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IDAPA 17
TITLE 08
CHAPTER 09

17.08.09 - IDAHO MINIMUM SAFETY STANDARDS AND PRACTICES FOR LOGGING -- RIGGING, LINES, BLOCKS, AND SHACKLES

000. LEGAL AUTHORITY.
Pursuant to the provisions of Section 72-508, Idaho Code, the Industrial Commission has the authority to promulgate and adopt reasonable rules for effecting the purposes of the Workers' Compensation Act. (7-1-97)

001. TITLE AND SCOPE.
These rules shall be cited as IDAPA 17.08.09, "Idaho Minimum Safety Standards and Practices for Logging -- Rigging, Lines, Blocks, and Shackles," and shall be applicable to the logging industry in the state of Idaho. (7-1-97)

002. WRITTEN INTERPRETATIONS.
There are no written statements which pertain to the interpretation of these rules. (7-1-97)

003. ADMINISTRATIVE APPEALS.
There are no provisions for administrative appeal of these rules. The procedure for appeals in safety matters is prescribed by Sections 72-714 and 72-718 through 72-722, Idaho Code. (7-1-97)

004. -- 008. (RESERVED).

009. DEFINITIONS.
For definitions refer to IDAPA 17.08.01, "Idaho Minimum Safety Standards and Practices for Logging -- General Provisions," Section 007. (7-1-97)

010. RIGGING.

01. General. The determining factor in rigging-up shall be the amount of rated stump pull which a machine can deliver on each line. (7-1-97)

02. Equipment Classification. (7-1-97)

a. Equipment shall be classed according to manufacturer's rating. (7-1-97)

b. Where lower gear ratios or other devices are installed to increase the power of equipment, the size of the rigging shall be increased proportionately so that it will safely withstand the increased strains to conform to Subsection 010.04. of this chapter. (7-1-97)

03. Safe Loading. Rigging, and all parts thereof, shall be of a design and application to safely withstand all expected, or potential, loading to which it will be subjected. (7-1-97)

04. Allowable Loading or Stress. (7-1-97)

a. In no case shall the allowable loading or stress imposed on half (1/2) of the rated breaking strength of any parts of the rigging. (7-1-97)

b. This shall not be construed as applying to chokers. (7-1-97)

05. Chokers. Chokers shall be at least one eighth (1/8) inch smaller than the mainline. (7-1-97)

06. Placing, Condition, and Operation Of Rigging. The placing, condition and operation of rigging shall be such as to insure safety to those who will be working in the vicinity. (7-1-97)

07. Arrangement and Operation. Rigging shall be arranged and operated so that rigging or loads will not pound, rub, or saw against lines, straps, blocks, or other equipment. (7-1-97)

08. Line Hazards. (7-1-97)

a. Running lines and changed settings shall be made in a way to avoid bight of line hazards. (7-1-97)

b. Signals to operator shall be made before moving lines. (7-1-97)

09. Reefing. Reefing or similar practices to increase line pull shall be prohibited. (7-1-97)

10. Inspection of Rigging. (7-1-97)

a. A thorough inspection, by the operator or qualified person, of all blocks, straps, guylines, and other rigging shall be made before they are placed in position for use. (7-1-97)

b. This inspection shall include an examination for damaged, cracked or worn parts, loose nuts and bolts, lubrication, condition of straps and guylines. (7-1-97)

c. The repairs or replacements necessary for safe operation shall be made before rigging is used. (7-1-97)

011. GUYLINES.

01. General Requirements. (7-1-97)

a. Guylines shall be of plow steel or equivalent, in good condition. (7-1-97)

b. Guylines shall be provided in sufficient number, condition and location to develop stability and strength equivalent to the breaking strength of any component part of the rigging or equipment. (7-1-97)

c. Guylines shall be fastened by means of shackles or hooks and slides. The use of loops or molles for attaching guylines is prohibited. (7-1-97)

d. The "U" part of a shackle shall be around the guyline and the pin passed through the eye of the guyline. Pins shall be secured with molles, cotter-keys, or the equivalent. (7-1-97)

e. Guylines shall be kept tightened while equipment or rigging they support is in use. (7-1-97)

02. Anchoring Guylines. (7-1-97)

a. Stumps used for fastening guylines and skylines shall be carefully chosen as to position, height and strength. They shall be tied back if necessary. See Figures 011.02-A and 011.02-B.

