FM 20-15

DEPARTMENT OF THE ARMY FIELD MANUAL

POLE AND FRAME SUPPORTED TENTS

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POLE AND FRAME SUPPORTED TENTS

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* This manual supersedes FM 20–15, 9 January 1956, including C 1, 9 June 1958.

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CHAPTER 1

INTRODUCTION

1. Purpose and Scope

a. This manual provides general information and guidance on the care and handling of commonly used frame and pole supported tents issued by the Army. Detailed information on each tent may be found in applicable technical manuals.

b. The manual serves as an aid for training personnel in the use of tents, selection and preparation of erection sites, assembly and disassembly of tents, and as a handy reference and guide in the field.

2. Basis for Tent Issue

The basis for issue of pole or frame supported tents may be found in—

a. TA 20—Field Installations and Activities. Tentage authorized for posts, camps, and stations.

b. TA 20–12—Quartermaster Equipment. Allowances for flags, tentage, sewing machines, and equipment for civilian guards.

c. TA 21—Clothing and Equipment. Tentage authorized for individuals.

d. Unit TOE.

3. Recommended Changes

Users of this manual are encouraged to submit recommended changes or comments to improve the manual. Comments should be keyed to the specific page, paragraph, and line of the text to which the change is recommended. Reasons should be provided for each comment to insure understanding and complete evaluation. Comments should be forwarded direct to the Commandant, U.S. Army Quartermaster School, Fort Lee, Va.

CHAPTER 2

POLE SUPPORTED TENTS

Section I. GENERAL PURPOSE TENTS

4. Tent, Arctic, 10-Man

a. Use. The tent, arctic, 10-man, FWWMR, OD, complete with pins and pole (fig. 1), is used to provide shelter for 10 men with equipment under arctic conditions. It also may be used as a command post tent or as a small storage tent.

b. Description. The tent is a six-sided pyramidal tent supported by a telescopic center pole.

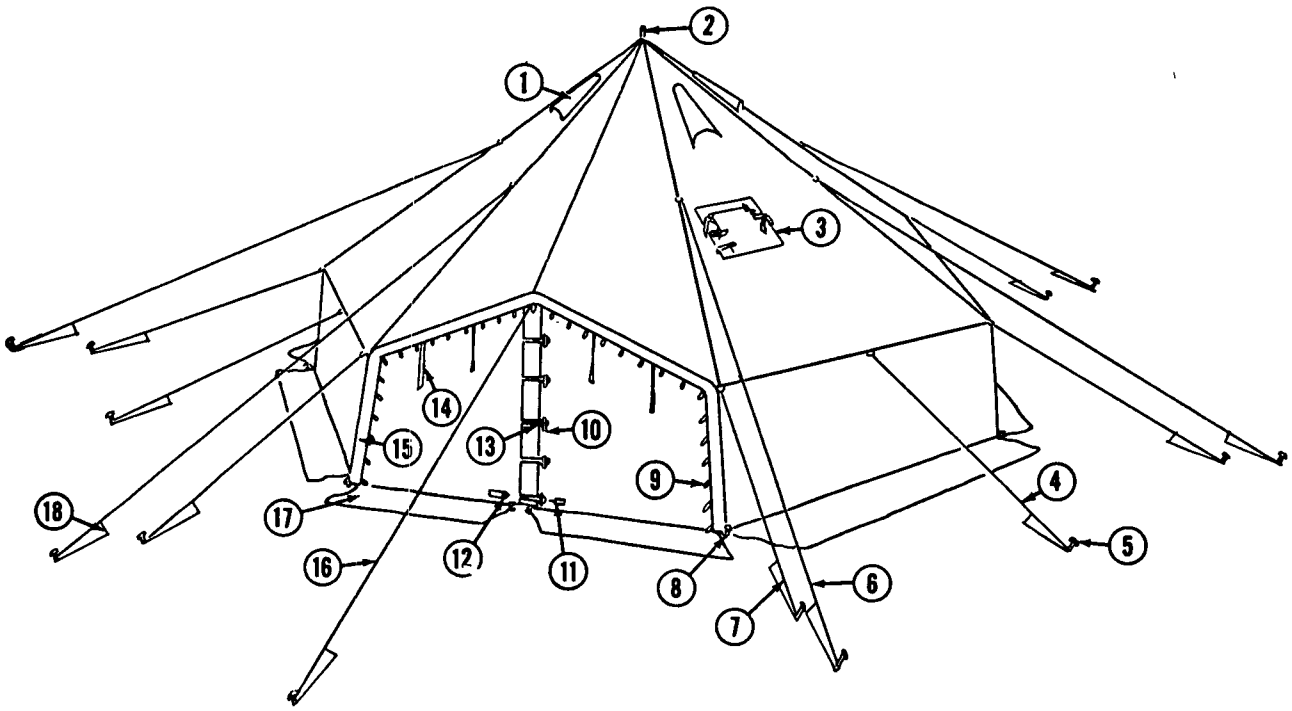
(1) *Tabulated data.*

Height: peak height, 8 feet 6 inches; eave height, 3 feet.

Length: each side of tent is 8 feet 9 inches long.

Width: the hexagonal floor of the tent is 17 feet 6 inches in diameter.

Weight: tent and liner, 68 pounds; pins and pole, 8 pounds.



1 Ventilator
2 Telescopic tentpole
3 Stovepipe opening
4 Tent line, eave
5 Aluminum tent pin
6 Tent line, corner
7 Tent line, corner eave
8 Footstop
9 Becket
10 Wood toggle
11 Chape snap
12 D-ring
13 Toggle loop
14 Tie tape
15 Tent lug
16 Tent line, door eave
17 Snow cloth
18 Tent slip

Figure 1. Tent, arctic, 10-man.

Cube: tent and tent liner, 7.1 cubic feet; pins and pole, 0.2 cubic feet.
Floorspace: 198.9 square feet.

(2) *Material.* The tent is made of 8.5-ounce olive-drab wind-resistant sateen cotton cloth.

(3) *Doors.* The tent has two doors 5 feet high on opposite sides, permitting tents to be joined together with suitable access from one to the other. Door flaps may be securely closed either by slide fasteners or by loops over wood toggles. The doors are operated from both inside and outside.

(4) *Ventilation.* The tent is ventilated by four built-in ventilators on opposite sides and near the peak of the tent. The ventilators have inside ducts, which may be closed by tie cords. The ventilator hoods are of the fixed type, each hood being constructed with a stiffener inserted in the hem to keep it extended out from the ventilator opening.

(5) *Heating.* The tent is heated by an M–1950 Yukon stove. A stovepipe opening with a silicone rubber-molded ring is built in one side of the tent near the eave. When the stove is not in use, the stovepipe opening can be protected by a canvas flap.

(6) *Snow cloths.* There is a snow cloth sewed to the bottom of each side of the tent. When the tent is pitched, the snow cloths are flat on the ground on the outside of the tent. Snow is deposited on the snow cloths for insulation purposes.

