE TENSION + WEIGHT LOAD AT POINT "C"

$R^{C\text{-}BU}_{HOR}$ HORIZONTAL REACTION AT POINT C: 655 lbs = HOIST CABLE TENSION

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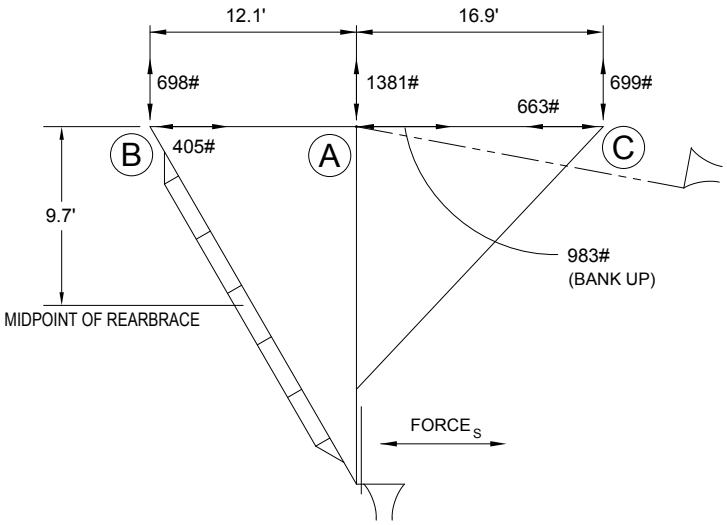
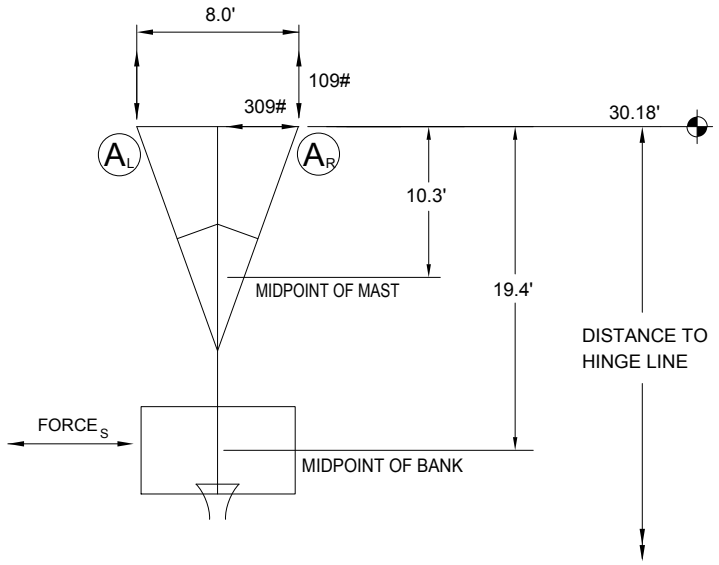


FORCES PERPENDICULAR TO BANK FIGURE 1



FORCES PARALLEL TO BANK FIGURE 2

WEIGHT LOAD CALCULATIONS (WITH BANK DOWN)

BACKSTOP'S TOTAL WEIGHT LOAD = 882 lbs WEIGHT OF REAR BRACE + WEIGHT OF MAST + WEIGHT OF BANK

WEIGHT LOAD AT POINT "A" = 797 lbs $\left(\frac{\text{WEIGHT OF REAR BRACE}}{2}\right)$ + WEIGHT OF MAST ASSEMBLY

WEIGHT LOAD AT POINT "B" = 49 lbs $\frac{\text{WEIGHT OF REAR BRACE}}{2}$

+PLEASE NOTE THESE ARE ESTIMATED WEIGHT LOADS FROM THE BACKSTOP MAST HANGERS TO THE FLOOR. THESE ESTIMATES DO NOT INCLUDE ANY SUPERSTRUCTURE WEIGHTS.