FIGURE 011.02-A

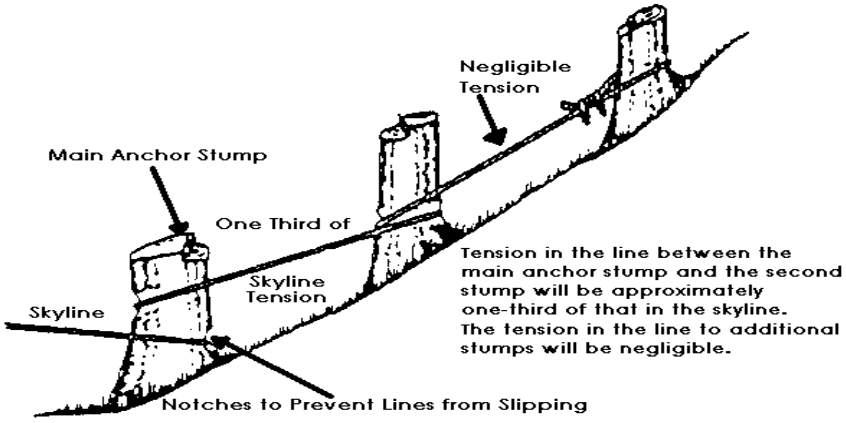
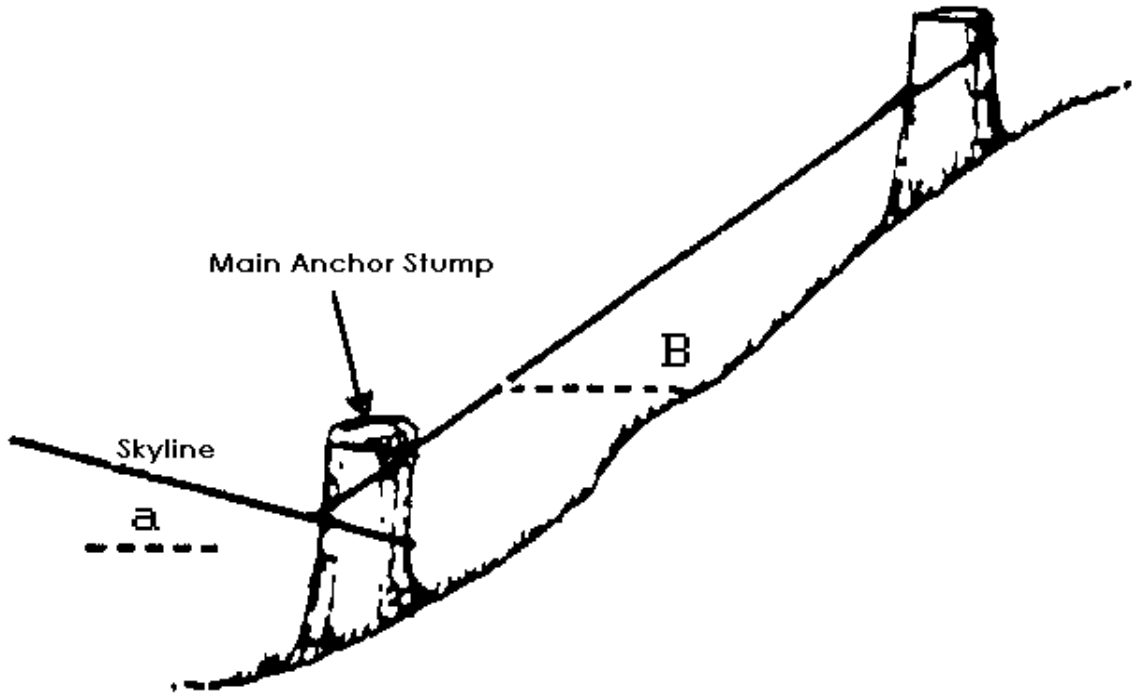


FIGURE 011.02-B



Profile of a common two-stump anchor.

(7-1-97)

b. Guyline anchors shall not be attached directly to deadmen. (7-1-97)

c. Stumps, trees and guyline anchors shall be inspected from time to time while operation is in progress and hazardous conditions immediately corrected. (7-1-97)

d. Standing trees which will reach landing or work areas shall not be used for guyline anchors. (7-1-97)

e. Any guyline anchor tree that can reach the landing or work area shall be felled before using as an anchor. (7-1-97)

03. Effectiveness of Guys. (7-1-97)

a. Guys making an angle with the horizontal greater than sixty (60) degrees will be considered less than fifty percent (50%) effective. For the effectiveness of other angles see Table 011.03-A.

TABLE 011.03-A

Degree	Effectiveness
60 to 45	50% to 75%
45 to 30	75% to 85%
30 to 10	85% to 95%

(7-1-97)

b. For the effectiveness of guys according to the number guys and their spacing see Table 011.03-B.

TABLE 011.03-B

No. of Guys Equally	Guys Most Effective When Pull Is:	Guys Will Support Strain Equal To The Following:
3	Opposite 1 guy	100% of strength of 1 guy
4	Halfway between 2 guys	140% of strength of 1 guy
5	Opposite 1 guy or halfway between 2 guys	160% of strength of 1 guy
6	Opposite 1 guy or halfway between 2 guys	200% of strength of 1 guy
7	Opposite 1 guy or halfway between 2 guys	225% of strength of 1 guy
8	Halfway between 2 guys	260% of strength of 1 guy
9	Opposite 1 guy or halfway between 2 guys	290% of strength of 1 guy
10	Opposite 1 guy or halfway between 2 guys	325% of strength of 1 guy

(7-1-97)

04. Minimum Guyline Requirements. Minimum of four (4) top guys are required on any portable spar tree used for yarding, swinging, loading or cold-decking. (7-1-97)

012. LINES, SHACKLES AND BLOCKS.

01. General Requirements. (7-1-97)

a. All lines, shackles, blocks, etc., should be maintained in good condition and shall be of sufficient size, diameter and material to withstand one and one half (1 1/2) times the maximum stress imposed. (7-1-97)

b. Wire rope or other rigging equipment shall be replaced which shows a fifteen (15) percent reduction in strength. (7-1-97)

02. Splices. (7-1-97)

a. Two (2) lines may be connected by a long splice, or by shackles of patent links of the next size larger than the line where practical. (7-1-97)

b. Safe margin of line must be used for making long splices. See Table 012.02-A.

TABLE 012.02-A

Rope Diameter	Unraveled	Total Length
3/8"	8'	16'
5/8"	13'	20'
3/4"	15'	30'
7/8"	18'	36'
1"	20'	40'

(7-1-97)

03. Clips. (7-1-97)

a. Clips should be spaced at least six (6) rope diameters apart to get maximum holding power. See Table 012.03-A.

TABLE 012.03-A

Diameter of Rope	Number of Clips	Required Space Between Clips
1-1/2-inch	8	10 inches
1-3/8-inch	7	9 inches
1-1/4-inch	6	8 inches
1-1/8-inch	5	7 inches
1- inch	5	6 inches
7/8-inch	5	5-1/4 inches
3/4-inch	5	5-1/2 inches
3/8 to 5/8-inch	4	3 inches

(7-1-97)

b. Should always be attached with the base or saddle of the clip against the longer or "live" end of the rope. See Figure 012.03-A. This is the only right way.

FIGURE 012.03-A

RIGHT

(7-1-97)

c. Do not reverse the clips or stager them. See Figure 012.03-B. Otherwise the "U" bolt will cut into the live rope when the load is applied.