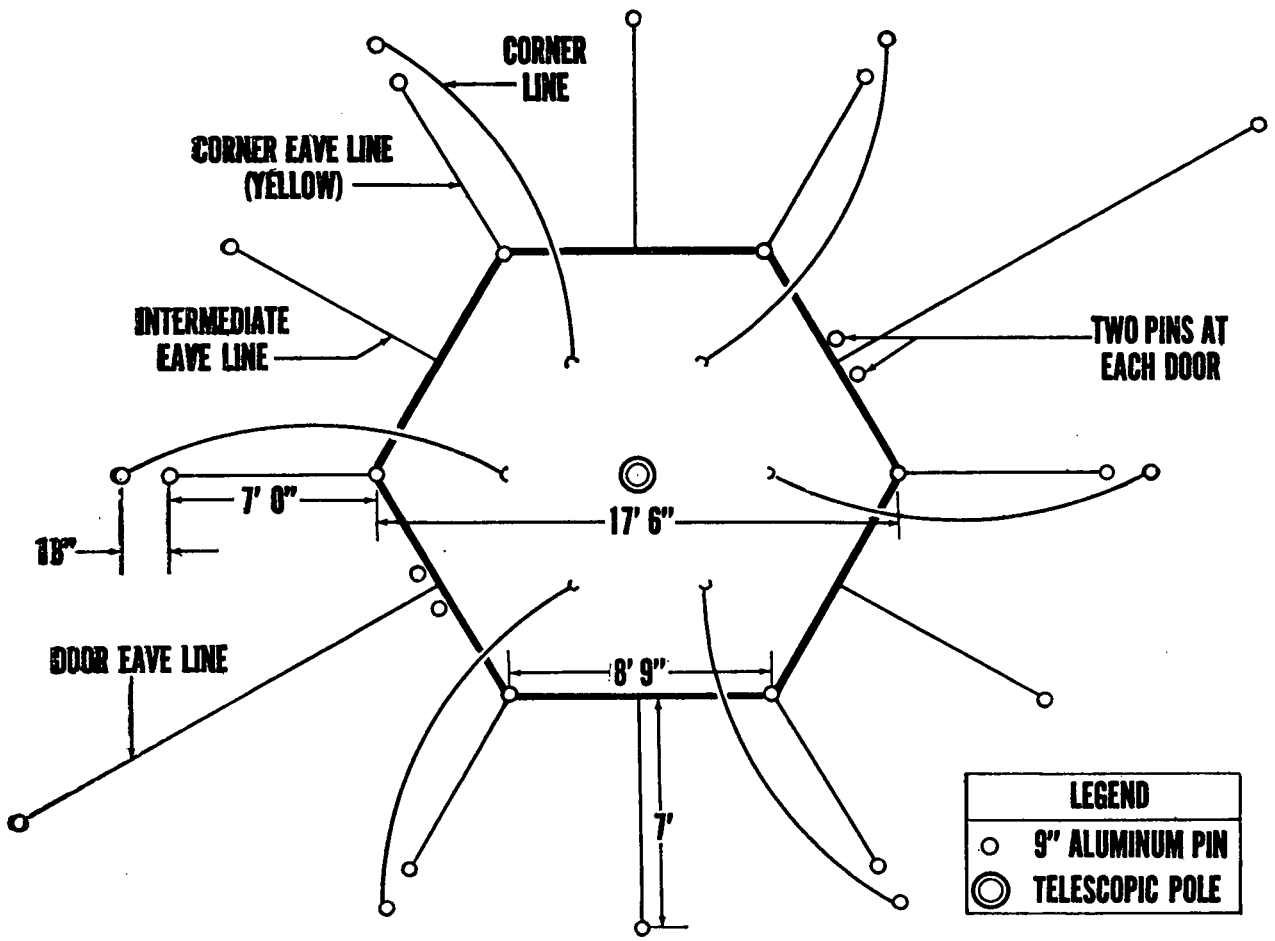


Figure 2. Ground plan of tent, arctic, 10-man.

(7) *Screen doors.* Screen doors are attached to the front and rear of the tent for protection against insects.

(8) *Sock lines.* Four sock lines are provided for drying clothing and equipment.

(9) *Liner.* A fire-resistant liner, made of 5.2-ounce permeable cotton sheeting, is provided to insulate the tent and to prevent frost from falling on the occupants. The liner is held in place by metal toggles.

(10) *Cover.* The tent is provided with a cover for use when it is in storage or is being transported. The tent and liner, when folded fit into the cover. Aluminum tent pins are nested and the magnesium pole telescoped to its shortest length and placed in the pocket at one side of the cover.

c. Ground Plan. Before pitching the tent, study the ground plan carefully (fig. 2).

d. Pitching. The tent can be pitched by six men in approximately 27 minutes.

(1) *Preliminary procedures* (1, fig. 3).

(*a*) Spread tent on ground. Check to see if liner is in place; usually it is not in place in a new tent. If liner is not in place, spread it out beneath the tent.

(*b*) Secure D-rings to snaps inside front and rear doors.

(*c*) Close slide fasteners in front and rear doors.

(*d*) Secure D-rings to snaps outside front and rear doors.

(*e*) Drive six corner pins and four door pins, and attach footstops to pins.

(2) *Attaching corner eave lines and inserting tentpole* (2, fig. 3).

(*a*) Drive six pins about seven feet from corners of tent, and attach corner eave lines. Pins on opposite sides of tent should be in a straight line.

(*b*) Open front door and push pole, extended to 8 feet 6 inches, under tent.

(*c*) Insert spindle of pole through hole in peak of liner and through supporting ring in peak of the tent.

(3) *Raising tent* (3, fig. 3).

(*a*) With one man inside the tent, close inside and outside D-rings and snaps on doors; close slide fasteners.

(*b*) Fasten loops to wood toggles on doors.

(*c*) Lift tentpole, and line up door openings, stovepipe, and four vent openings of liner with openings in tent.

(*d*) Insert D-rings of liner into snaps attached to tent.

(*e*) Raise tentpole, placing butt of tentpole in center of tent area.

(4) *Attaching door eave lines, intermediate eave lines, and corner lines* (4, fig. 3).

(*a*) Stake the two door eave lines far enough to hold doors vertical.

(*b*) Attach the four intermediate eave lines to pins.

(*c*) Attach the six corner lines to pins 18 inches out from corner eave-line pins.

(*d*) Adjust and tighten all lines.

(5) *Propping up door eave lines.* Each of the two door eave lines can be propped up by placing the line over an improvised pole (tree branch or other object higher than the door entrance) at a distance of about 5 feet in front of the door and then staking the line out to a pin. This keeps the doors from sagging, makes the slide fastener work better, makes the tent easier to get into and out of, and gives the tent greater stability.

(6) *Fastening liner.*

(*a*) Insert metal toggles through grommets of liner.

(*b*) Tie tapes around stovepipe opening in liner to corresponding tapes around stovepipe opening in tent to keep stovepipe opening in place.

(*c*) Tie one end of the 18-foot 9-inch sock line to toggle in each corner of

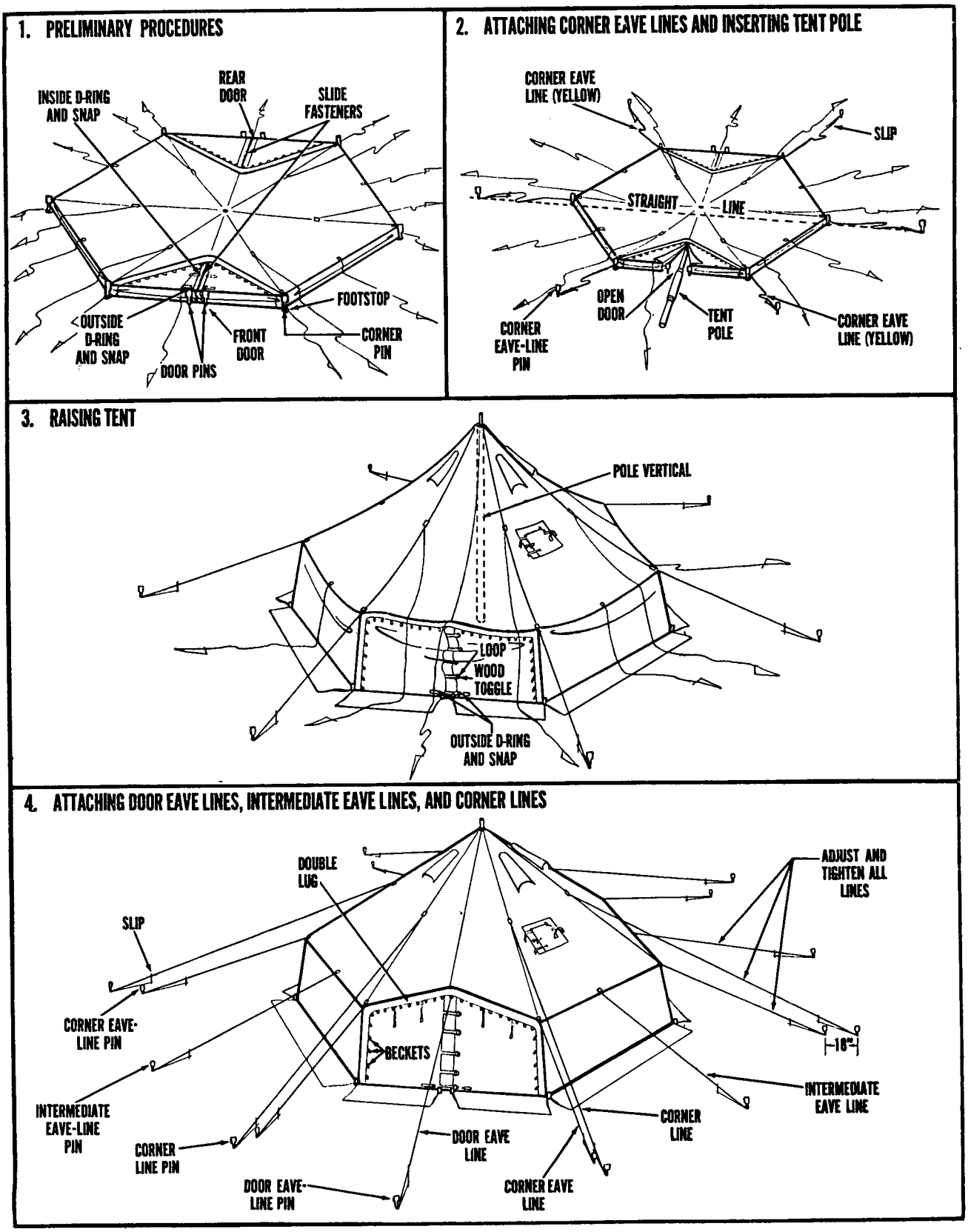


Figure 3. Steps in pitching tent, arctic, 10-man.

door, threading line through eye of toggles at eave line and tying to carrier toggles of the opposite door. Use same procedure for the 18-foot 9-inch sock line on opposite side of tent.

(*d*) Thread the 40-foot 6-inch sock line through the next line of toggles, encircling the tent, and tie.

(*e*) Secure the 38-foot 6-inch sock line in like manner in the next row of toggles.

(7) *Joining two tents together.* When two tents are to be joined together, erect the first tent described above. Fasten lugs (4, fig. 3) at front or rear of tents together by inserting grommet lug of one tent between grommet lug and becket lug of other tent, and chain-lace beckets (4, fig. 3) on lug of one tent through grommets on each lug of both tents (fig. 4). Begin chain-lacing at bottom (near the ground) of lugs and continue until bottom (near the ground) at the other end of the same lugs is reached, securing last becket with a knot. Then erect second tent in the same manner as first tent.

e. Striking.

