USER MANUAL

PV-HAT Series Lifting Devices:

- PV-HAT-20
- PV-HAT-25
- PV-HAT-30
- PV-HAT-40

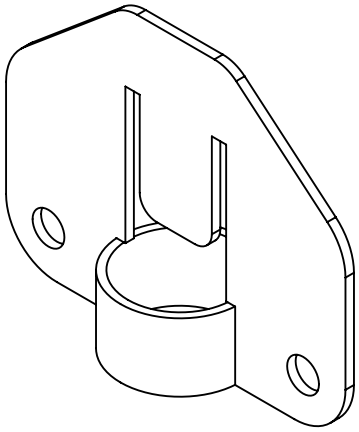


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Do not use this product for any purpose or in any configuration not explicitly stated in this instruction. We hereby disclaim any and all liability for injury or damage arising from incorrect assembly, incorrect mounting, or incorrect use of this product.

THE USER OF THIS PRODUCT SHALL READ AND UNDERSTAND ALL OF THE BELOW:

1) THIS LIFTING DEVICE IS CONSIDERED A CLASS A DEVICE PER ANSI/TIA-322-A WITH AN IMPACT FACTOR (IG) OF 1.7 CONSIDERED FOR THE USE OF ROPE.

2) THE USE OF THIS PRODUCT IN AN ANTENNA PIPE MAY BE CONSIDERED CLASS III "LIGHTWEIGHT HOISTING OPERATIONS WITH RIGGING ATTACHED AWAY FROM PRIMARY STRUCTURE" PER ANSI/ASSP A10.48-2023 4.4.4.1.B.

3) WHEN USED AS PART OF A CLASS III LIGHTWEIGHT HOISTING OPERATION WITH RIGGING ATTACHED AWAY FROM PRIMARY STRUCTURE, PER ANSI/ASSP A10.48-2023 4.4.4.1.B, GROSS LOAD SHALL NOT EXCEED 200 LBS, OR THE MAXIMUM LISTED LOAD PER PROVIDED LOAD CHARTS, WHICHEVER IS LESSER.

4) A CLASS IV CONSTRUCTION PLAN SHALL BE DEVELOPED BY A QUALIFIED PERSON WITH DIRECT INVOLVEMENT OF THE ONSITE COMPETENT PERSON(S) AND A QUALIFIED ENGINEER WHEN USED AS PART OF A CLASS IV CONSTRUCTION PLAN (EXCLUDING CLASS III LIGHT WEIGHT HOISTING OPERATIONS WITH RIGGING ATTACHED AWAY FROM PRIMARY STRUCTURE)

5) UNDER ALL CIRCUMSTANCES A DOCUMENTED CONSTRUCTION PLAN IS TO BE DEVELOPED AND FOLLOWED PER ANSI/ASSP A10.48-2023 ALONGSIDE THE USE OF THIS PRODUCT.

6) THIS PRODUCT SHALL HAVE REDUNDANT RIGGING ATTACHED TO THE STRUCTURE PER ONE OF THE TWO METHODS [A-4(A). A-4(B)] OUTLINED IN ANSI/ASSP A10.48-2023 (SEE SHEET 3)

7) THIS PRODUCT HAS A DESIGN SAFETY FACTOR OF 5.0.

8) THE DEAD LOAD CONSIDERED FOR THIS PRODUCT IS 5.0LB (PV-HAT-20)/5.2LB (PV-HAT-25)/5.3LB (PV-HAT-35)/10.6LB (PV-HAT-40)

9) THE VERTICAL AND HORIZONTAL CANTILEVER DISTANCES ARE FIXED THEREFORE THE LOAD CHARTS ARE ESTABLISHED FOR THESE DISTANCES.

10) THE ALLOWABLE LOAD UNDER GIVEN LOAD LINE AND TAG LINE ANGLES ARE PROVIDED IN THE REFERENCE TABLES. REACTIONS ARE ALSO PROVIDED.

11) THE TIP OF THE LIFTING DEVICE SHALL BE UNDER CONSTANT OBSERVATION WHEN IN USE. DEFLECTION SHALL BE OBSERVED DURING ALL LIFTS AND SHALL BE LIMITED TO 1".

12) THE WEIGHT OF THE LOAD LINE IS NOT CONSIDERED AND MUST BE SUBTRACTED FROM THE ALLOWABLE LOAD.

13) THE LIFTING DEVICE IS OF TUBULAR CONSTRUCTION AND DOES NOT HAVE AN INTEGRATED ROOSTER HEAD, RATHER IT PROVIDES AN ATTACHMENT LOCATION FOR CONTRACTOR-SUPPLIED RIGGING DEVICES.

14) THE LOAD LINE SIZE RANGE, TYPE, MATERIAL AND CONSTRUCTION IS ALL SUBJECT TO THE COMPATIBILITY OF THE CONTRACTOR-SUPPLIED RIGGING.

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15) THE LOAD LINE SIZE RANGE, TYPE, MATERIAL AND CONSTRUCTION IS ALL SUBJECT TO THE COMPATIBILITY OF THE CONTRACTOR-SUPPLIED RIGGING.

16) THIS PRODUCT IS NEVER UNDER ANY CIRCUMSTANCES TO BE USED TO LIFT PERSONNEL REGARDLESS OF THE CAPACITIES AS STATED IN THE LOAD CHART.

17) THIS PRODUCT IS NEVER UNDER ANY CIRCUMSTANCES TO BE USED AS PART OF A FALL PROTECTION SYSTEM.

18) THIS PRODUCT IS HOT DIP GALVANIZED.

19) THE MAXIMUM OPERATIONAL WIND SPEED FOR THE LOAD CHART IS 30MPH 3-SECOND GUST.

THE BELOW IS PROVIDED TO COVEY MANY OF THE STANDARDS, REGULATIONS, REQUIREMENTS, AND ROLES COMMON ON A TELECOMMUNICATION SITE, SPECIFICALLY IN RELATION TO INSPECTION AND USE OF PERFECTVISION'S LIFTING DEVICE. ADDITIONALLY, CONTRACTORS AND USERS MAY WANT TO VISIT THE OSHA WEB SITE FOR TELECOMMUNICATIONS, THE NATE WEBSITE, AND THE TELECOMMUNICATIONS INDUSTRY FOUNDATION WEB SITE. THESE SITES HAVE ADDITIONAL INFORMATION THAT BASED UPON THE SCOPE OF WORK THE COMPETENT PERSON OR EMPLOYER MAY NEED TO KNOW. THE LINKS FOR THESE SITES ARE BELOW.

HTTPS://WWW.OSHA.GOV/COMMUNICATION-TOWERS
HTTPS://NATEHOME.COM/
HTTPS://TIFONLINE.ORG/

GIN POLE RIGGING COMMON TERMS AND STANDARDS

COMPETENT RIGGER (PER ANSI/ASSP A10.48-2023):
THE ON-SITE COMPETENT PERSON, AS DEFINED IN THIS STANDARD [ANSI A10.48], WITH THE RESPONSIBILITY FOR IMPLEMENTING THE RIGGING SYSTEM AS DEFINED WITHIN THE CONSTRUCTION PLAN.

COMPETENT PERSON (PER OSHA 29 CFR 1926.32(F)):
COMPETENT PERSON MEANS ONE WHO IS CAPABLE OF IDENTIFYING EXISTING AND PREDICTABLE HAZARDS IN THE SURROUNDINGS OR WORKING CONDITIONS WHICH ARE UNSANITARY, HAZARDOUS, OR DANGEROUS TO EMPLOYEES, AND WHO HAS AUTHORIZATIONS TO TAKE PROMPT CORRECTIVE MEASURES TO ELIMINATE THEM.