FIGURE 012.03-B

WRONG

WRONG

(7-1-97)

d. After the rope has been used and is under tension the clips should again be tightened to take up any looseness caused by the tension reducing the rope diameter. Remember that even when properly applied a clip fastening has only about ninety percent (90%) of the strength of the rope and far less than that when rigged improperly. (3-29-10)

04. Blocks. All blocks must be of steel construction or of material of equal or greater strength and so hung that they will not strike or interfere with other blocks or rigging. (7-1-97)

05. Pins. All pins in blocks shall be properly secured by keys of the largest size the pin hole will accommodate (7-1-97)

06. Shackles. (7-1-97)

a. Spread in jaws of shackles shall not exceed by more than one (1) inch the size of yoke or swivel of the block to which it is connected. (7-1-97)

b. All shackles must be made of forged steel or material of equivalent strength and one (1) size larger than the line it connects. (7-1-97)

07. Cable Cutting. Cable cutters, soft hammers, or cutting torch shall be available and shall be used for cutting cables. (7-1-97)

08. Damaged or Worn Wire Rope. Wire rope worn or damaged beyond the point of safety shall be taken out of service or properly repaired before further use. (7-1-97)

09. Wire Rope Certification. (7-1-97)

a. All wire rope offered for sales shall be certified as to its breaking strength by the manufacturer or vendor in accordance with the U. S. Bureau of Standards specifications. See Table 012.09-A

TABLE 012.09-A -- TYPICAL WIRE ROPE SPECIFICATIONS, (6X19, OR 6X25 IWRC*)

Cable Dimensions		Improved Plow Steel		Extra-Improved Plow Steel	
Diameter (inches)	Weight per foot (pounds)	Safe working load** (pounds)	Breaking strength (pounds)	Safe working load (pounds)	Breaking strength (pounds)
1/4	0.116	1,960	5,880	2,270	6,800
5/6	0.18	3,050	9,160	3,510	10,540
3/8	.26	4,370	13,120	5,000	15,100
7/16	.35	5,930	17,780	6,800	20,400
1/2	.46	7,700	23,000	89,800	26,600
9/16	.59	9,700	29,000	11,200	33,600
5/8	.72	12,000	36,000	13,700	41,200
3/4	1.04	17,100	53,200	19,600	58,800
7/8	1.42	23,100	69,200	26,500	79,600
1	1.85	30,000	90,000	64,500	103,500
1 1/8	2.34	37,700	113,200	43,300	130,000
1 1/4	2.89	46,300	139,000	53,300	159,800
1 3/8	3.5	55,700	167,000	64,000	192,000
1 1/2	4.16	65,900	197,800	76,000	228,000
1 5/8	4.88	76,000	230,000	88,000	264,000
1 7/8	6.50	101,300	304,000	116,000	348,000
2	7.39	114,739	344,000	132,000	396,000
2 1/8	8.25	128,700	386,000	147,300	442,000
2 1/4	9.36	143,300	430,000	164,700	494,000
2 1/2	11.6	175,300	526,000	201,300	604,000
2 3/4	14.0	209,300	628,000	204,700	722,000

Specifications may very with different line materials and swedge lines. (7-1-97)