(1) Remove door eave lines from pins.

(2) Loosen footstops from pins and remove footstop pins.

(3) Loosen all other lines and remove all other pins.

(4) Remove tentpole, and telescope pole to its shortest length.

(5) Remove liner only if repairs are needed.

f. Folding.

(1) *Folding tent* (fig. 5).

(*a*) Engage snap into D-ring inside doors, and close door slide fasteners.

(*b*) Spread tent on ground and locate stovepipe opening panel. Grasp corner eave line (to right of stovepipe opening) and pull out corner of panel. Then coil intermediate eave line neatly on extended panel (1).

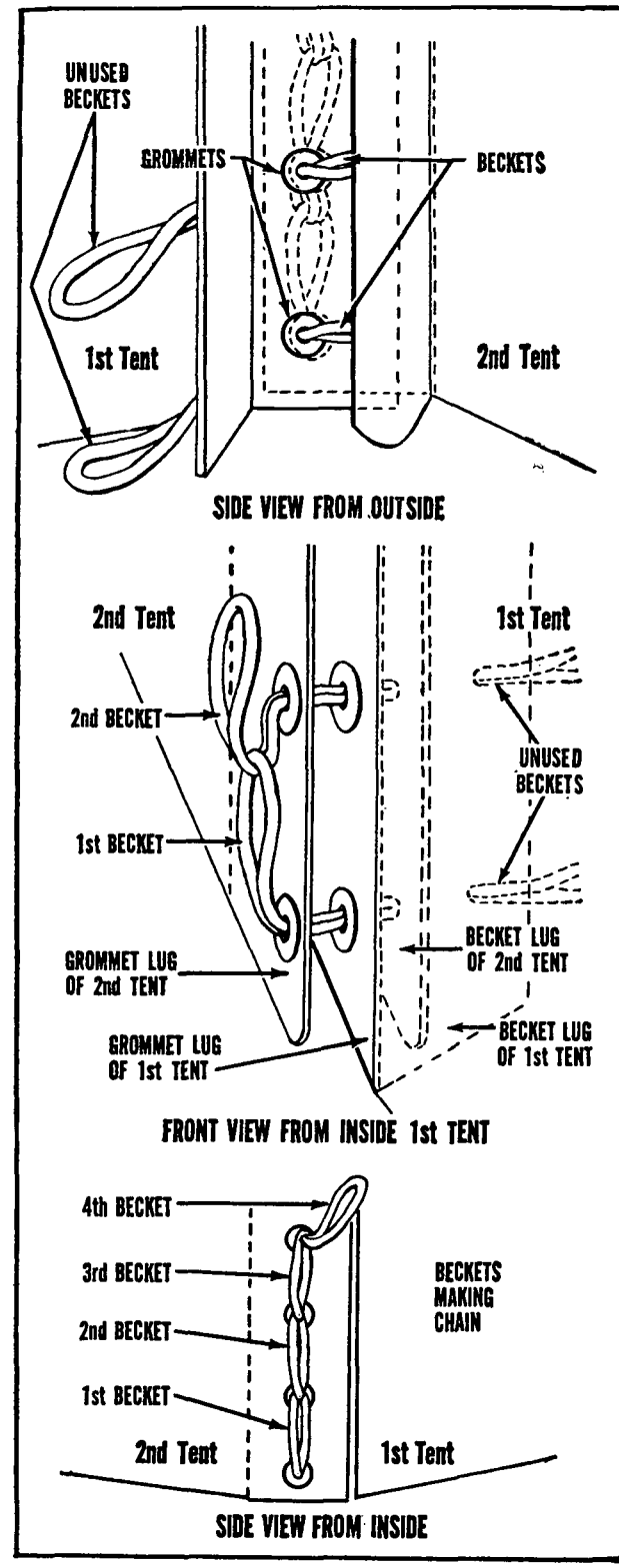


Figure 4. Joining two tents together by chain-lacing beckets through grommets.

(*c*) Reaching to the left, grasp corner eave line (to left of stovepipe opening) and pull second panel to the right, making an accordion fold (2).

(*d*) Fold remaining panels in the same manner, having six folds in all. As each fold is completed, coil intermediate eave lines or door eave lines neatly between folds (3).

(*e*) Coil on top of folded tent panels the six corner lines, the six corner eave lines that have been drawn to the right, and the last remaining intermediate eave line (4).

(*f*) Grasp peak of tent and fold so that peak extends down tent deck approximately 4 feet. Fold snow cloth up over sidewalls of tent (5).

(*g*) Fold tent approximately in half along its long dimension (6).

(*h*) Fold edges of tent toward center so that no portion of liner is exposed. Place folded tent on cover, place folded screen doors on top of folded tent, and place nested pins and telescoped pole into pocket of cover (7).

(*i*) Close cover, securing it with straps and loops. Care should be taken that no portion of the tent is exposed and that the flaps are tucked neatly within the cover.

(2) *Folding liner.* Ordinarily, the liner is not removed from the tent. When necessary, the liner may be folded separately in the same manner as the tent and placed inside the cover with the tent, screen doors, pins, and pole.

5. Tent, Assembly, M–1942

a. Use. The tent, assembly, M–1942, FWW-MR, OD, complete with pins and poles (fig. 6), is used for church services in the field, for lectures, and for the showing of movies. It may also be used for storage, for quartering personnel, or for any other authorized purpose. It has a seating capacity of approximately 500 men. When used for quartering personnel, it has a capacity of approximately 80 men.

b. Description. The tent is a large general purpose tent, with a rectangular middle section and rounded hiproofed ends. The top is made in four sections which lace together: two middle sections and two rounded end sections. The sidewall is in four sections. There are three chains and supporting rings and three sets of block and tackle with lines. Since the tent is sectional in construction, it may be extended to any desired length by means of additional middle and wall sections. Two end sections can be joined and used with two wall sections to form a circular tent.

(1) *Tabulated data.*

Height: peak height, 18 feet; eave height, 8 feet.
Length: 80 feet.
Width: 40 feet.
Weight: tent, 1,100 pounds; pins and poles, 655 pounds.
Cube: 100 cubic feet.
Floorspace: 2,856.6 square feet.

(2) *Material.* The middle and end sections are made of 12.29-ounce duck, FWW-MR. The wall sections are made of 9.85-ounce duck.

(3) *Door openings.* The tent has four door openings, each of which is made by the overlapping of a panel and a half of sidewall where two sections of the sidewall meet. The sidewalls may be shifted so that the openings come anywhere as long as the same proportionate distance between the openings is maintained.

(4) *Ventilation.* There are four built-in ventilators, one to each sidewall section. The tent can also be ventilated by rolling up the sidewalls and tying them with the attached tie tapes; or, if it is raining, by extending the sidewall and tying it to the lines running from the eaves. The doors can also be tied back and the openings used for ventilation.

(5) *Heating.* Four M–1941 tent stoves or two external 250,000-B.t.u. tent heaters, are used to heat the tent. The built-in ventilators are used as stove-