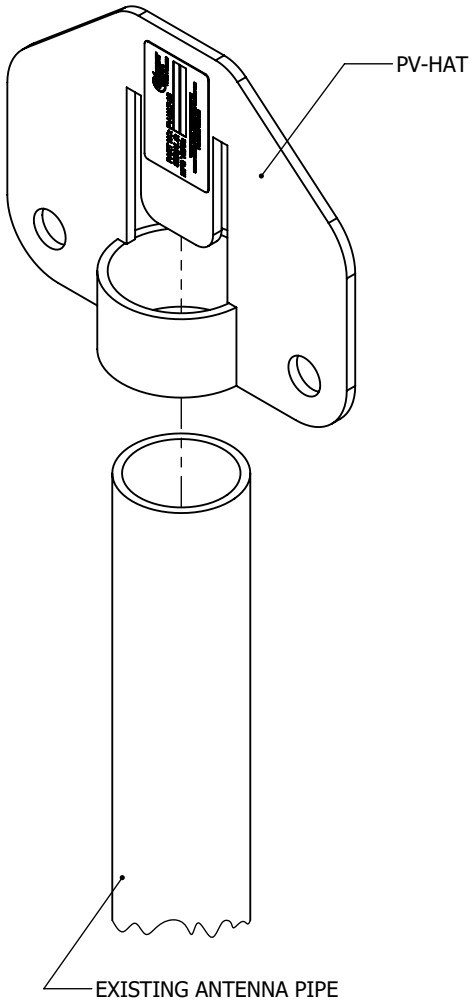
QUALIFIED ENGINEER, COMMUNICATION STRUCTURES (PER ANSI/ASSP A10.48-2023):
A PROFESSIONAL ENGINEER KNOWLEDGEABLE AND EXPERIENCED IN THE COMMUNICATION STRUCTURES INDUSTRY AND THIS STANDARD, CAPABLE OF UNDERSTANDING THE CONTRACTOR'S CONSTRUCTIONS PLAN AND THE SCOPE OF WORK IMPACT UPON THE STRUCTURE AND RESPONSIBLE FOR ANALYZING THE STRUCTURE'S STRENGTH AND STABILITY WHILE ACCOUNTING FOR CONSTRUCTIONS LOADS IN ACCORDANCE WITH THE ANSI/TIA-322-A STANDARD. THE QUALIFIED ENGINEER DOES NOT HAVE THE RESPONSIBILITY FOR FIELD SUPERVISION, DEVELOPMENT OF THE CONSTRUCTION PLAN OR IMPLEMENTATION OF THE CONSTRUCTION MEANS AND METHODS.

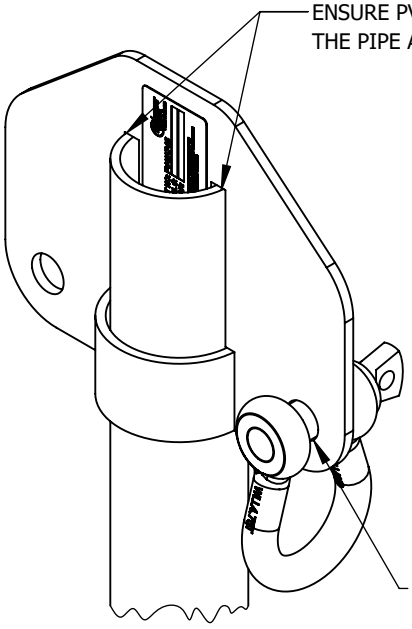
QUALIFIED PERSON (PER ANSI/ASSP A10.48-2023):
ONE WHO, BY POSSESSION OF A RECOGNIZED DEGREE, CERTIFICATE, OR PROFESSIONAL STRANDING, OR WHO BY EXTENSIVE KNOWLEDGE, TRAINING, AND EXPERIENCE, HAS SUCCESSFULLY DEMONSTRATED THE ABILITY TO SOLVE OR RESOLVE PROBLEMS RELATING TO THE SUBJECT MATTER, THE WORK, OR THE PROJECT.

CONSTRUCTION PLAN (PER ANSI/ASSP A10.48-2023):
A SYSTEMATIC AND DETAILED PRESENTATION SHOWING THE EQUIPMENT AND PROCEDURES REQUIRED FOR CONSTRUCTION IN ACCORDANCE WITH THIS STANDARD THAT WILL PROVIDE FOR THE SAFETY OF PERSONNEL AND FOR THE STABILITY OF THE STRUCTURE AND EQUIPMENT.

BASIC DIRECTIONS

- Ensure the correct size PV-HAT lifting device is appropriate for the pipe size you intend to install the device onto.
- Install PV-HAT over the top of a vertical antenna pipe as shown.
- Ensure there is no internal or external obstruction in the pipe preventing the PV-HAT from bearing directly on the top of the pipe.
- Install redundant rigging using one of the two rigging holes (∅15/16") on the device with an appropriately sized shackle.
- Install a shackle into the to the other rigging hole (∅15/16") for the pulley block, and safely assemble all other rigging below the block following all applicable requirments and instructions.
- Enclosed load charts should be referenced along with site-specific construction plans. Read and understand all of the safety information enclosed.





∅15/16" HOLE

FITS PIN SIDE OF 1/2", 5/8", OR 3/4" SHACKLE (NOT INCLUDED)

Reference Dimensions

NOTE: DRAWINGS NTS

TABLE 1: PV-HAT SERIES DIMENSIONS (REFER TO FIGURE 1)

Part Number	Antenna Pipe Size Compatability	Weight	Fits Nominal Pipe Size	Tag Color*	Inside Diameter	Pipe Inset	Height	Width	Hole Offset	Rigging Hole Size†	Plate Thickness	Hole Tearout	Hole To Top Of Pipe
					A	B	C	D	E	F	G	H	J
		[lbs]	[in]		[in]	[in]	[in]	[in]	[in]	[in]	[in]	[in]	[in]
PV-HAT-20	NPS 2 SCH40 (∅2-3/8"x0.154") NPS 2 SCH80 (∅2-3/8"x0.218")	5.0	2	RED	2-7/16	6	8	10	3-3/4	15/16	1/4	1-1/4	4-3/4
PV-HAT-25	NPS 2-1/2 SCH40 (∅2-7/8"x0.203") NPS 2-1/2 SCH80 (∅2-7/8"x0.276")	5.2	2-1/2	BLUE	3-1/16								
PV-HAT-30	NPS 3 SCH40 (∅3-1/2"x0.216") NPS 3 SCH80 (∅3-1/2"x0.300")	5.3	3	GREEN	3-9/16								
PV-HAT-40	NPS 4 SCH40 (∅4-1/2"x0.226") NPS 4 SCH80 (∅4-1/2"x0.337")	10.6	4	PURPLE	4-9/16			11	4-1/4		3/8		