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)	=	3809 ft.lbs	SEISMIC MOMENT (MB) (FT.LBS.)
WEIGHT OF REAR BRACE (WRB)	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)	469 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF MAST (DM)	=	3392 ft.lbs	SEISMIC MOMENT (MM) (FT.LBS.)
WB + WRB + WM = BACKSTOP'S TOTAL WEIGHT LOAD				=	7861 ft.lbs	SUM OF THE MOMENTS = MB + MRB + MM

POINT REACTIONS FROM WEIGHT LOADS AND SEISMIC WITH BANK DOWN

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: 1381 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: 309 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: 698 lbs = $\frac{\text{WEIGHT OF REAR BRACE}}{\text{2 SUPPORTS}} \pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS (A-B)}}$

R^{B}_{HOR} HORIZONTAL REACTION AT POINT B: 405 lbs = $\frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE TO MIDPOINT OF REAR BRACE X 2}}$

POINT REACTIONS FROM WEIGHT LOADS AND SEISMIC WITH BANK UP

HOIST CABLE TENSION AT POINT C: 663 lbs = $\frac{\text{SUM OF THE MOMENTS}}{\text{SEISMIC FACTOR X DISTANCE FROM A TO C}}$

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

BANK UP

$R^{A\text{-}BU}_{VER}$ VERTICAL REACTION AT POINT A: 109 lbs = $\frac{\text{BACKSTOP'S TOTAL WEIGHT LOAD - HOIST CABLE TENSION}}{\text{2 SUPPORTS}}$

$R^{A\text{-}BU}_{HOR}$ HORIZONTAL REACTION AT POINT A FROM SEISMIC PARALLEL TO BANK: 983 lbs = $\pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE FROM } A_L \text{ TO } A_R}$

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

BANK UP

$R^{C\text{-}BU}_{VER}$ VERTICAL REACTION AT POINT C: 699 lbs = HOIST CABLE TENSION + WEIGHT LOAD AT POINT "C"

$R^{C\text{-}BU}_{HOR}$ HORIZONTAL REACTION AT POINT C: 663 lbs = HOIST CABLE TENSION

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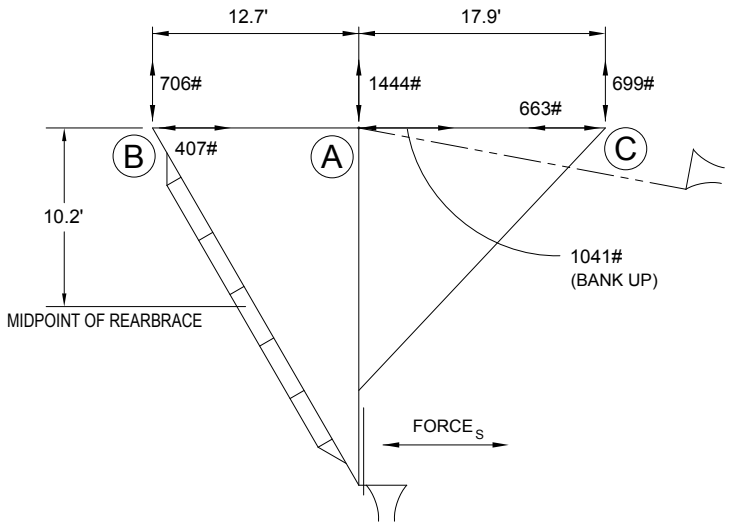
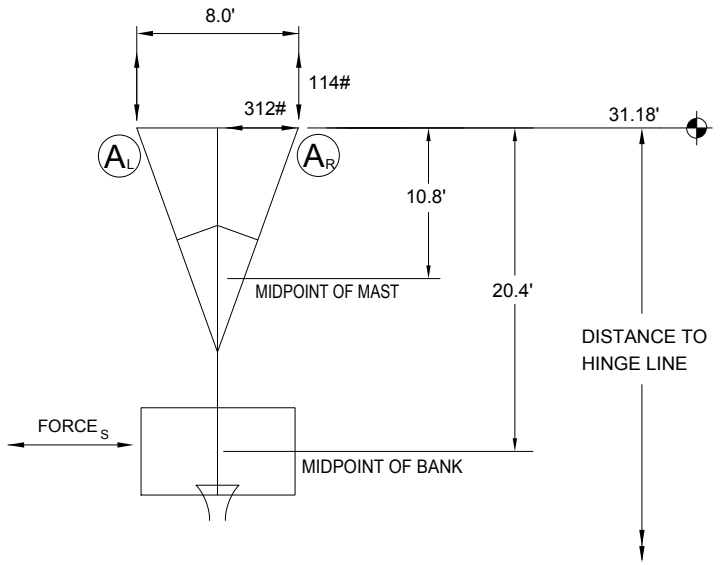