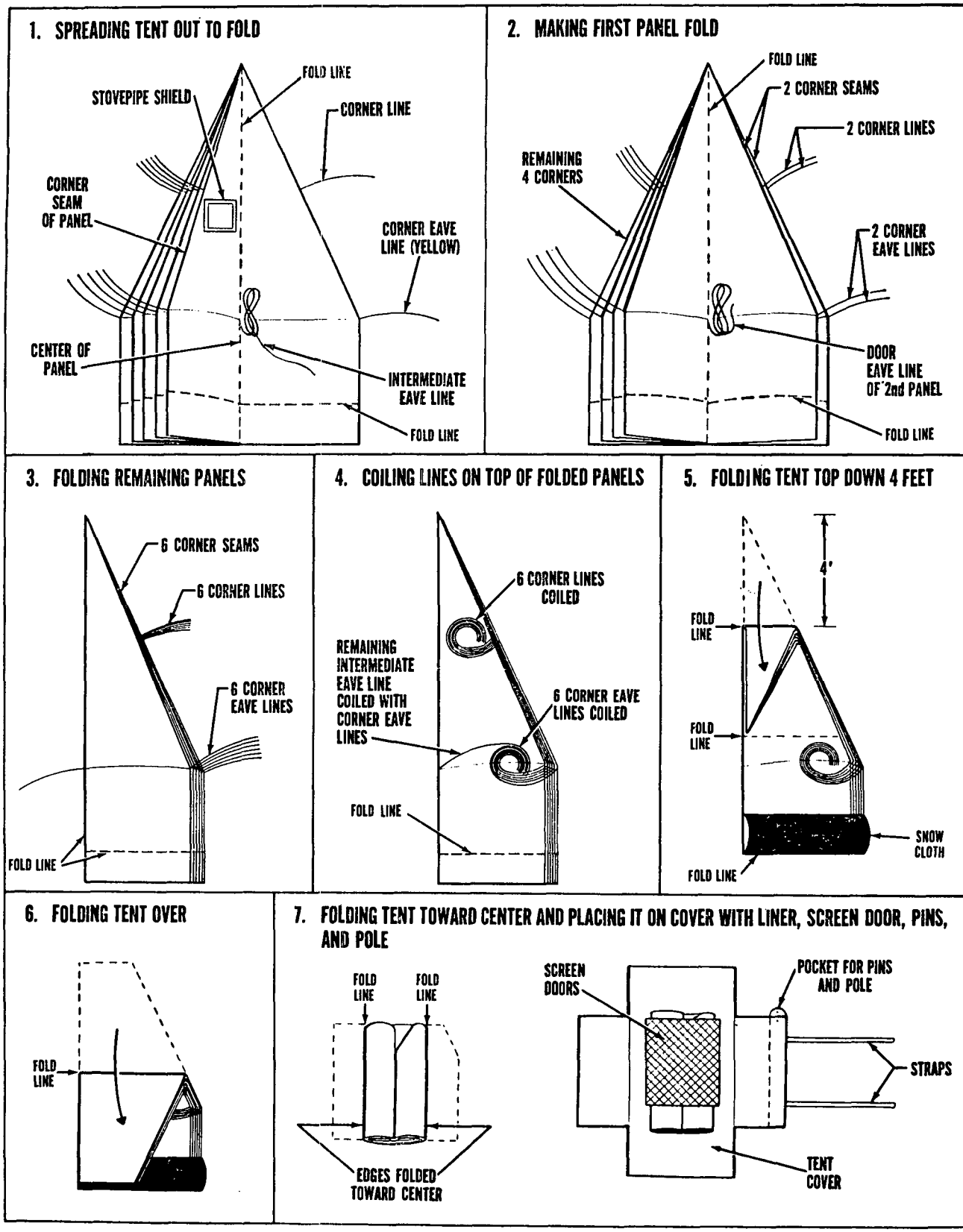
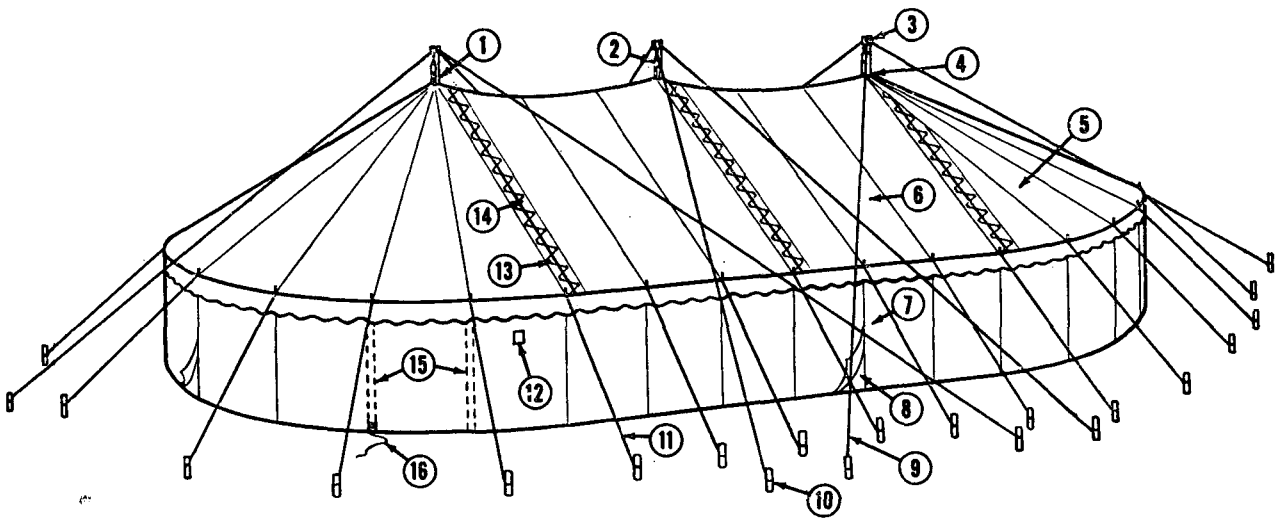


Figure 5. Steps in folding tent, arctic, 10-man.



1 Center pole
2 Block and tackle
3 Ferrule (cap at top of pole)
4 Tent chain and ring
5 End section
6 Middle section
7 Wall section
8 Door opening
9 Long guy line
10 36-inch wood tent pin
11 Eave line
12 Stovepipe opening
13 Extension cloth lacing line
14 Extension cloth
15 Eave pole
16 Long wall tie line

Figure 6. Tent, assembly, M–1942.

pipe openings when M–1941 tent stoves are used.

(6) *Covers.* The tent is provided with six covers for use when in storage or when being transported.

c. Ground Plan. Before pitching the tent, study the ground plan carefully (fig. 7).

d. Pitching. The tent can be pitched by nine men in approximately 90 minutes.

(1) *Spotting center poles* (1, fig. 8). Spot the three center poles according to ground plan and place a marker at each location. Drive marker in about 6 inches.

(2) *Laying out and driving pins* (2, fig. 8).

(*a*) *Eave-line pins.* Lay out and drive the 30 eave-line pins according to ground plan. Make sure that they are driven vertically and that the top of each pin is no more than 10 inches from the ground. The 27-foot extension cloth lacing line can be used as an aid in laying out the eave-line pins of the end sections.

(*b*) *Guy-line pins.* Lay out and drive guy-line pins according to ground plan. There are nine guy-line pins, three for each center pole.

(3) *Preparing center poles for erection* (3, fig. 8 and fig. 9).

(*a*) Place the three center poles on the ground on one side of tent area. The poles should be perpendicular to the eave-line pins, and the butt end of each pole should be at a pole marker.

(*b*) Attach three main guy lines and one set of block and tackle to ferrule at top end of each pole. Lash drift line of block and tackle to pole, with single block 2 or 3 feet from butt end of pole. Place a bail ring assembly around butt end of each pole.

(4) *Erecting middle center pole* (4, fig. 8). One man stands at the butt end of the middle center pole, one man at the top end of the pole, and one man at the end of each of the three guy lines. One of these guy lines leads to the

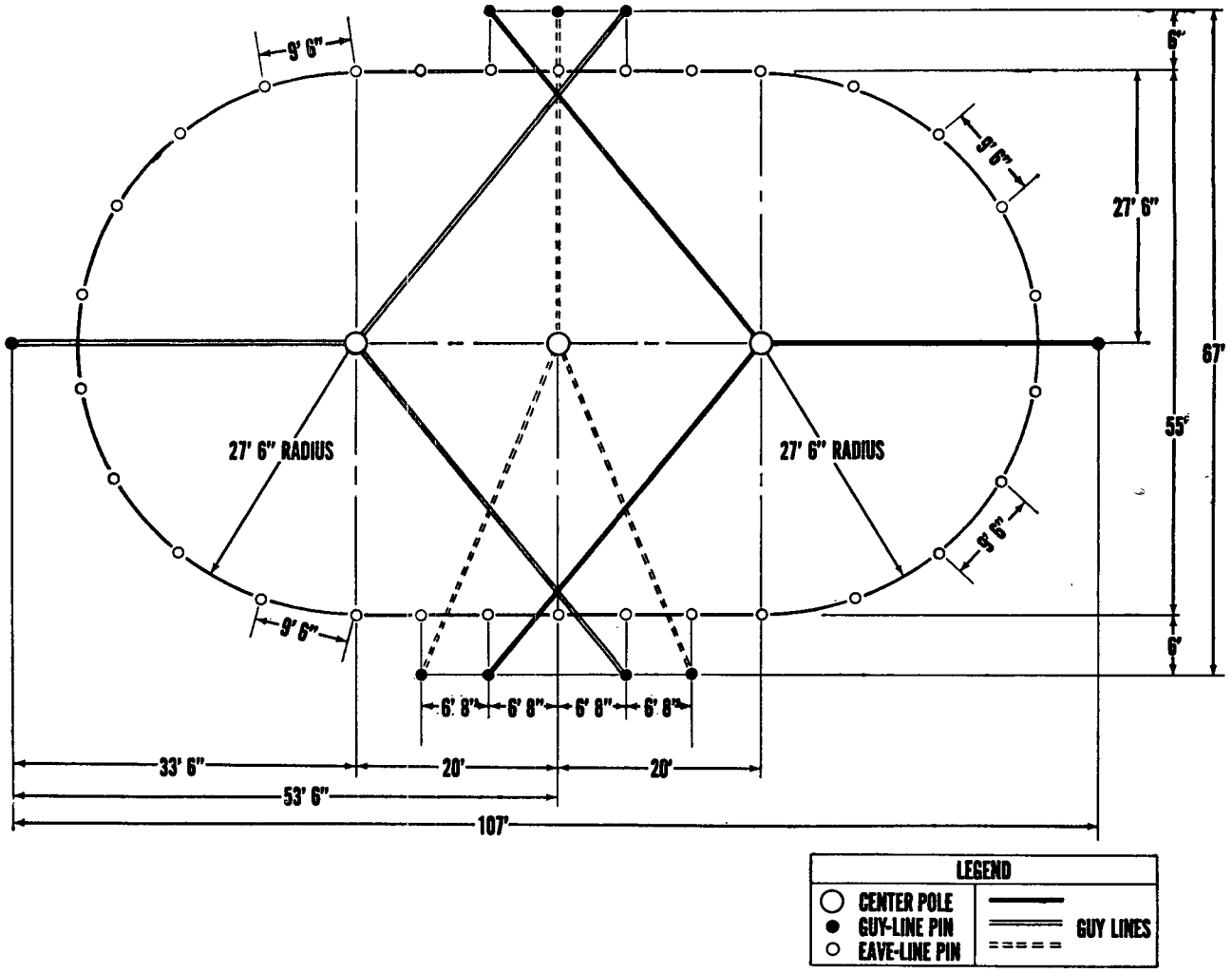


Figure 7. Ground plan of tent, assembly, M–1942.

outside pin on a line at right angles from the center point of the long dimensional line of the tent layout (fig. 7). This places the man holding the line directly in line with the man at the butt end of the pole. The man at the butt end of the pole keeps the pole in position with the marker by holding it with his foot. Be sure that the butt end of the pole is through the bail ring. The man at the top end raises the pole and walks towards the butt end. The man holding the center guy line assists by maintaining a taut line as the pole is raised. After the pole reaches such a height that it might swing off center, the men holding the other two guy lines spread out slowly to keep the pole balanced until it is in a perpendicular position. Then the guy lines are attached to the pins indicated on the ground plan.