013. TYPICAL RIGGING SYSTEMS.

01. See Figures 013.01-A through 013.01-N. (7-1-97)

FIGURE 013.01-A

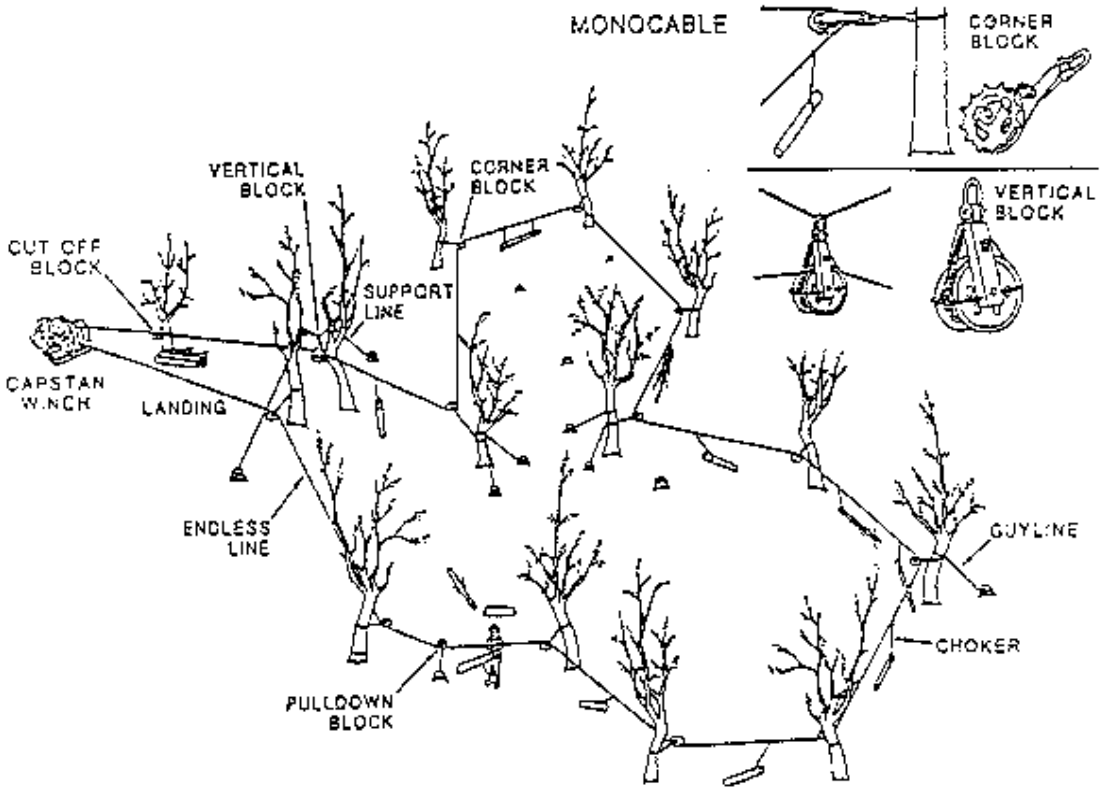


FIGURE 013.01-B

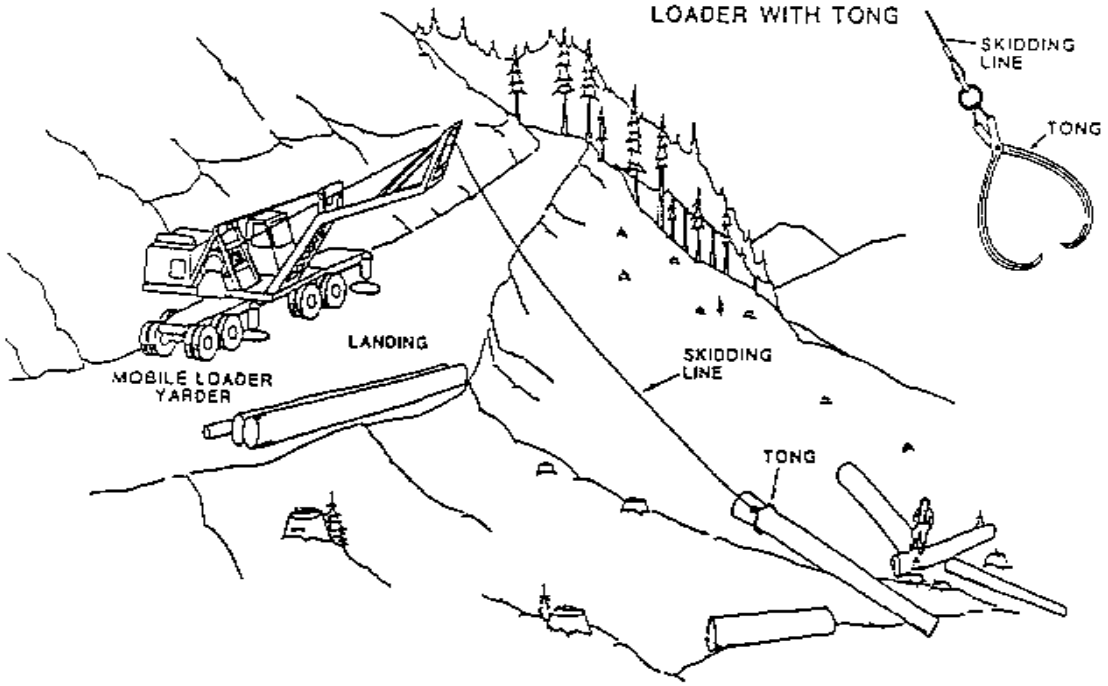


FIGURE 013.01-C