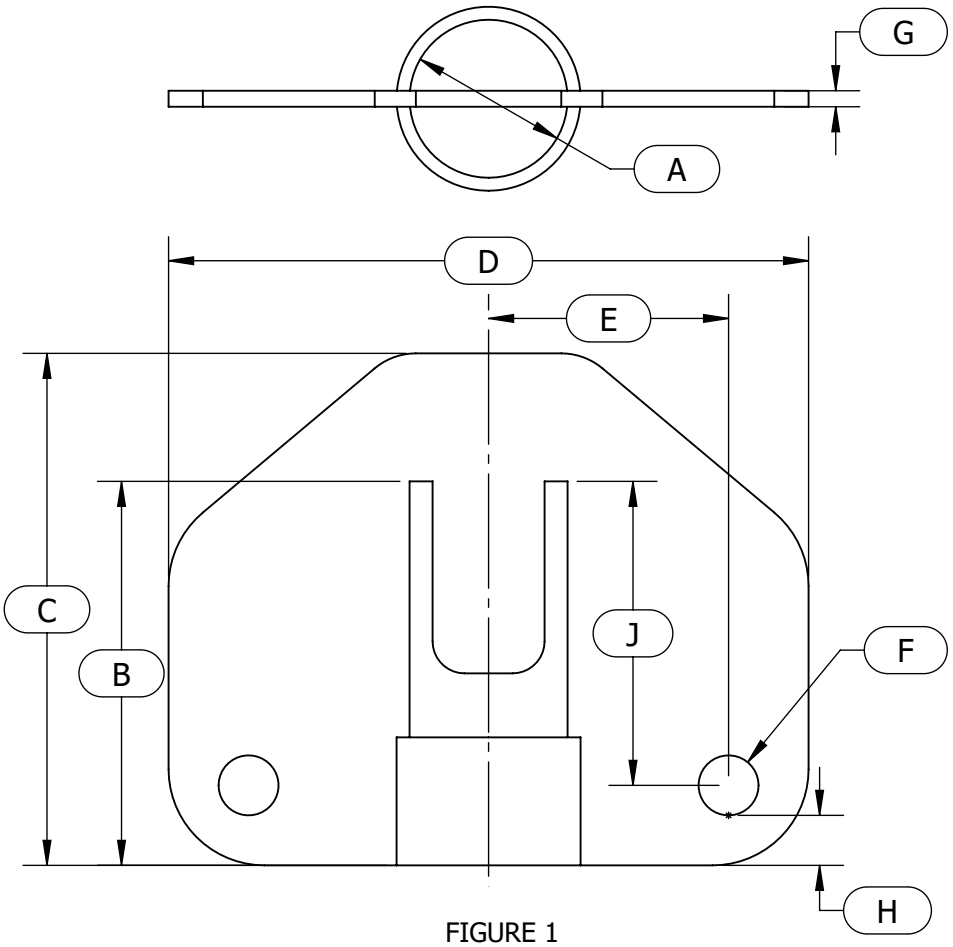


FIGURE 1

**Each size is equipped with different colored tag to help easily distiguish between them. The load chart pages of this document are color coded to match.*

†Rigging Hole is 15/16" diameter and is designed to accomodate the pin of bow shackles with nominal sizes of 1/2", 5/8", and 3/4". Use a different shackle if your shackle does not fit (too large), or is too small enabling it to "flip" and become side-loaded.

REDUNDANT RIGGING

- IN SCENARIOS WHERE THE LOAD LINE IS **NOT** ATTACHED TO THE MAIN STRUCTURE (SEE ANSI/ASSP A10.48-2023 FIGURE A-4(a)), REDUNDANT RIGGING IS REQUIRED.
- REDUNDANT RIGGING SHALL BE ATTACHED TO THE TOWER SIDE OF THE HEAD OF THE ACC6 LIFTING DEVICE.
- REDUNDANT RIGGING SHALL CONNECT TO THE TOWER STRUCTURE AT:
  - A PANEL POINT FOR LATTICED STRUCTURES
  - THE MAIN POLE SHAFT FOR MONOPOLES
- REDUNDANT RIGGING SHALL CONNECT TO THE TOWER STRUCTURE NO MORE THAN 4' VERTICALLY FROM THE TOP BLOCK.
- REDUNDANT RIGGING COMPONENTS ARE NOT INCLUDED WITH THE PV-LPP-GS-ACC6.
- IMAGES SHOW EXAMPLES OF REDUNDANT RIGGING SETUPS, HOWEVER IT SHALL BE UP TO THE QUALIFIED PERSON TO DETERMINE THE SPECIFIC SETUP NEEDED ON A SITE BY SITE BASIS.