(5) *Erecting the other two center poles* (5, fig. 8). The other two center poles should be erected as described in (4) above, except that one guy line leads to the outside pin on the direct center line of the long dimension of the tent layout. After poles have been erected, straighten them, and remove marker stakes. Tighten all center pole guy lines.

(6) *Spreading canvas and lacing sections together and to bail rings* (6, fig. 8.).

(*a*) Unfold the two middle sections and the two end sections. Spread sections on ground in position on tent area around the three center poles.

(*b*) Join sections from ridge to eave reinforcement line by chain-lacing beckets through grommets, securing the last becket through the last grommet with a knot (1, fig. 10).

(*c*) Secure eave corners of sections together by lashing tieline through thimble on eave corner of one section and through thimble on eave corner of the other section (2, fig. 10).

(*d*) Pull extension cloth over chain lacing, lace extension cloth lacing line diagonally through ring chapes, and tie end of line through eave corner thimbles (2, fig. 10).

(*e*) Attach hooks on single blocks to small rings of bail ring assemblies off the ground about 1 foot (fig. 11).

(*f*) Secure sections on tent together at neck by lashing tieline on each side of neck through thimble of one section and through thimble of the other section (fig. 11).

(*g*) Fasten thimbles at necks of sections to bail rings by lacing neck lacing lines of two sections around bail ring and through thimbles (fig. 11).

(*h*) Unlash drift lines and put ends of lines through bail ring assemblies close to poles (fig. 11).

(7) *Attaching eave lines to pins and setting eave poles in position* (7, fig. 8).

(*a*) Attach, with two half hitches, all eave lines to pins approximately 2 feet in from the end of each line.

(*b*) Raise canvas at eave and slide butt end of eave poles toward a center pole. Insert spindle of eave poles through leather reinforcements at point where eave lines are attached to canvas.

(8) *Raising peaks 3 feet off ground and preparing to raise canvas top* (8, fig. 8).

(*a*) Going under canvas to center poles, raise peaks of tent about 3 feet off the ground by pulling drift lines. Lash drift lines to center poles, making sure that drift line of each block and tackle assembly is inside bail ring and next to center pole (fig. 11).

(*b*) Set eave poles to form an angle of about 60° with the ground, with butt of each pole pointing toward, and in line with, butt of nearest center pole.

(*c*) Fasten jumper line at eave of canvas to each eave pole with two half hitches.

(*d*) Partly tighten all eave lines.

(9) *Raising peaks, securing canvas in position, straightening eave poles, and tightening lines* (9, fig. 8).

(*a*) Raise peaks with drift line of block and tackle to within 3 feet of top of each center pole. The three peaks of the tent should be raised at the same time.

(*b*) Straighten all eave poles to a perpendicular position and tighten all lines as much as possible to eliminate wrinkles in tent roof. Lines are tightened or loosened by readjusting the two half hitches on each guy and eave line near the pin; there are no tent slips used with the assembly tent.

(*c*) Secure drift lines firmly to center poles.

(10) *Attaching sidewalls* (10, fig. 8). Attach sidewalls by hooking wall hooks on top of sidewalls through D-rings attached to top sections of tent.

e. Striking. The tent can be struck by nine men in approximately 60 minutes.

(1) *Checking center pole guy lines.* Check center pole guy lines, making sure that they are hooked in ferrule at top of center pole and are taut.

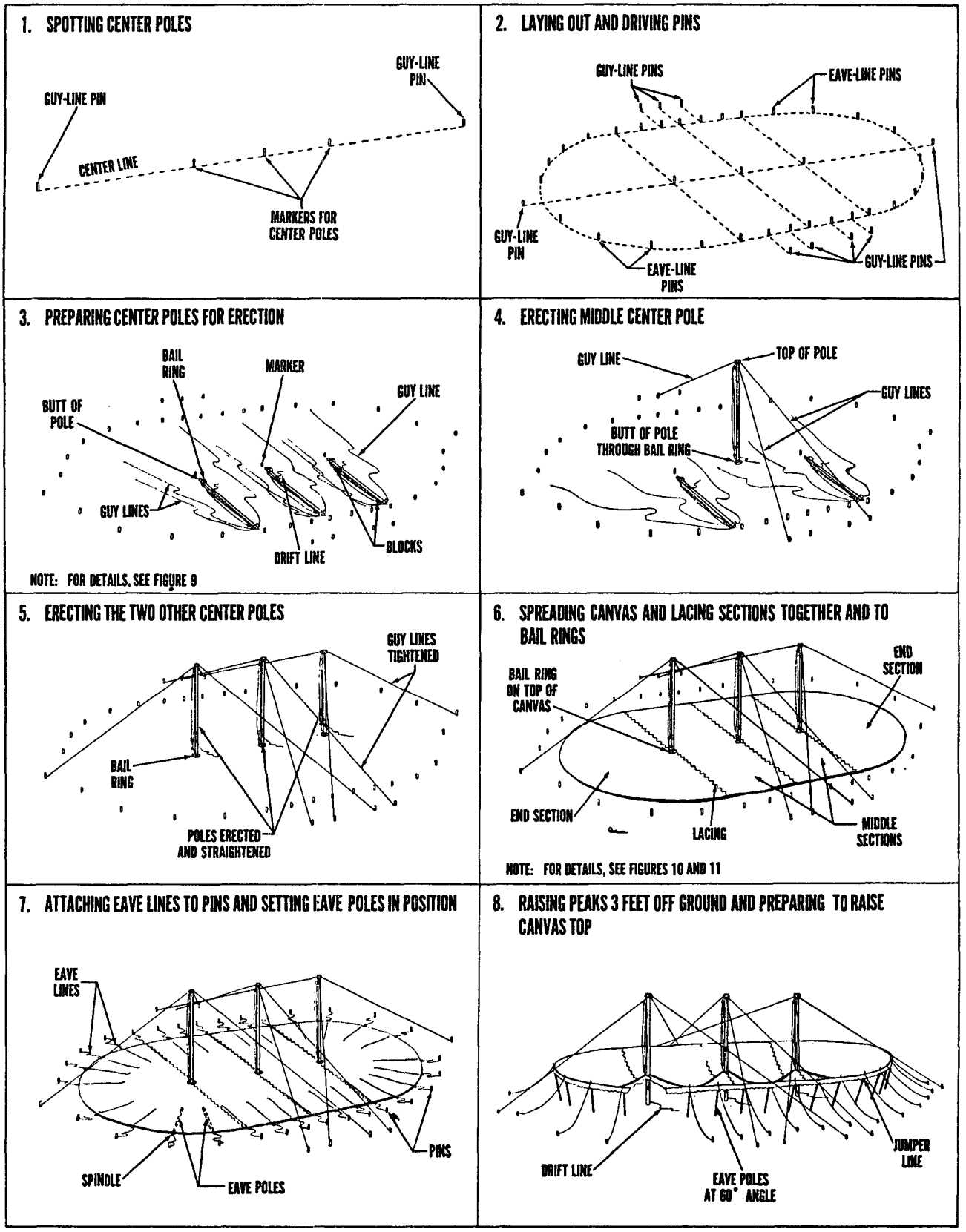


Figure 8. Steps in pitching tent, assembly, M–1942.

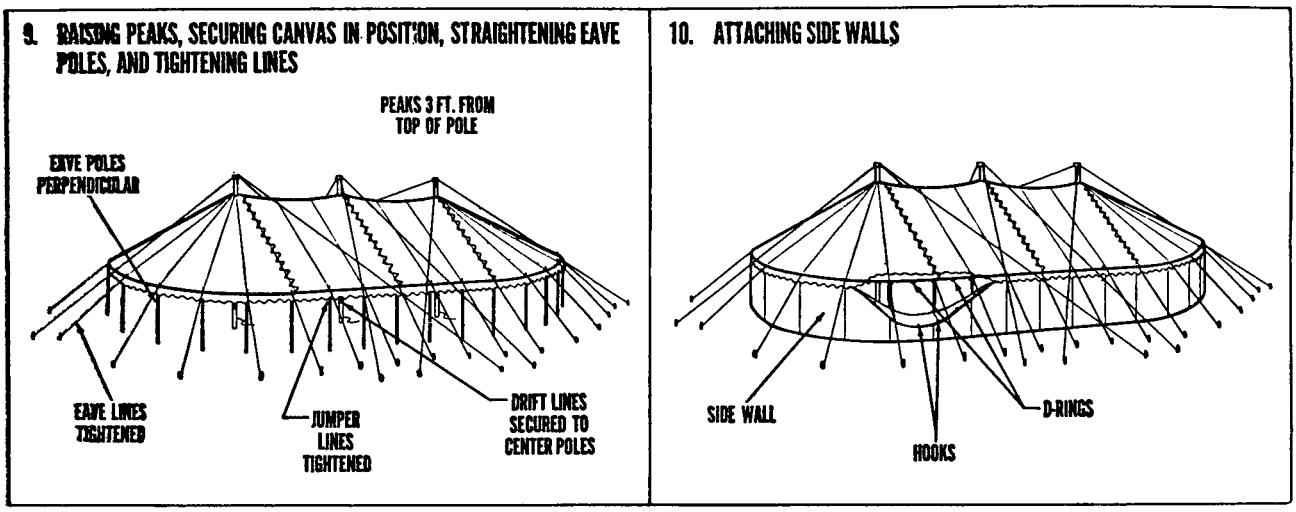


Figure 8—Continued.