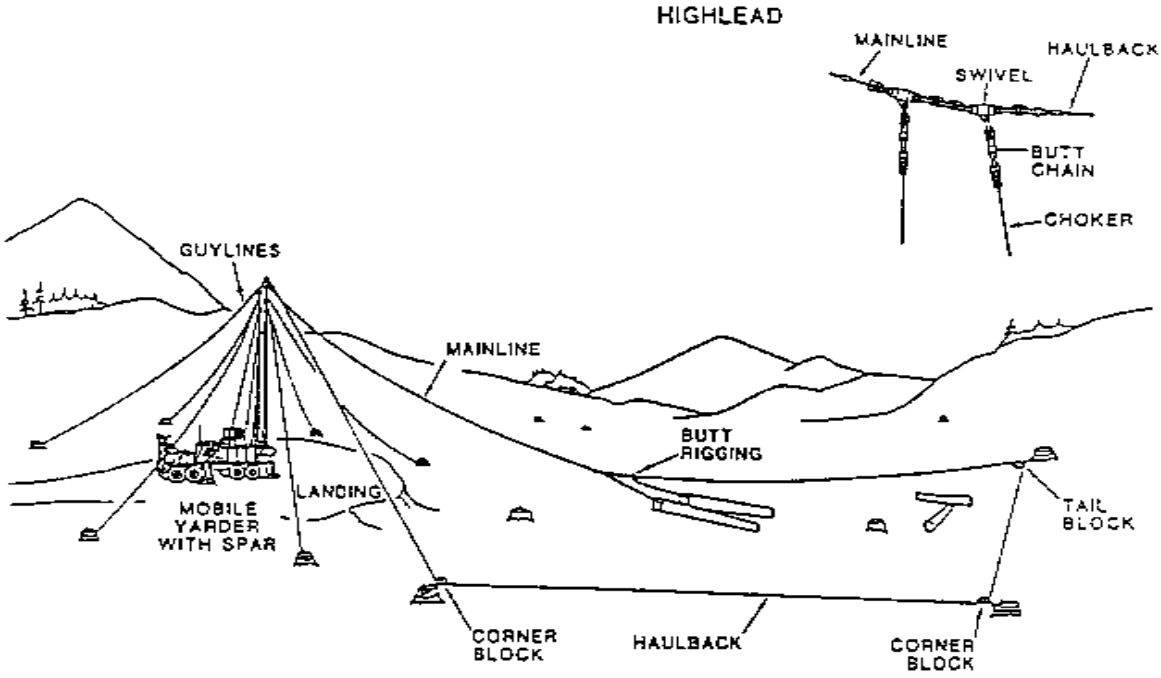


FIGURE 013.01-D

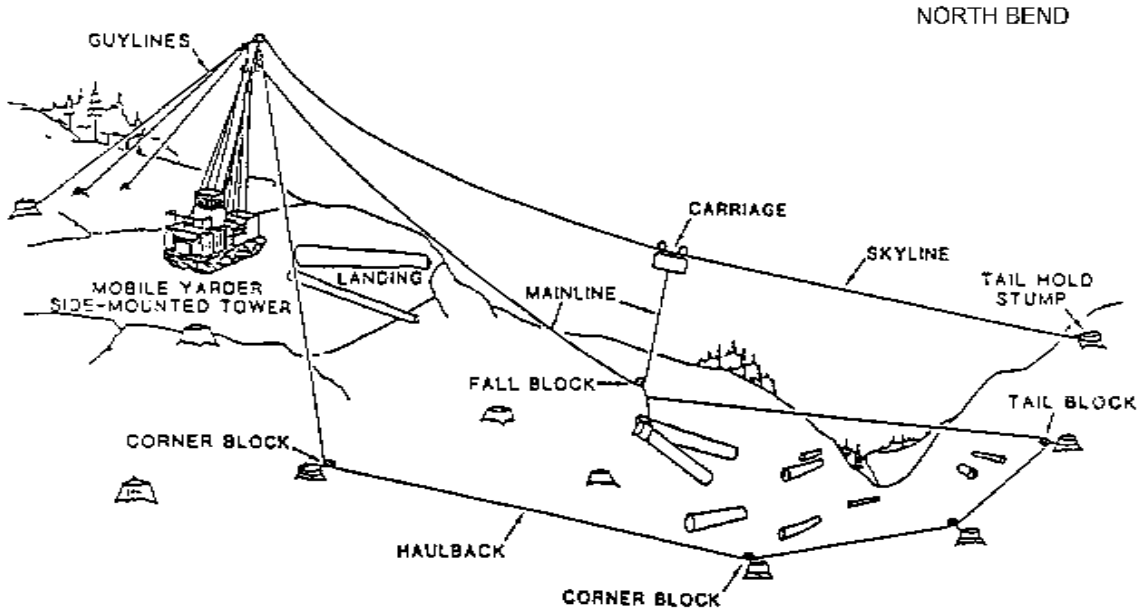


FIGURE 013.01-E

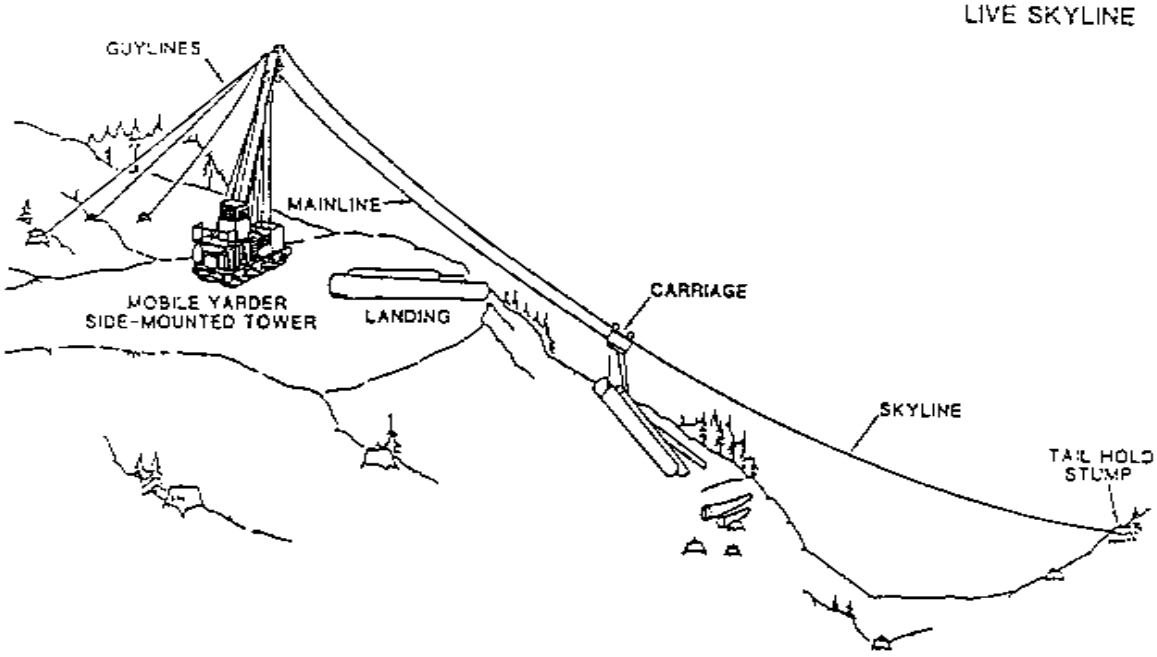


FIGURE 013.01-F
LIVE SLYLINE with carriage stop