EXAMPLE MONOPOLE REDUNDANT RIGGING

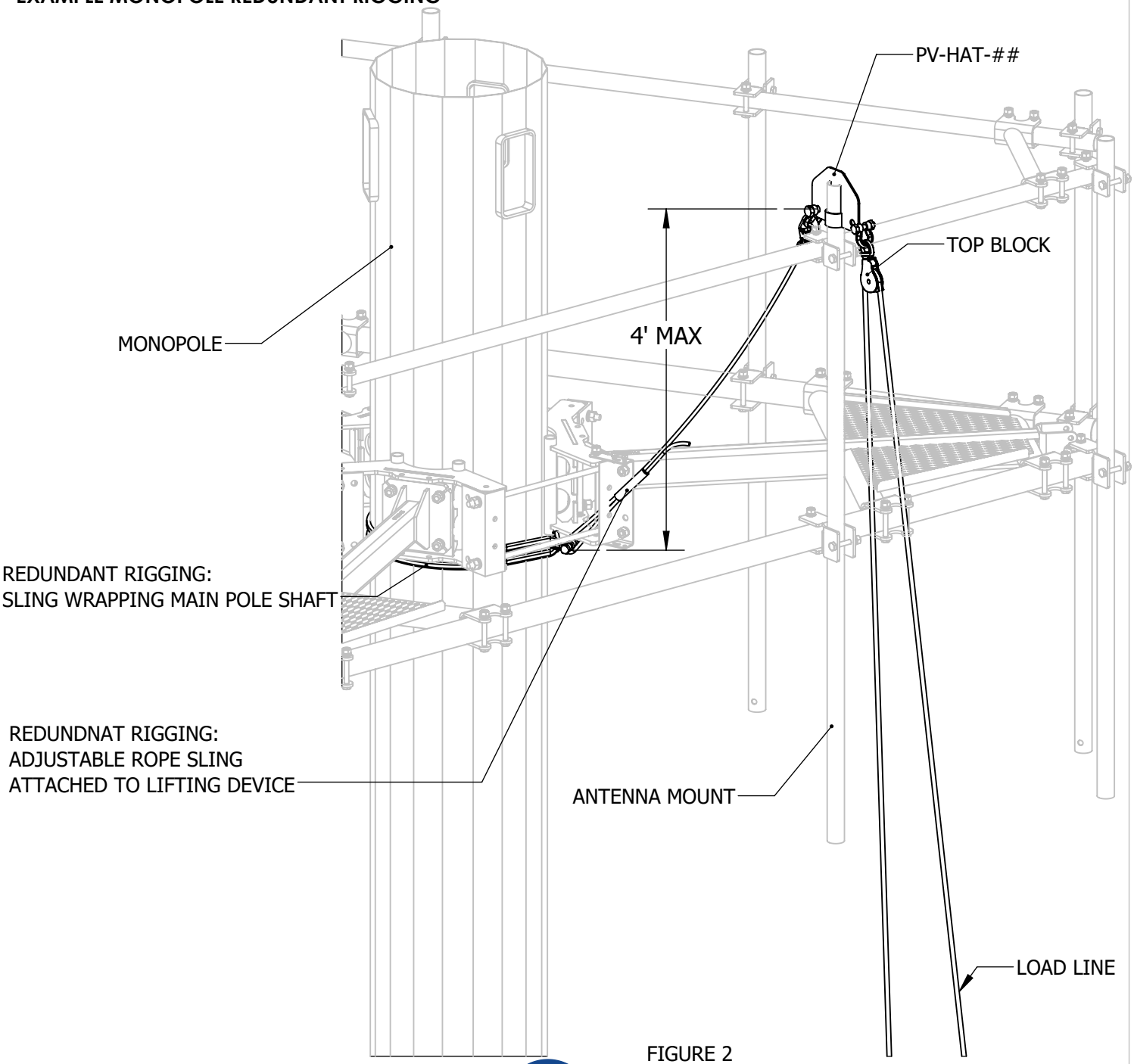


FIGURE 2

STRAIGHT TAG - TOP & HEEL BLOCK

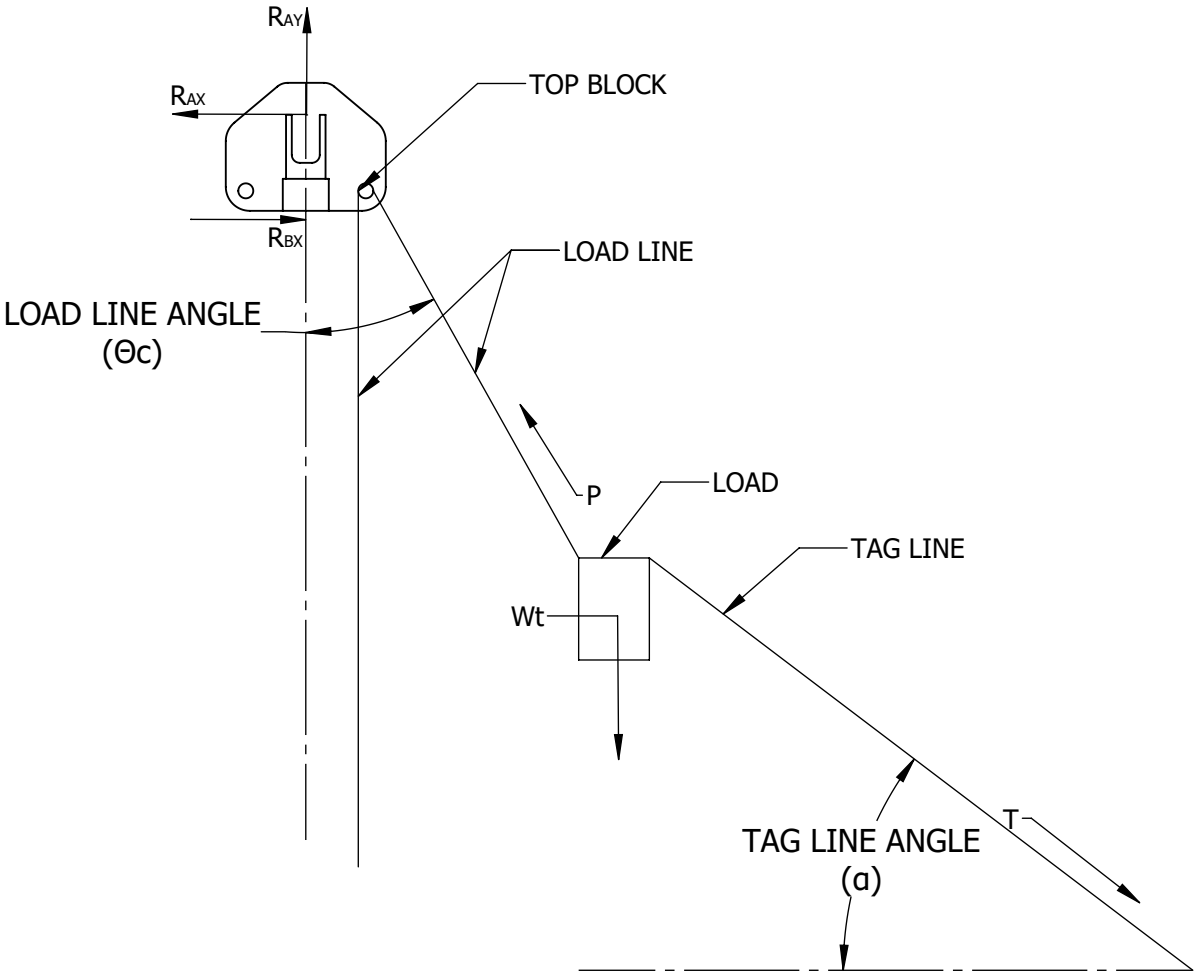


FIGURE 3

LOAD CHART: STRAIGHT TAG - TOP & HEEL BLOCK

REFERENCE: FIGURE 3

Maximum Lifted Load Weight (Wt) [lbs]

Load Line Angle (Θc) [deg] \ Tag Line Angle (α) [deg]	10	20	30	40	45	50	60	70
1	250	249	248	247	246	245	243	238
2	249	247	246	243	242	240	235	227
3	248	246	243	240	237	235	228	215
4	247	244	240	236	233	230	220	202
5	246	242	238	232	228	224	212	190
6	245	240	235	228	224	219	204	178
7	244	238	232	224	219	213	196	165
8	242	236	228	219	214	207	188	153
9	241	233	225	215	209	201	180	140
10	239	231	222	210	203	195	171	127
15	*228*	*216*	*202*	*186*	*175*	*163*	*128*	---
20	*214*	*198*	*181*	*159*	*146*	*130*	*85*	---
25	*197*	*178*	*157*	*131*	*115*	*95*	*41*	---
26.6	*191*	*172*	*149*	*122*	*105*	*85*	---	---
30	*178*	*157*	*132*	*102*	*84*	*62*	---	---
35	*157*	*134*	*107*	*74*	*54*	---	---	---
40	*135*	*110*	*82*	*47*	---	---	---	---
45	*113*	*87*	*58*	*22*	---	---	---	---

Tag Force (T) [lbs]

Load Line Angle (Θc) [deg] \ *Tag Line Angle (α) [deg]*	10	20	30	40	45	50	60	70
1	4	5	5	6	6	7	9	13
2	9	9	10	11	12	14	17	26
3	13	14	15	17	19	20	26	38
4	18	19	20	23	25	27	35	51
5	22	23	25	29	31	34	44	63
6	27	28	30	34	37	41	52	76
7	31	33	35	40	43	47	61	88
8	35	37	40	46	49	54	69	100
9	40	42	45	51	55	61	78	111
10	44	46	50	57	61	67	86	122
15	*65*	*68*	*74*	*83*	*90*	*98*	*124*	*172*
20	*85*	*88*	*96*	*107*	*115*	*126*	*157*	---
25	*102*	*106*	*114*	*128*	*137*	*149*	*182*	---
26.6	*107*	*111*	*120*	*134*	*143*	*155*	*188*	---
30	*116*	*121*	*130*	*145*	*154*	*167*	---	---
35	*127*	*133*	*142*	*157*	*167*	*178*	---	---
40	*135*	*140*	*150*	*164*	*173*	---	---	---
45	*139*	*144*	*153*	*166*	---	---	---	---

ALL HOISTING OPERATIONS INVOLVING LOAD LINE ANGLES (Θc) EXCEEDING 10°, OR TAG LINE ANGLES (α) EXCEEDING 70° FOR STRAIGHT TAG APPLICATIONS SHALL REQUIRE ENGAGEMENT OF QUALIFIED ENGINEER, PER ANSI/TIA-322-A

Structural Reactions

Load Line Angle (Θa)	Pipe Vertical Reaction at Top (R_{AY})	Pipe Horizontal Reaction at Top (R_{AX})	Pipe Horizontal Reaction at Bottom (R_{BX})
deg	*lbf*	*lbf*	*lbf*
1	506	9	316
2	506	18	320
3	507	26	324
4	507	35	327
5	506	44	331
6	506	53	334
7	505	61	337
8	505	70	340
9	504	78	343
10	502	87	345
15	*492*	*128*	*355*
20	*477*	*167*	*361*
25	*457*	*200*	*362*
26.6	*450*	*210*	*361*
30	*432*	*229*	*358*
35	*404*	*251*	*349*
40	*372*	*267*	*335*
45	*337*	*275*	*316*

**REACTIONS ARE NOT DEPENDANT ON TAG LINE ANGLE*

PV-HAT-30
TAG COLOR: GREEN
FITS NPS 3" PIPE (∅ 3-1/2")

PV-HAT-25
TAG COLOR: BLUE
FITS NPS 2-1/2" PIPE (∅ 2-7/8")

PV-HAT-20
TAG COLOR: RED
FITS NPS 2" PIPE (∅ 2-3/8")

LOAD CHART: STRAIGHT TAG - TOP & HEEL BLOCK

REFERENCE: FIGURE 3

Maximum Lifted Load Weight (Wt) [lbs]

Load Line Angle (Θc) [deg] \ Tag Line Angle (α) [deg]	10	20	30	40	45	50	60	70
1	399	398	397	395	394	392	388	381
2	398	396	393	389	387	384	377	362
3	397	393	389	383	380	376	365	343
4	396	391	385	377	373	367	352	324
5	394	388	380	371	365	359	340	304
6	392	384	376	365	358	350	327	284
7	390	381	371	358	350	341	314	264
8	388	377	365	351	342	331	301	244
9	385	374	360	344	334	322	288	224
10	383	369	355	336	325	312	274	204
15	*365*	*346*	*324*	*297*	*281*	*261*	*205*	---
20	*343*	*318*	*289*	*254*	*233*	*207*	*135*	---
25	*316*	*286*	*251*	*209*	*184*	*153*	*66*	---
26.6	*306*	*275*	*239*	*195*	*168*	*135*	---	---
30	*285*	*251*	*212*	*164*	*134*	*99*	---	---
35	*252*	*214*	*171*	*118*	*86*	---	---	---
40	*217*	*177*	*131*	*75*	---	---	---	---
45	*181*	*140*	*93*	*35*	---	---	---	---