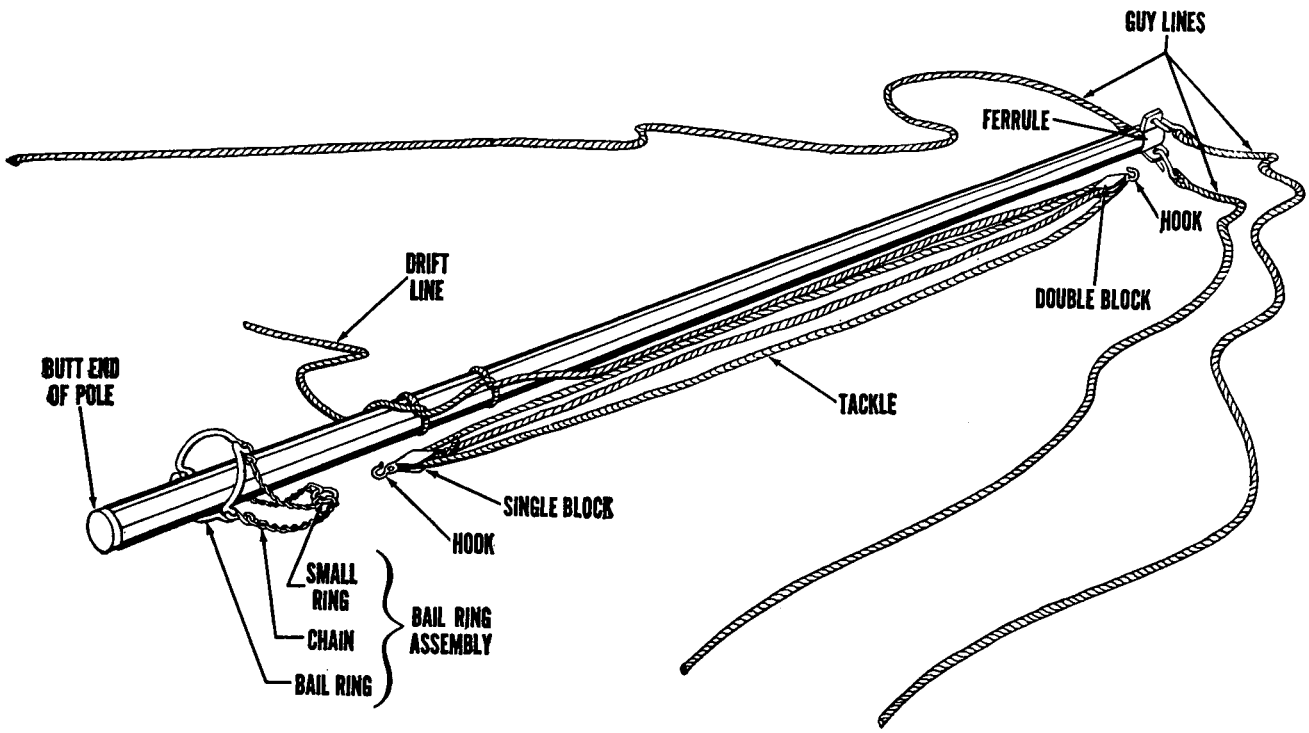


Figure 9. Preparing center pole for erection (tent, assembly, M-1942).

(2) *Detaching sidewalls.* Detach sidewalls by unhooking wall hooks from D-rings.

(3) *Adjusting eave poles.* Slant butts of eave poles toward butts of center poles at a 60° angle with the ground. If weather is calm, untie eave pole jumper lines; do not untie jumper lines in a high wind.

(4) *Letting down peaks.* Let peaks down to ground level by releasing drift lines, making sure that entire canvas

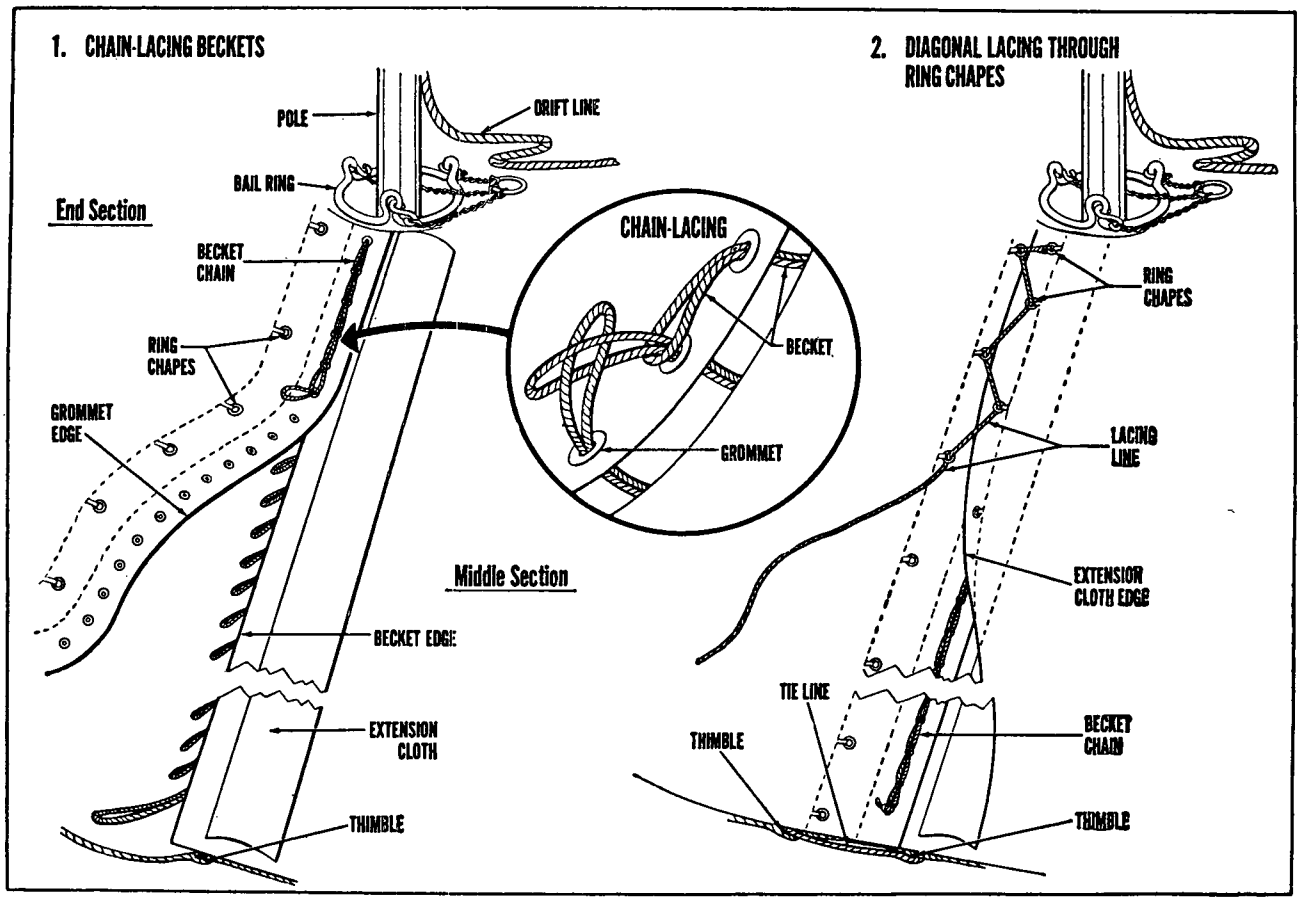
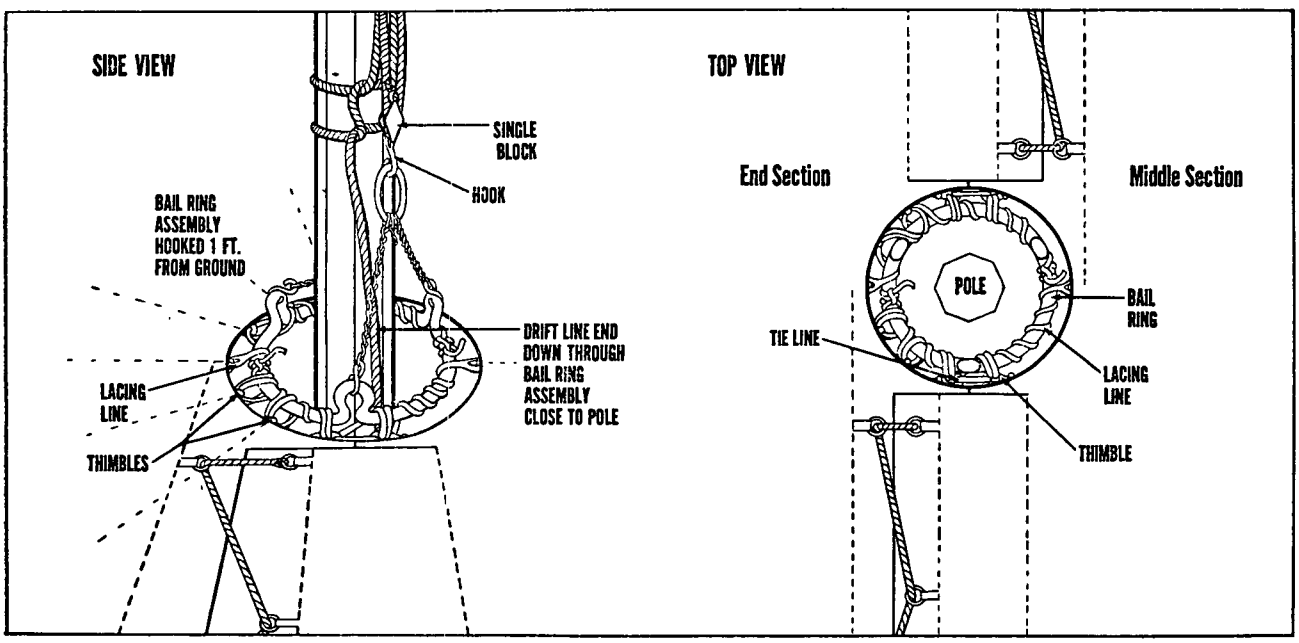