LIVE SKYLINE with carriage stop

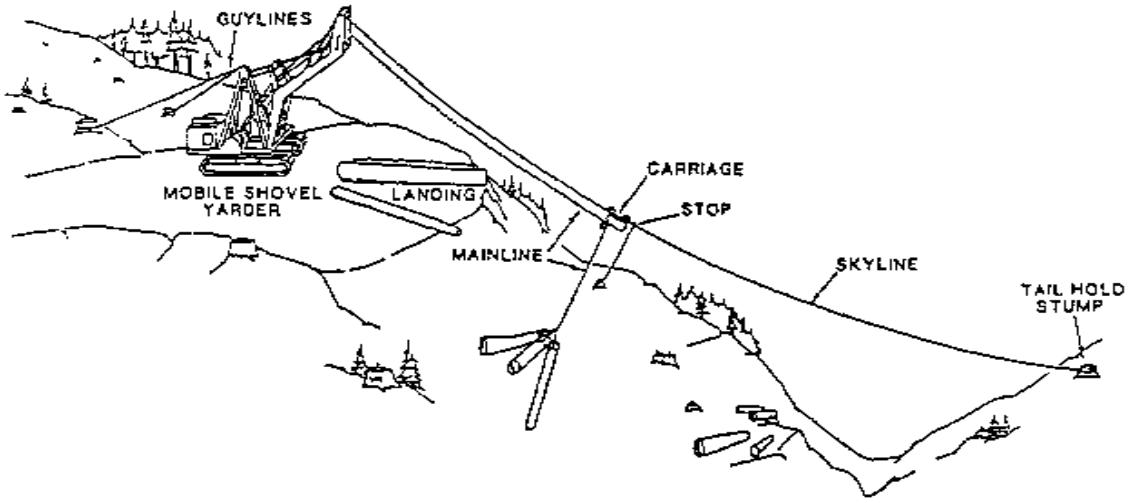


FIGURE 013.01-G
SLACKLINE

SLACKLINE

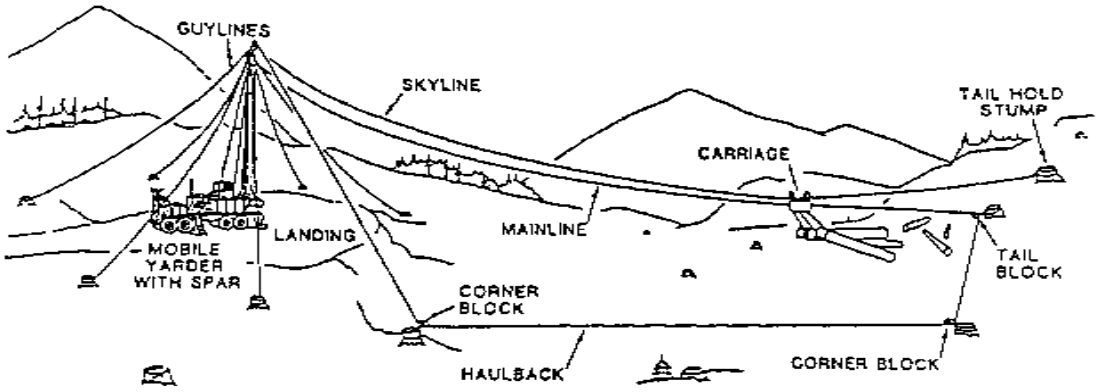


FIGURE 013.01-H

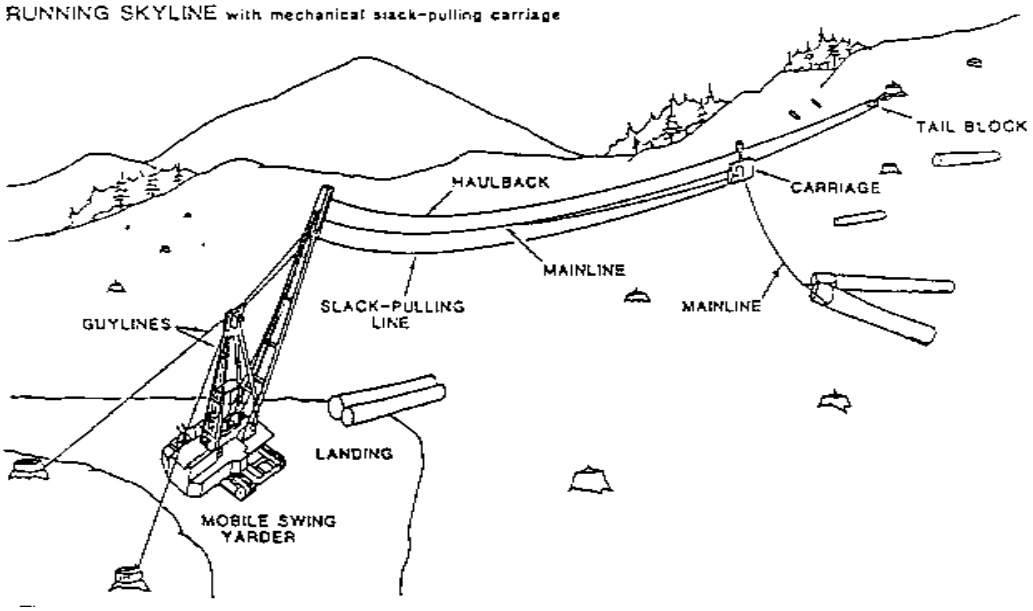


FIGURE 013.01-I