Tag Force (T) [lbs]

Load Line Angle (Θc) [deg] \ *Tag Line Angle (α) [deg]*	10	20	30	40	45	50	60	70
1	7	7	8	9	10	11	14	20
2	14	15	16	18	20	22	28	41
3	21	22	24	27	30	33	42	61
4	28	30	32	37	40	44	56	81
5	36	37	40	46	49	54	70	101
6	43	45	48	55	59	65	84	121
7	50	52	57	64	69	76	97	141
8	57	59	64	73	79	87	111	159
9	64	67	72	82	88	97	124	178
10	71	74	80	91	98	108	137	196
15	*104*	*109*	*118*	*133*	*144*	*157*	*198*	*275*
20	*135*	*141*	*153*	*171*	*185*	*201*	*250*	---
25	*163*	*170*	*183*	*205*	*220*	*238*	*291*	---
26.6	*171*	*178*	*192*	*214*	*229*	*248*	*301*	---
30	*186*	*194*	*208*	*231*	*247*	*267*	---	---
35	*204*	*212*	*227*	*251*	*267*	*285*	---	---
40	*216*	*225*	*240*	*262*	*277*	---	---	---
45	*223*	*231*	*245*	*266*	---	---	---	---

ALL HOISTING OPERATIONS INVOLVING LOAD LINE ANGLES (Θc) EXCEEDING 10°, OR TAG LINE ANGLES (α) EXCEEDING 70° FOR STRAIGHT TAG APPLICATIONS SHALL REQUIRE ENGAGEMENT OF QUALIFIED ENGINEER, PER ANSI/TIA-322-A

Structural Reactions

Load Line Angle (Θa)	Pipe Vertical Reaction at Top (R_{AY})	Pipe Horizontal Reaction at Top (R_{AX})	Pipe Horizontal Reaction at Bottom (R_{BX})
deg	*lbf*	*lbf*	*lbf*
1	812	14	573
2	813	28	579
3	813	42	585
4	813	56	591
5	813	70	596
6	812	84	601
7	811	98	606
8	810	112	611
9	808	126	615
10	806	139	619
15	*791*	*205*	*634*
20	*766*	*266*	*641*
25	*734*	*321*	*639*
26.6	*722*	*336*	*637*
30	*694*	*366*	*629*
35	*648*	*402*	*611*
40	*597*	*427*	*584*
45	*542*	*440*	*550*

**REACTIONS ARE NOT DEPENDANT ON TAG LINE ANGLE*

PV-HAT-40

TAG COLOR: PURPLE
FITS NPS 4" PIPE (∅ 4-1/2")

STRAIGHT TAG - TOP BLOCK ONLY

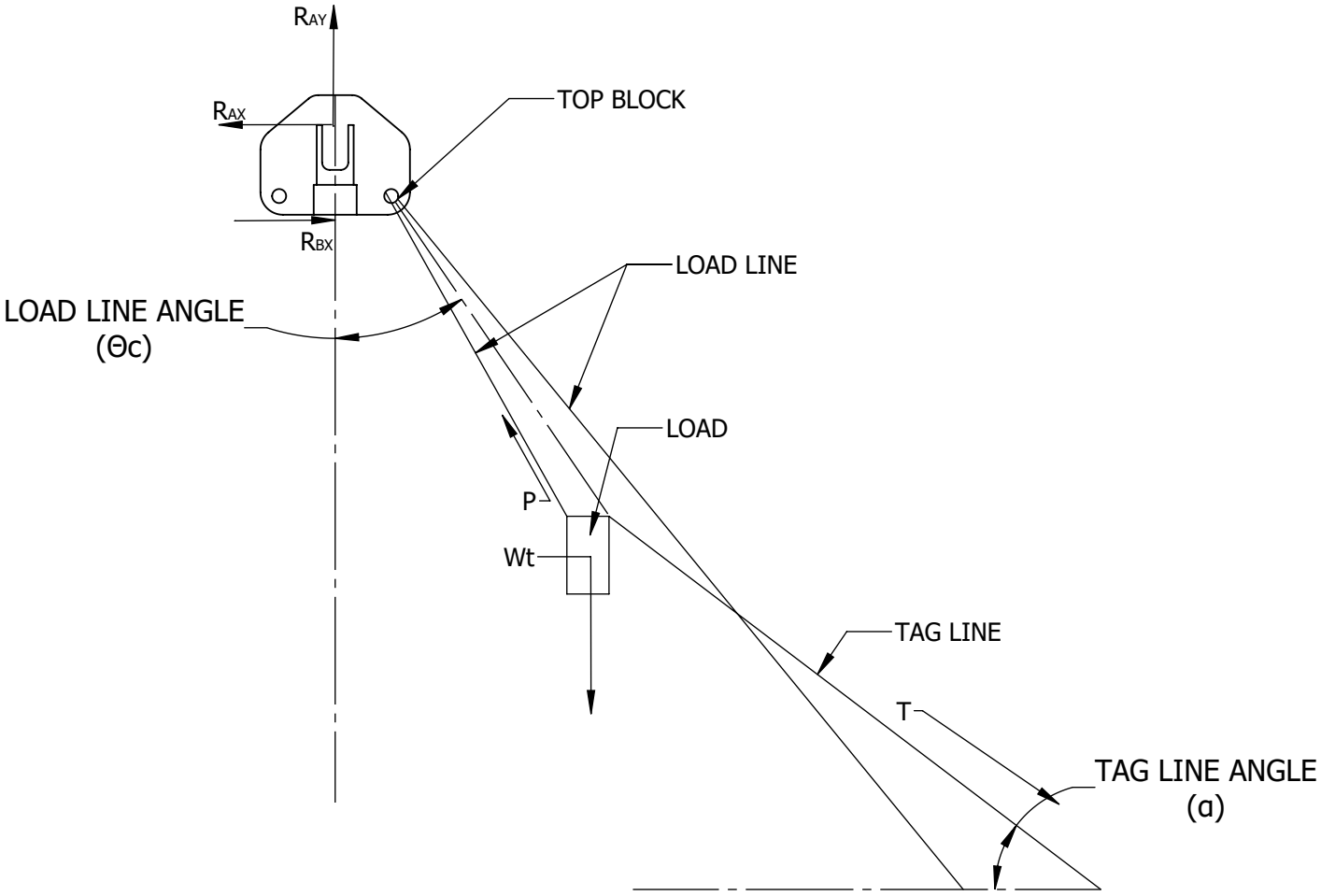


FIGURE 4

LOAD CHART: STRAIGHT TAG - TOP BLOCK ONLY

REFERENCE: FIGURE 4

Maximum Lifted Load Weight (Wt) [lbs]

Load Line Angle (Θc) [deg] \ Tag Line Angle (α) [deg]	10	20	30	40	45	50	60	70
1	250	249	248	247	246	245	243	238
2	249	247	246	243	242	240	235	227
3	248	246	243	240	237	235	228	215
4	247	244	240	236	233	230	220	202
5	246	242	238	232	228	224	212	190
6	245	240	235	228	224	219	204	178
7	244	238	232	224	219	213	196	165
8	242	236	228	219	214	207	188	153
9	241	233	225	215	209	201	180	140
10	239	231	222	210	203	195	171	127
15	*228*	*216*	*202*	*186*	*175*	*163*	*128*	---
20	*214*	*198*	*181*	*159*	*146*	*130*	*85*	---
25	*197*	*178*	*157*	*131*	*115*	*95*	*41*	---
26.6	*191*	*172*	*149*	*122*	*105*	*85*	---	---
30	*178*	*157*	*132*	*102*	*84*	*62*	---	---
35	*157*	*134*	*107*	*74*	*54*	---	---	---
40	*135*	*110*	*82*	*47*	---	---	---	---
45	*113*	*87*	*58*	*22*	---	---	---	---