Figure 10. Steps in lacing top sections together (tent, assembly, M–1942).



(tent, assembly, M–1942)

area is in such a position that when sections are unlaced there will be little difficulty in folding them.

(5) *Removing eave poles.* Remove all eave poles.

(6) *Removing pins.* Remove all eave line pins.

(7) *Unlacing sections.* Unlace sections of tent, remove from beneath center poles, and separate for folding into separate bundles.

(8) *Striking center poles.* Strike center poles. To strike a center pole, two men stand at butt end of pole and one man at end of each guy line. Untie guy lines from pins. The men holding the ends of the guy lines then walk slowly toward the center of the tent area, keeping the lines taut to prevent the pole from swaying. One of the men at the butt end of the pole walks slowly forward with the pole, easing it gradually to the ground, while the other man at the butt end of the pole steadies it.

f. Folding. The tent can be folded and placed into six covers by nine men in approximately 20 minutes.

(1) *Folding middle sections* (1, fig. 12). Fold each of the two middle sections in half along the long dimensions and then in half again. Then, in 2½-foot folds, fold ends toward center.

(2) *Folding end sections* (2, fig. 12). Fold each of the two end sections in half along the long dimensions and then in half again. Then, in 2½-foot folds, fold ends toward center.

(3) *Folding wall sections* (3, fig. 12). Fold each of the four wall sections in half along the long dimension. Then, in 2½-foot folds, fold ends toward center.

(4) *Putting folded sections into six separate covers* (4, fig. 12). Put folded sections into six separate covers. Place each middle and end section in a separate cover; place two wall sections in a separate cover. Fold flaps of each cover over folded sections and tie through the grommets the two cover tielines provided.

6. Tent, Command Post, M–1945

a. Use. The tent, command post, M–1945, FWWMR, OD, complete with pins and poles (fig. 13), is used in theaters of operations to provide office space for staff sections, accommodating three men and the necessary folding tables and office equipment. It may also be used for the quartering of three officers or as a battalion aid station, the blackout vestibule being long enough to accommodate a litter and bearers.

b. Description. The central part of the tent is A-shaped. The ends are hip-roofed with converging sidewalls.

(1) *Tabulated data.*

Height: peak height, 9 feet; sidewall height, 5 feet 6 inches.
Length: 20 feet 7 inches.
Width: 10 feet.
Weight: tent, 165 pounds; pins and poles, 92 pounds.
Cube: tent, 6.3 cubic feet; pins and poles, 3.6-cubic feet.
Floorspace: 172 square feet, of which 48 square feet is vestibule space.

(2) *Material.* The tent is made of 12.29-ounce duck, FWWMR. The canvas is supported on a webbing framework, which carries the weight of the canvas. Fair-leads carry the stress between webbing and eave lines and eliminate friction between eave and eave lines. The tent walls, tent top, and sod cloth are constructed of one piece.

(3) *Door.* The tent has a door entrance at the front, 6 feet high and 4 feet wide.

(4) *Blackout curtain.* A nondetachable blackout curtain, with a slide fastener opening (5, fig. 15), is sewed into the body of the tent. The curtain separates the vestibule from the main part of the tent. When the tent is used for a first-aid station, the vestibule space between the door and the blackout curtain is large enough to allow

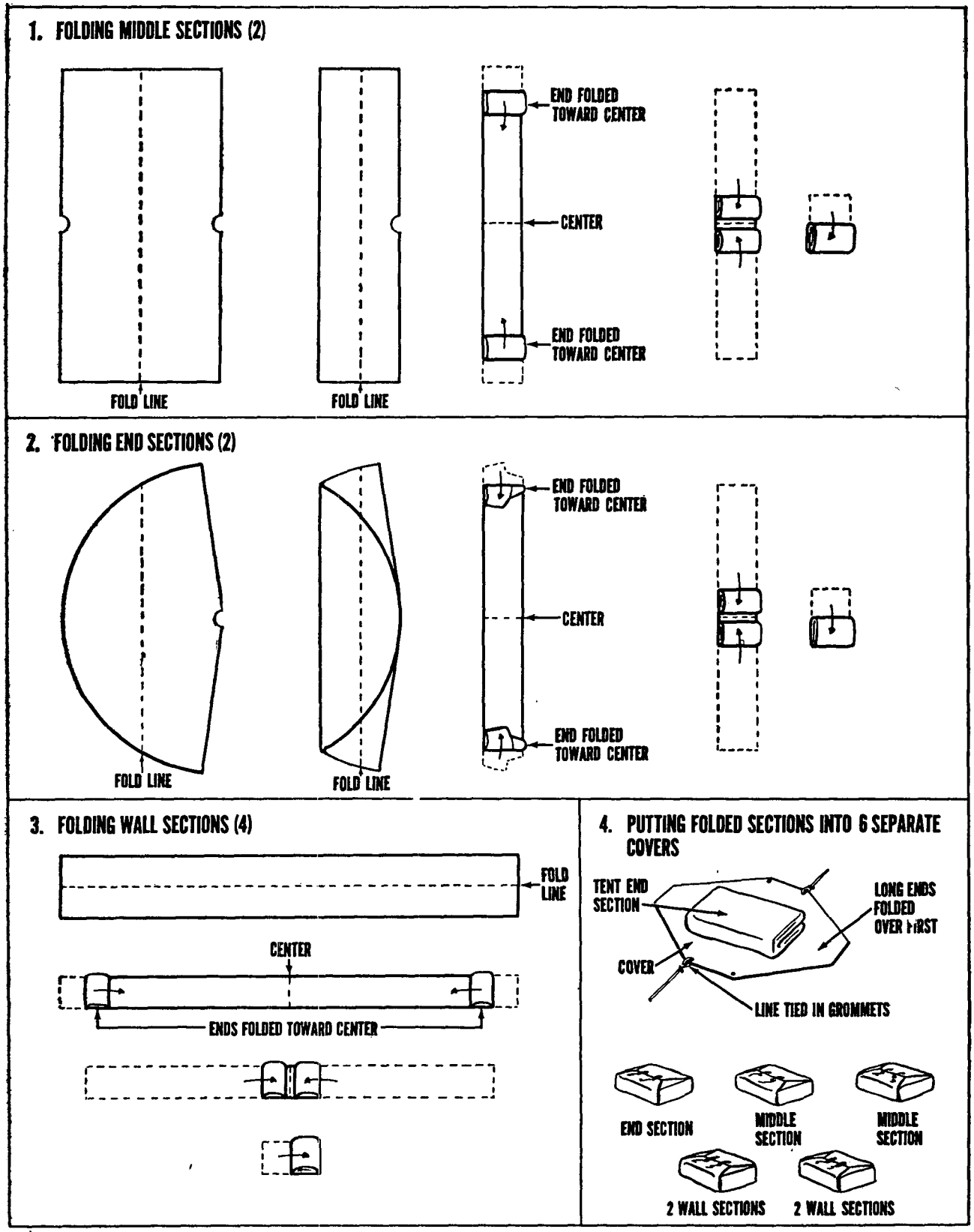
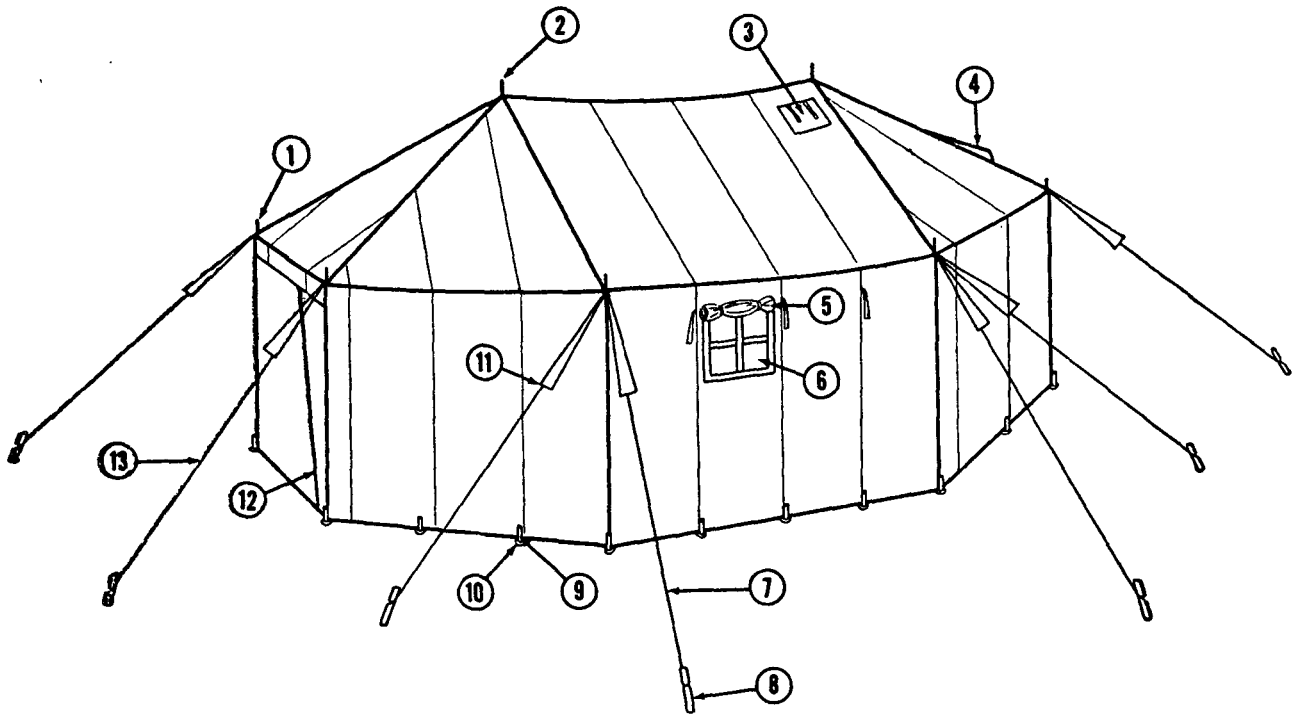