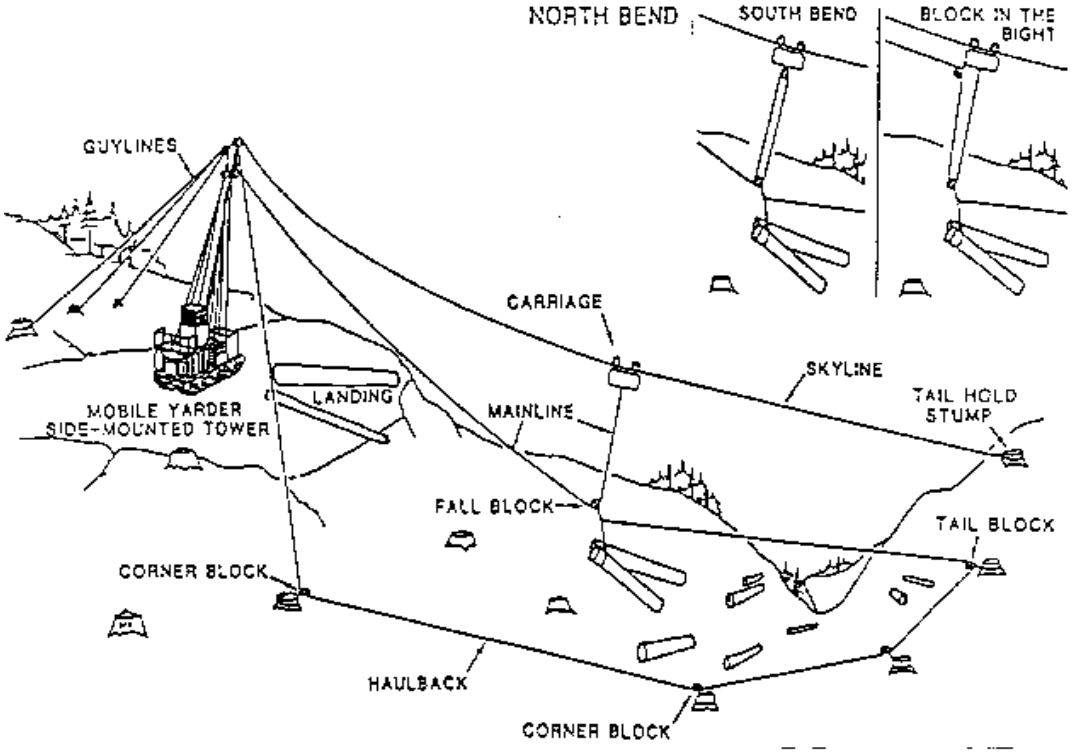


FIGURE 013.01-J

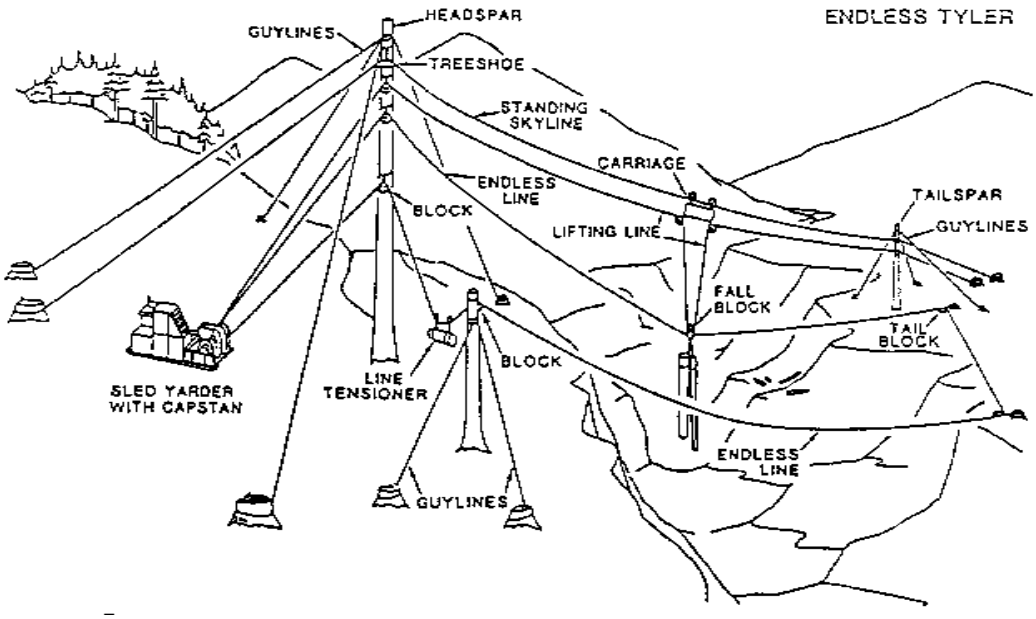


FIGURE 013.01-K

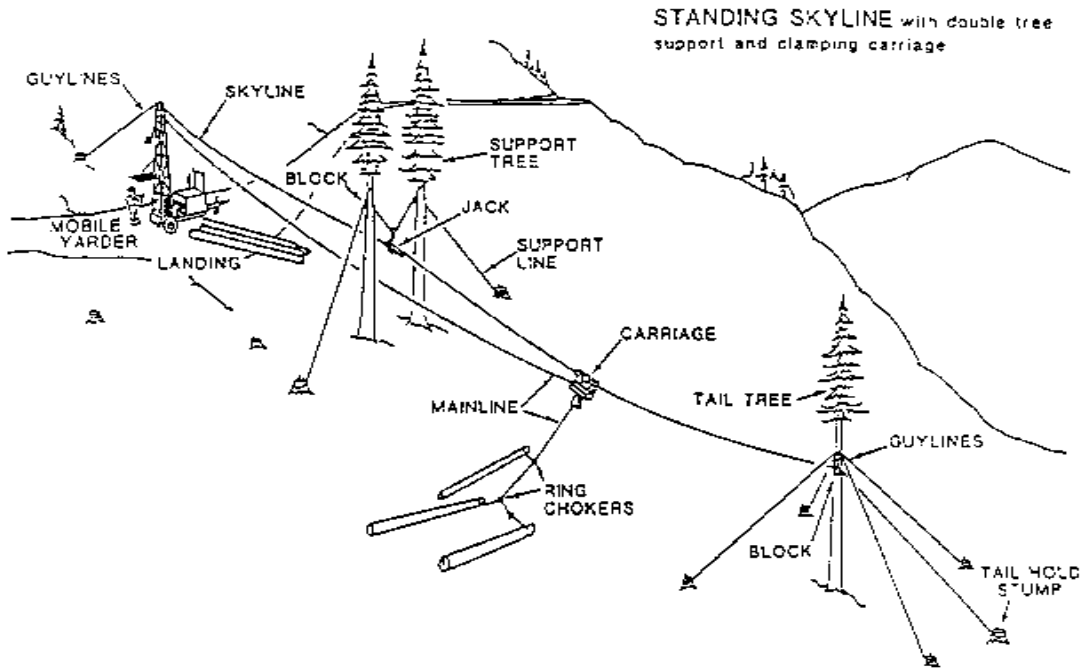


FIGURE 013.01-L

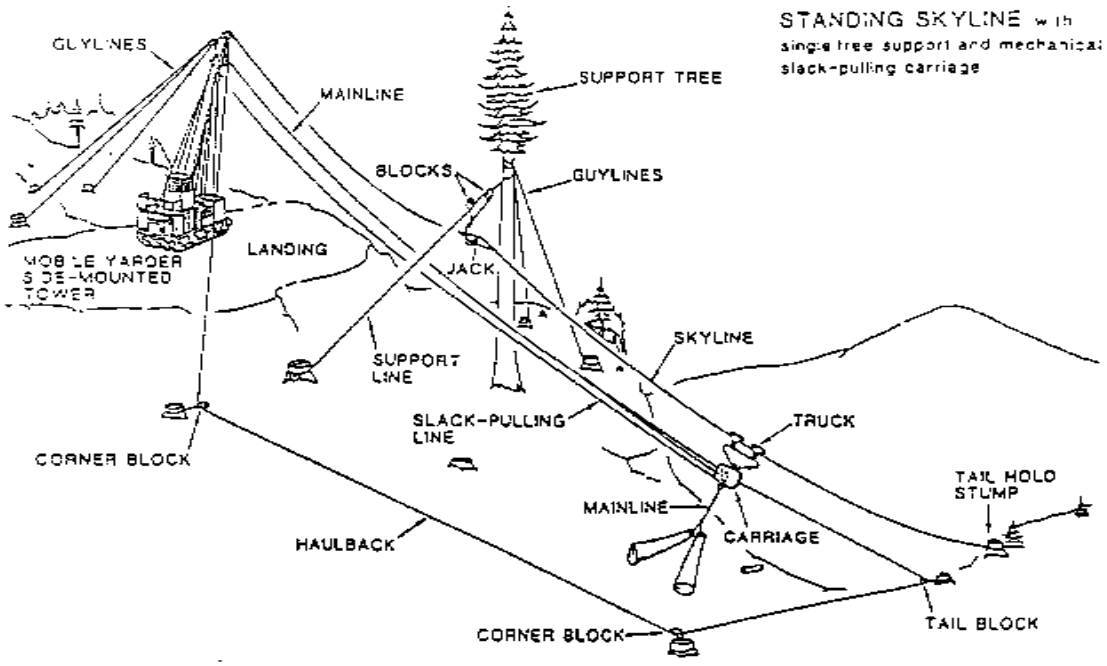