FORCES PERPENDICULAR TO BANK FIGURE 1



FORCES PARALLEL TO BANK FIGURE 2

WEIGHT LOAD CALCULATIONS (WITH BANK DOWN)

BACKSTOP'S TOTAL WEIGHT LOAD = 891 lbs WEIGHT OF REAR BRACE + WEIGHT OF MAST + WEIGHT OF BANK

WEIGHT LOAD AT POINT "A" = 806 lbs $\left(\frac{\text{WEIGHT OF REAR BRACE}}{2}\right)$ + WEIGHT OF MAST ASSEMBLY

WEIGHT LOAD AT POINT "B" = 49 lbs $\frac{\text{WEIGHT OF REAR BRACE}}{2}$

+PLEASE NOTE THESE ARE ESTIMATED WEIGHT LOADS FROM THE BACKSTOP MAST HANGERS TO THE FLOOR. THESE ESTIMATES DO NOT INCLUDE ANY SUPERSTRUCTURE WEIGHTS.

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)	=	4005 ft.lbs	SEISMIC MOMENT (MB) (FT.LBS.)
WEIGHT OF REAR BRACE (WRB)	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)	478 lbs	X SEISMIC FACTOR X	DISTANCE TO MIDPOINT OF MAST (DM)	=	3627 ft.lbs	SEISMIC MOMENT (MM) (FT.LBS.)
WB + WRB + WM = BACKSTOP'S TOTAL WEIGHT LOAD				=	8325 ft.lbs	SUM OF THE MOMENTS = MB + MRB + MM

POINT REACTIONS FROM WEIGHT LOADS AND SEISMIC WITH BANK DOWN

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: 1444 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: 312 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: 706 lbs = $\frac{\text{WEIGHT OF REAR BRACE}}{\text{2 SUPPORTS}} \pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE BETWEEN SUPPORTS (A-B)}}$

R^{B}_{HOR} HORIZONTAL REACTION AT POINT B: 407 lbs = $\frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE TO MIDPOINT OF REAR BRACE X 2}}$

POINT REACTIONS FROM WEIGHT LOADS AND SEISMIC WITH BANK UP

HOIST CABLE TENSION AT POINT C: 663 lbs = $\frac{\text{SUM OF THE MOMENTS}}{\text{SEISMIC FACTOR X DISTANCE FROM A TO C}}$

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

BANK UP

$R^{A\text{-}BU}_{VER}$ VERTICAL REACTION AT POINT A: 114 lbs = $\frac{\text{BACKSTOP'S TOTAL WEIGHT LOAD - HOIST CABLE TENSION}}{\text{2 SUPPORTS}}$

$R^{A\text{-}BU}_{HOR}$ HORIZONTAL REACTION AT POINT A: FROM SEISMIC PARALLEL TO BANK: 1041 lbs = $\pm \frac{\text{SUM OF THE MOMENTS}}{\text{DISTANCE FROM } A_L \text{ TO } A_R}$

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

BANK UP

$R^{C\text{-}BU}_{VER}$ VERTICAL REACTION AT POINT C: 699 lbs = HOIST CABLE TENSION + WEIGHT LOAD AT POINT "C"

$R^{C\text{-}BU}_{HOR}$ HORIZONTAL REACTION AT POINT C: 663 lbs = HOIST CABLE TENSION

REVISION	DATE
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B	7/31/95
C	6/1/99

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