Tag Force (T) [lbs]

Load Line Angle (Θc) [deg] \ *Tag Line Angle (α) [deg]*	10	20	30	40	45	50	60	70
1	4	5	5	6	6	7	9	13
2	9	9	10	11	12	14	17	26
3	13	14	15	17	19	20	26	38
4	18	19	20	23	25	27	35	51
5	22	23	25	29	31	34	44	63
6	27	28	30	34	37	41	52	76
7	31	33	35	40	43	47	61	88
8	35	37	40	46	49	54	69	100
9	40	42	45	51	55	61	78	111
10	44	46	50	57	61	67	86	122
15	*65*	*68*	*74*	*83*	*90*	*98*	*124*	*172*
20	*85*	*88*	*96*	*107*	*115*	*126*	*157*	---
25	*102*	*106*	*114*	*128*	*137*	*149*	*182*	---
26.6	*107*	*111*	*120*	*134*	*143*	*155*	*188*	---
30	*116*	*121*	*130*	*145*	*154*	*167*	---	---
35	*127*	*133*	*142*	*157*	*167*	*178*	---	---
40	*135*	*140*	*150*	*164*	*173*	---	---	---
45	*139*	*144*	*153*	*166*	---	---	---	---

ALL HOISTING OPERATIONS INVOLVING LOAD LINE ANGLES (Θc) EXCEEDING 10°, OR TAG LINE ANGLES (α) EXCEEDING 70° FOR STRAIGHT TAG APPLICATIONS SHALL REQUIRE ENGAGEMENT OF QUALIFIED ENGINEER, PER ANSI/TIA-322-A

Structural Reactions

Load Line Angle (Θa)	Pipe Vertical Reaction at Top (R_{AY})	Pipe Horizontal Reaction at Top (R_{AX})	Pipe Horizontal Reaction at Bottom (R_{BX})
deg	*lbf*	*lbf*	*lbf*
1	506	9	316
2	506	18	320
3	507	26	324
4	507	35	327
5	506	44	331
6	506	53	334
7	505	61	337
8	505	70	340
9	504	78	343
10	502	87	345
15	*492*	*128*	*355*
20	*477*	*167*	*361*
25	*457*	*200*	*362*
26.6	*450*	*210*	*361*
30	*432*	*229*	*358*
35	*404*	*251*	*349*
40	*372*	*267*	*335*
45	*337*	*275*	*316*

**REACTIONS ARE NOT DEPENDANT ON TAG LINE ANGLE*

PV-HAT-30
TAG COLOR: GREEN
FITS NPS 3" PIPE (∅ 3-1/2")

PV-HAT-25
TAG COLOR: BLUE
FITS NPS 2-1/2" PIPE (∅ 2-7/8")

PV-HAT-20
TAG COLOR: RED
FITS NPS 2" PIPE (∅ 2-3/8")

LOAD CHART: STRAIGHT TAG - TOP BLOCK ONLY

REFERENCE: FIGURE 4

Maximum Lifted Load Weight (Wt) [lbs]

Load Line Angle (Θc) [deg] \ Tag Line Angle (α) [deg]	10	20	30	40	45	50	60	70
1	399	398	397	395	394	392	388	381
2	398	396	393	389	387	384	377	362
3	397	393	389	383	380	376	365	343
4	396	391	385	377	373	367	352	324
5	394	388	380	371	365	359	340	304
6	392	384	376	365	358	350	327	284
7	390	381	371	358	350	341	314	264
8	388	377	365	351	342	331	301	244
9	385	374	360	344	334	322	288	224
10	383	369	355	336	325	312	274	204
15	*365*	*346*	*324*	*297*	*281*	*261*	*205*	---
20	*343*	*318*	*289*	*254*	*233*	*207*	*135*	---
25	*316*	*286*	*251*	*209*	*184*	*153*	*66*	---
26.6	*306*	*275*	*239*	*195*	*168*	*135*	---	---
30	*285*	*251*	*212*	*164*	*134*	*99*	---	---
35	*252*	*214*	*171*	*118*	*86*	---	---	---
40	*217*	*177*	*131*	*75*	---	---	---	---
45	*181*	*140*	*93*	*35*	---	---	---	---

Tag Force (T) [lbs]

Load Line Angle (Θc) [deg] \ *Tag Line Angle (α) [deg]*	10	20	30	40	45	50	60	70
1	7	7	8	9	10	11	14	20
2	14	15	16	18	20	22	28	41
3	21	22	24	27	30	33	42	61
4	28	30	32	37	40	44	56	81
5	36	37	40	46	49	54	70	101
6	43	45	48	55	59	65	84	121
7	50	52	57	64	69	76	97	141
8	57	59	64	73	79	87	111	159
9	64	67	72	82	88	97	124	178
10	71	74	80	91	98	108	137	196
15	*104*	*109*	*118*	*133*	*144*	*157*	*198*	*275*
20	*135*	*141*	*153*	*171*	*185*	*201*	*250*	---
25	*163*	*170*	*183*	*205*	*220*	*238*	*291*	---
26.6	*171*	*178*	*192*	*214*	*229*	*248*	*301*	---
30	*186*	*194*	*208*	*231*	*247*	*267*	---	---
35	*204*	*212*	*227*	*251*	*267*	*285*	---	---
40	*216*	*225*	*240*	*262*	*277*	---	---	---
45	*223*	*231*	*245*	*266*	---	---	---	---

ALL HOISTING OPERATIONS INVOLVING LOAD LINE ANGLES (Θc) EXCEEDING 10°, OR TAG LINE ANGLES (α) EXCEEDING 70° FOR STRAIGHT TAG APPLICATIONS SHALL REQUIRE ENGAGEMENT OF QUALIFIED ENGINEER, PER ANSI/TIA-322-A

Structural Reactions

Load Line Angle (Θa)	Pipe Vertical Reaction at Top (R_{AY})	Pipe Horizontal Reaction at Top (R_{AX})	Pipe Horizontal Reaction at Bottom (R_{BX})
deg	*lbf*	*lbf*	*lbf*
1	812	14	579
2	812	28	590
3	813	42	601
4	812	56	612
5	811	70	623
6	810	84	633
7	808	98	643
8	806	112	652
9	803	126	661
10	800	139	669
15	*777*	*205*	*705*
20	*743*	*266*	*730*
25	*698*	*321*	*741*
26.6	*682*	*336*	*742*
30	*645*	*366*	*740*
35	*585*	*402*	*725*
40	*519*	*427*	*698*
45	*451*	*440*	*660*

**REACTIONS ARE NOT DEPENDANT ON TAG LINE ANGLE*

PV-HAT-40

TAG COLOR: PURPLE
FITS NPS 4" PIPE (∅ 4-1/2")