FIGURE 013.01-M

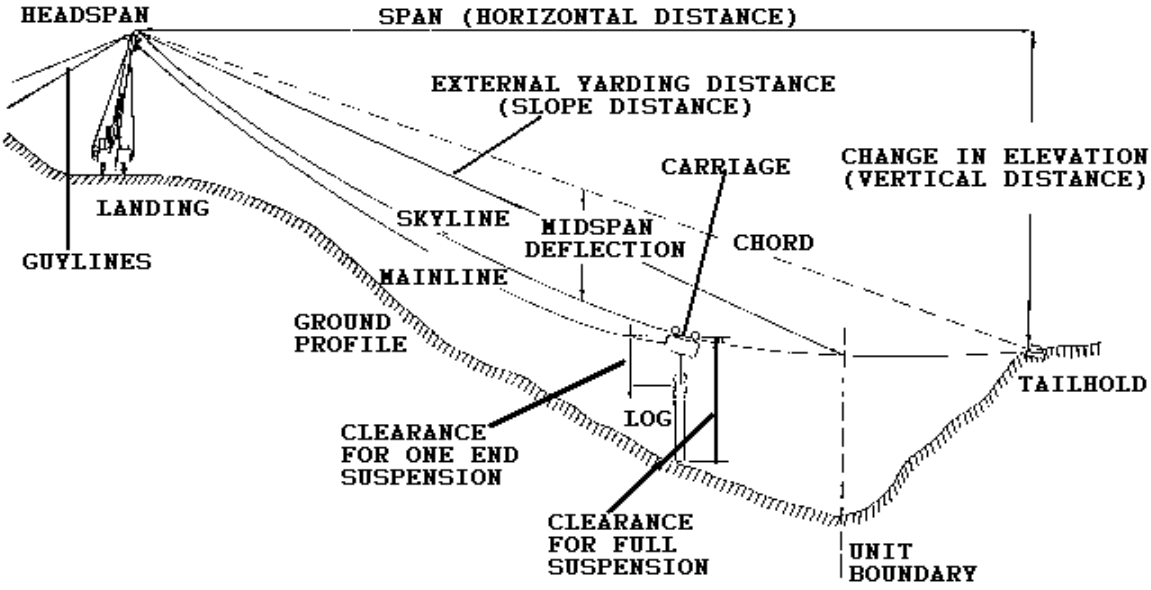


FIGURE 013.01-N1

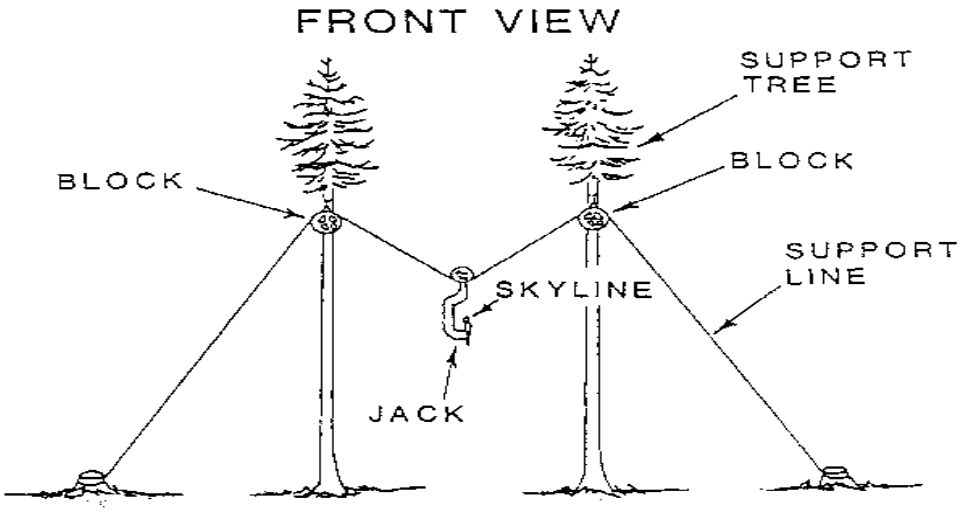
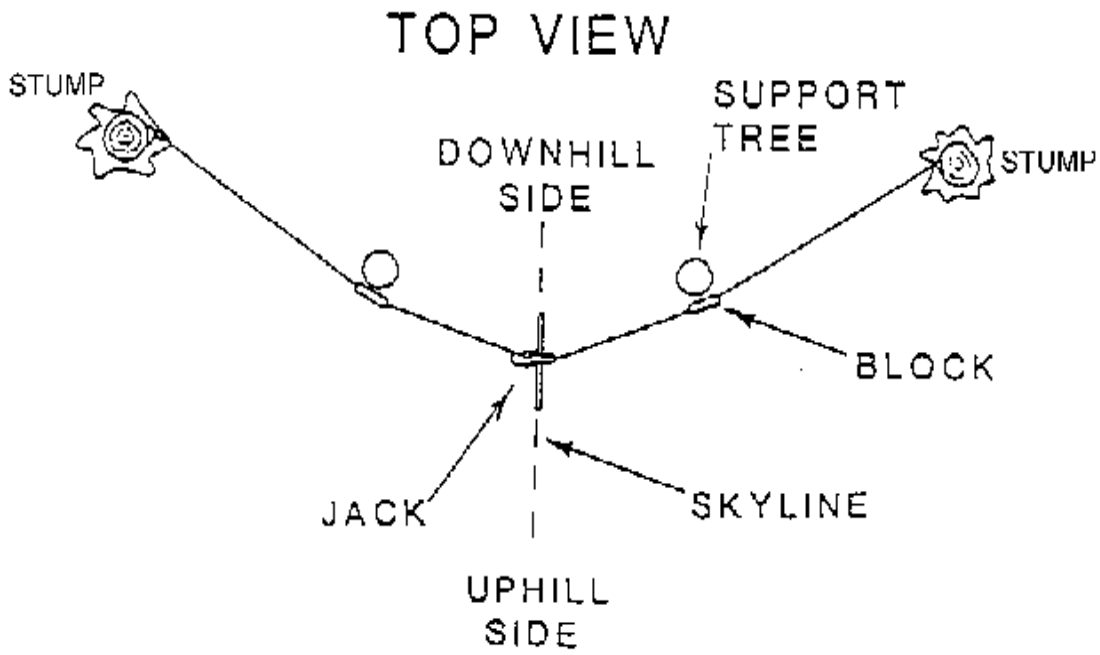


FIGURE 013.01-N2



014. -- 999. (RESERVED).

Subject Index