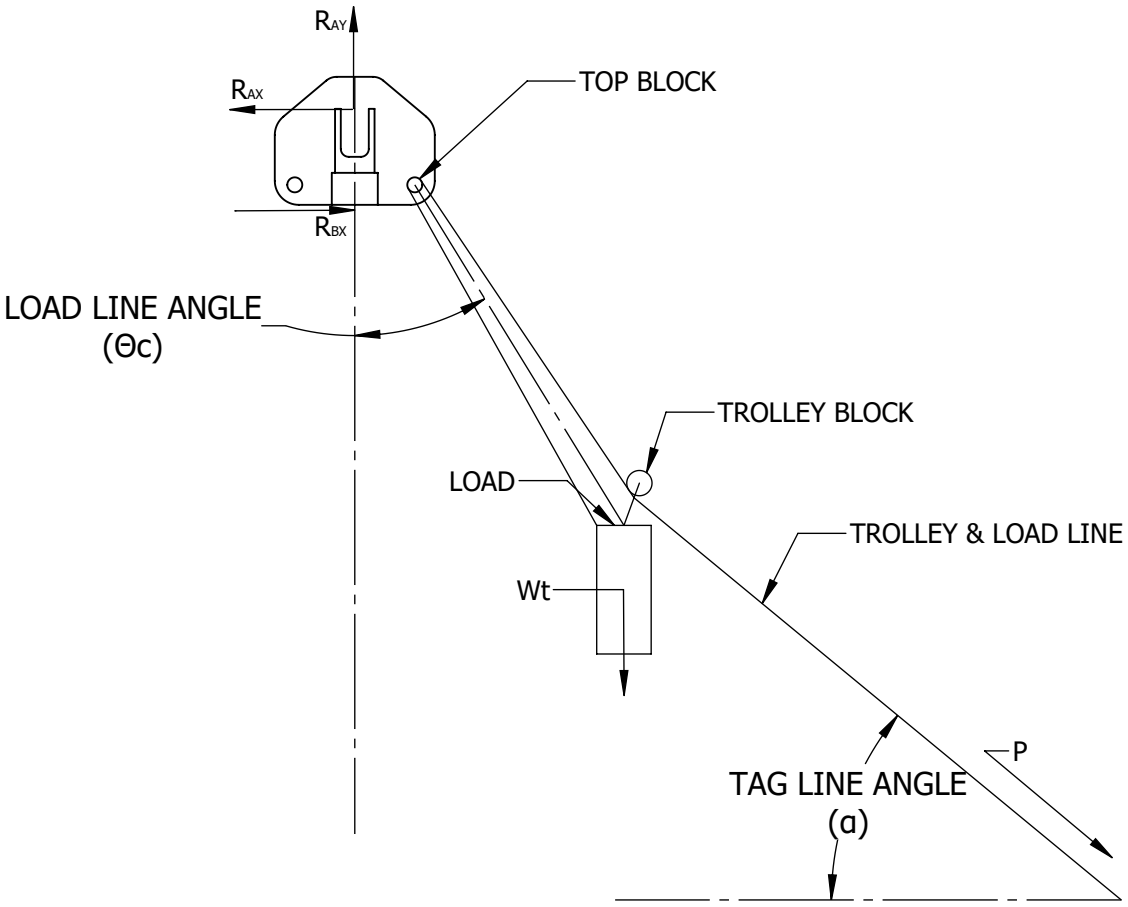

RAY
RAX
TOP BLOCK
RBX
LOAD LINE ANGLE
(Θc)
TROLLEY BLOCK
LOAD
TROLLEY & LOAD LINE
Wt
P
TAG LINE ANGLE
(α)

FIGURE 5

LOAD CHART: TROLLEY TAG

REFERENCE: FIGURE 5

Trolley Tag Load Chart			
Load Line Angle (Θc)	**Max Lifted Load Weight (Wt)**	**Load Line Force (P)**	**Tag Line Angle (α)**
[deg]	*[lbs]*	*[lbf]*	*[deg]*
1	250	250	88
2	251	251	86
3	252	251	84
4	252	251	82
5	253	251	80
6	254	251	78
7	255	251	76
8	256	251	74
9	257	251	72
10	259	251	70
15	267	248	59
20	280	243	47
25	303	237	32
26.6	315	235	26
30	397	229	0

Structural Reactions			
Load Line Angle (Θa)	**Pipe Vertical Reaction at Top (R_{AY})**	**Pipe Horizontal Reaction at Top (R_{AX})**	**Pipe Horizontal Reaction at Bottom (R_{BX})**
deg	*lbf*	*lbf*	*lbf*
1	505	313	313
2	506	329	320
3	506	345	327
4	507	360	334
5	506	376	341
6	506	391	348
7	505	406	354
8	504	421	360
9	503	436	366
10	501	450	372
15	499	464	377
20	484	529	401
25	463	584	418
26.6	435	628	427
30	425	639	429

PV-HAT-30
TAG COLOR: GREEN
FITS NPS 3" PIPE (∅ 3-1/2")

PV-HAT-25
TAG COLOR: BLUE
FITS NPS 2-1/2" PIPE (∅ 2-7/8")

PV-HAT-20
TAG COLOR: RED
FITS NPS 2" PIPE (∅ 2-3/8")

LOAD CHART - TROLLEY TAG

REFERENCE: FIGURE 5

Trolley Tag Load Chart			
Load Line Angle (Θc)	**Max Lifted Load Weight (Wt)**	**Load Line Force (P)**	**Tag Line Angle (α)**
[deg]	*[lbs]*	*[lbf]*	*[deg]*
1	401	401	88
2	402	401	86
3	403	402	84
4	404	402	82
5	405	402	80
6	406	402	78
7	408	402	76
8	410	402	74
9	412	401	72
10	414	401	70
15	427	397	59
20	448	390	47
25	485	379	32
26.6	504	376	26
30	635	366	0

Structural Reactions			
Load Line Angle (Θa)	**Pipe Vertical Reaction at Top (R_{AY})**	**Pipe Horizontal Reaction at Top (R_{AX})**	**Pipe Horizontal Reaction at Bottom (R_{BX})**
deg	*lbf*	*lbf*	*lbf*
1	812	593	579
2	812	618	590
3	813	643	601
4	812	668	612
5	811	693	623
6	810	717	633
7	808	741	643
8	806	764	652
9	803	787	661
10	800	809	669
15	777	911	705
20	743	996	730
25	698	1062	741
26.6	682	1078	742
30	645	1106	740

PV-HAT-40

TAG COLOR: PURPLE
FITS NPS 4" PIPE (∅ 4-1/2")

INSPECTION INTRODUCTION

EXCERPTS FROM ANSI/ASSP A10.48-2023 (FOR REFERENCE)

4.5 INSPECTION:

ALL RIGGING EQUIPMENT AND COMPONENTS IN SERVICE SHALL BE INSPECTED ON AN INITIAL, FREQUENT, AND PERIODIC BASIS IN ACCORDANCE WITH THIS STANDARD AND THE MANUFACTURER's REQUIREMENTS. INSPECTIONS SHALL BE PERFORMED BY A DESIGNATED QUALIFIED OR COMPETENT PERSON TO EXAMINE THE CONDITION AND OPERATIONAL CHARACTERISTICS OF THE RIGGING EQUIPMENT AND/OR COMPONENTS FOR CONFORMANCE WITH SPECIFIED REQUIREMENTS AS ESTABLISHED BY THE MANUFACTURER OR DESIGNATED QUALIFIED PERSON.

4.5.1 INITIAL INSPECTION:

PRIOR TO USE, ALL NEW, ALTERED, MODIFIED, OR REPAIRED RIGGING EQUIPMENT AND/OR COMPONENTS SHALL BE INSPECTED.

4.5.2 FREQUENT INSPECTION:

A VISUAL INSPECTION SHALL BE PERFORMED ON ALL RIGGING EQUIPMENT AND/OR COMPONENTS DAILY WHEN IN SERVICE. RIGGING EQUIPMENT AND/OR COMPONENTS LOCATED IN SEMI-PERMANENT AND INACCESSIBLE LOCATIONS, WHERE FREQUENT INSPECTIONS ARE NOT FEASIBLE, SHALL HAVE PERIODIC INSPECTIONS PERFORMED.

4.5.3 PERIODIC INSPECTIONS:

A COMPREHENSIVE INSPECTION OF THE RIGGING EQUIPMENT AND/OR COMPONENTS SHALL BE PERFORMED AT INTERVALS AS SPECIFIED BY THE MANUFACTURER, BUT NOT TO EXCEED ONE YEAR. PERIODIC INSPECTION INTERVALS SHALL BE BASED UPON THE FOLLOWING CONSIDERATIONS: FREQUENCY OF USE, SEVERITY OR SERVICE CONDITIONS, NATURE OF OPERATIONAL ACTIVITIES, EXPERIENCE OF NORMAL SERVICE LIFE OR RIGGING EQUIPMENT AND/OR COMPONENTS USED IN SIMILAR APPLICATIONS.

4.5.4 DOCUMENTATION:

RIGGING EQUIPMENT AND COMPONENT INSPECTIONS SHALL BE DOCUMENTED.

11.10 MAINTENANCE AND INSPECTION:

GIN POLES SHALL BE MAINTAINED IN ACCORDANCE WITH GUIDELINES ESTABISHED BY THE GIN POLE MANUFACTURE AND/OR RESPONSIBLE QUALIFIED PERSON(S). GIN POLES SHALL HAVE INITIAL INSPECTIONS, FREQUENT INSPECTIONS, AND PERIODIC INSPECTIONS COMPLETED BY A QUALIFED PERSON IN ACCORDANCE WITH SECTION 4.5 OF THIS STANDARD. WRITTEN PERIODIC INSPECTION REPORTS SHALL BE MAINTAINED FOR A MINIMUM OF TWO YEARS. VISUAL AND WELD INSPECTIONS SHALL COVER, AT MINIMUM, THE ITEMS SPECFIED IN SECTIONS 11.10.1 AND 11.10.3.

11.10.1 VISUAL INSPECTION:

VISUAL INSPECTIONS SHALL INCLUDE, AT MINIMUM, THE FOLLOWING:
A) STRUCTURAL COMPONENTS FOR DEFORMATION, WEAR, DEFECTS, CRACKS, AND/OR CORROSION
B) WELDS FOR ANY DEFECTS
C) FASTENERS FOR CONDITION AND TIGHTNESS
D) BEARINGS FOR PROPER LUBRICATIONS AND MOVEMENT
E) GIN POLE COMPONENTS FOR IDENTIFICATION, ASSEMBLY, AND CONDITION

11.10.3. WELD INSPECTION:

A DETAILED WLD INSPECTION BY A CERTIFIED WELD INSPECTOR IN ACCORDANCE WITH AWS D1.1, STRUCTURAL WELDING CODE-STEEL, SHALL BE PERFORMED ON A MINIMUM 10-YEAR CYCLE AND ALSO FOR THE PURPOSE OF PLACING AN EXISTING GIN POLE INTO SERVICE FOR DETERMINING CONFORMANCE WITH THIS STANDARD.

VISUAL WELD INSPECTION SHALL BE PERFORMED ON 100% OF THE WELDED CONNECTIONS. NON-DESTRUCTIVE TESTING SHALL BE PERFORMED ON A MINIMUM OF 10% OF THE WELDED CONNECTIONS. DOCUMENTATION OF THE WELD INSPECTIONS HALL BE MAINTAINED OVER THE LIFE OF A GIN POLE.

INSPECTION INTRODUCTION

COMMENTARY:

THIS PRODUCT IS A STATIC LIFTING DEVICE, INTENDED TO BE USED FOR LIFTING OF ANTENNAS, RADIOS, AND OTHER EQUIPMENT TO REQUIRED POSITIONS ON A TELECOMMUNICATIONS STRUCTURE.

PERFECTVISION IS PROVIDES THE INSPECTION GUIDELINE TO ASSIST CREWS WITH PERFORMING INITIAL, FREQUENT, AND PERIODIC INSPECTIONS. ALL LIFTING AND INSPECTIONS SHALL BE DONE IN ACCORDANCE WITH ANSI/ASSP A10.48 AND OTHER SITE-SPECIFIC REQUIREMENTS.

THE QUALIFIED PERSON DESIGNATED BY THE EMPLOYER SHALL USE THE ANSI/ASSP A10.48 TO PERFORM THE INSPECTION, AND IF NECESSARY, ENGAGE A QUALIFIED ENGINEER.

WHEN USED WITH A CONSTRUCTION PLAN PER ANSI/ASSP A10.48 AS COMPLETED BY A COMPETENT PERSON, AND WHEN INSPECTED BY A QUALIFIED PERSON DESIGNATED BY THE EMPLOYER, THE PRODUCT WILL PERFORM AS DESIGNED.

FREQUENT INSPECTION

THIS PRODUCT SHOULD BE INSPECTED BEFORE EACH JOB STARTS, AND DAILY WHEN IN SERVICE. THIS CHECKLIST IS INTENDED TO PROVIDE A BASIC OUTLINE OF MINIMUM ITEMS TO BE CONSIDERED BY THE COMPETENT RIGGER.

THIS CHECKLIST DOES NOT COVER INSPECTION OF ANY ADDITIONAL RIGGING EQUIPMENT, INCLUDING BUT NOT LIMITED TO, ROPES, CABLES, SHACKLES, BLOCKS, SLINGS, OTHER REQUIRED EQUIPMENT, OR ANY SITE-SPECIFIC REQUIREMENTS.

THIS CHECK LIST IS BASED UPON THE REQUIREMENTS OF ANSI/ASSP A10.48-2023. ADDITIONAL COPIES OF THIS CAN BE DOWNLOADED ONLINE.

Serial Number:		Date:	
Job #:			
INSPECTION CRITERIA		No	Yes
Is the Serial Tag installed and in good condition?			
Are the Serial Number and Manufacture Date legible?			
Are there any cracks in the steel?			
Does the steel show any signs of deformation from mishandling or overloading?			
Are there any cracks in the welds?			
Is there any rust or surface damage on the steel?			
Is there any wear or deformation in the attachment holes?			
Inspector's Name:			
Signature:			
Comments:			

PERIODIC INSPECTION

THIS PRODUCT SHOULD BE INSPECTED EACH CALENDAR YEAR OF REGULAR SERVICE OR PRIOR TO USE IF THE POLE HAS BEEN OUT OF SERVICE FOR MORE THAN A YEAR OR AFTER ANY ABNORMAL OCCURRENCE. WRITTEN ANNUAL INSPECTION REPORTS SHALL BE MAINTAINED FOR A MINIMUM OF TWO YEARS. THIS CHECKLIST IS INTENDED TO PROVIDE A BASIC OUTLINE OF MINIMUM ITEMS TO BE CONSIDERED BY THE QUALIFIED PERSON.

THIS CHECKLIST DOES NOT COVER INSPECTION OF ANY ADDITIONAL RIGGING EQUIPMENT, INCLUDING BUT NOT LIMITED TO, ROPES, CABLES, SHACKLES, BLOCKS, SLINGS, OR OTHER REQUIRED EQUIPMENT.

THIS CHECK LIST IS BASED UPON THE REQUIREMENTS OF ANSI/ASSP A10.48-2023.

THE DETAILED VISUAL INSPECTION SHALL BE PERFORMED BY A QUALIFIED PERSON AS DEFINED BY ANSI/ASSP A10.48-2023.

EVERY 10 YEARS: A DETAILED WELD INSPECTION BY A CERTIFIED WELD INSPECTOR IN ACCORDANCE WITH AWS D1.1, STRUCTURAL WELDING CODE-STEEL. VISUAL INSPECTION SHALL BE PERFORMED ON 100% OF THE WELDED CONNECTIONS. NON-DESTRUCTIVE TESTING SHALL BE PERFORMED ON A MININUM OF 10% OF THE WELDED CONNECTIONS. DOCUMENTATION OF WELD INSPECTIONS SHALL BE MAINTAINED OVER THE LIFE OF THE PRODUCT.

PERIODIC INSPECTION

Date:		Serial Number:	
INSPECTION CRITERIA		Complete	Comments
Serial Tag:			
Ensure tag with Serial Number is securely installed (not peeling off)			
Ensure Serial Tag is in good condition, with all text legible			
Ensure Serial Number & Manufacture Date are legible on Serial Tag			
Structure:			
Ensure steel is free of cracks & defects/deformation			
Ensure there is no rust or corrosion			
Ensure attachment holes are not damaged or deformed			
Welds: Ensure welds are free from cracks, corrosion, or other damage			
Weld #1			
Weld #2			
Weld #3			
Weld #4			

Inspector's Name:	
Signature:	
Additional Comments:	

NOTES