Figure 12. Steps in folding tent, assembly, M-1942.



1 Eave pole
2 Center pole
3 Stovepipe opening
4 Ventilator
5 Window flap
6 Window, w/o screening
7 Corner line
8 24-inch wood tent pin
9 16-inch wood tent pin
10 Footstop
11 Tent slip
12 Vestibule door opening
13 Door eave line

Figure 13. Tent, command post, M–1945.

stretcher bearers passage without emitting light.

(5) *Windows.* The tent has three 24-inch square window sashes, made of flexible translucent material. The sashes are inserted in window openings and held in place by snap fasteners. Canvas flaps cover the window during blackouts.

(6) *Ventilation.* The tent is ventilated by an opening near the top of the rear end section. The ventilator has an inside duct, which may be closed by a tie cord. The ventilator hood is of the fixed type, constructed with a stiffener inserted in the hem to keep it extended out from the ventilator opening. For additional ventilation, the sidewalls can be rolled up and the sidewall screens attached.

(7) *Heating.* The tent is heated by an M–1941 tent stove. There is a stovepipe opening built in the top of the tent near the rear center upright pole. When not in use, the opening can be protected by a canvas flap.

(8) *Liner.* A liner is provided with the tent. The liner can be attached to the tent to insulate it against heat or cold. The liner, when attached, covers only the main part of the tent; it does not cover the vestibule.

(9) *Cover.* The tent is provided with a cover for use when it is in storage or is being transported.

c. Ground Plan. Before pitching the tent, study the ground plan carefully (fig. 14).

d. Pitching. The tent can be pitched by five men in approximately 20 minutes.

(1) *Pitching tent.*

(*a*) Spread tent on ground with eave corners matching bottom corners.

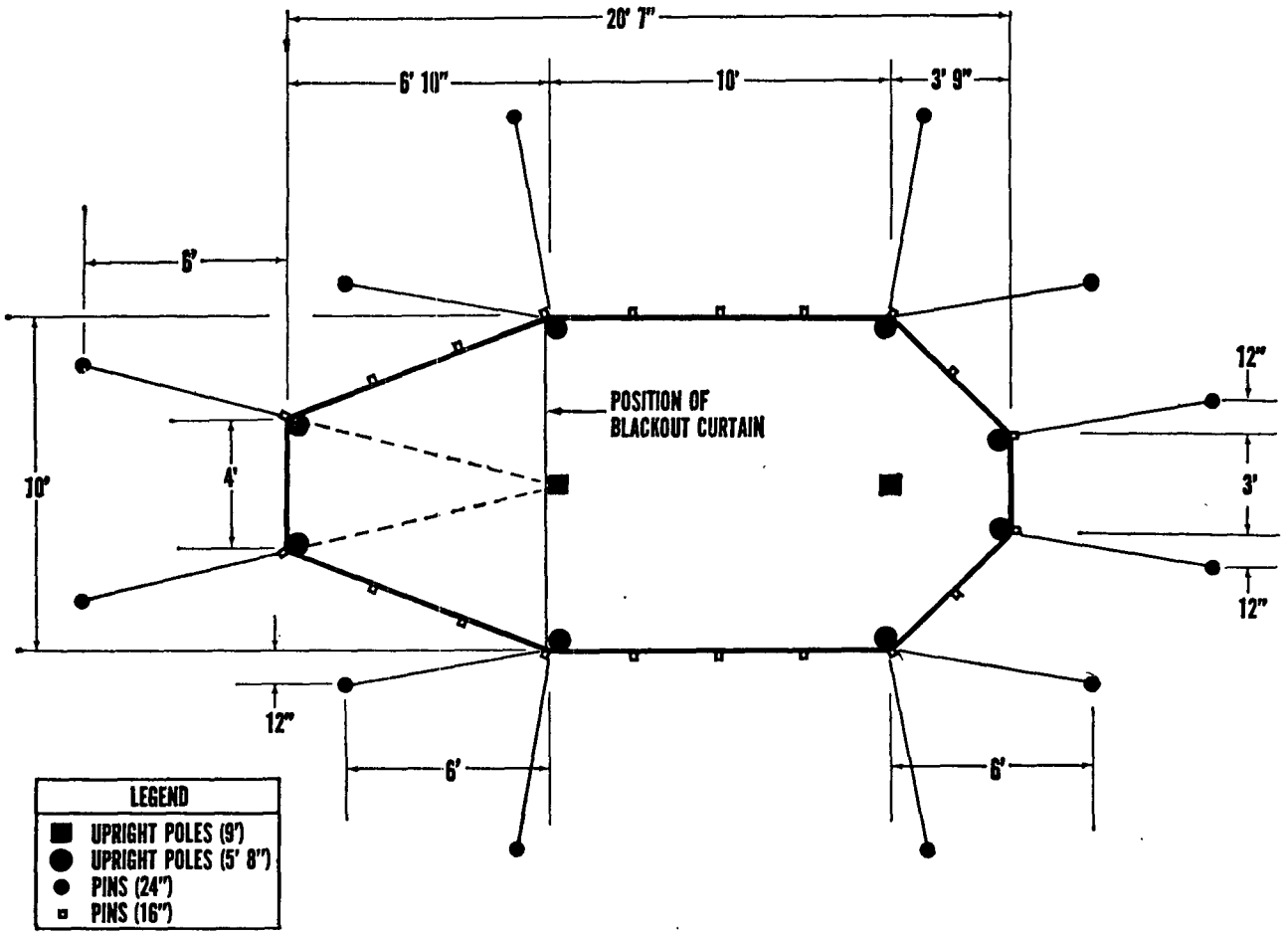


Figure 14. Ground plan of tent, command post, M–1945.

(*b*) Drive a 16-inch pin at each of the eight tent corners. Attach a footstop to each of the four corner pins at front and rear of tent. At each of the four side corners, attach two footstops to one pin (1, fig. 15).

(*c*) Drive the twelve 24-inch pins according to ground plan.

(*d*) Attach guy lines loosely to long pins (2, fig. 15).

(*e*) Remove corner footstops from 16-inch pins, insert eave poles through eave grommets, and tighten guy lines until poles are vertical (3, fig. 15).

(*f*) Raise tent ridge by inserting spindle of a 9-foot pole through hole in metal plate and grommet at ridge at front of tent, and spindle of the other 9-foot pole through hole in metal plate and grommet in other end of ridge (4, fig. 15).

(*g*) Secure jumper lines to center poles and to eave poles with two half hitches (5, fig. 15).

(*h*) Reattach the 12 corner footstops to the 8 corner 16-inch pins. Drive the remaining twelve 16-inch pins and attach footstops to them.

(*i*) Tighten all guy lines.

(2) *Attaching liner to tent.*

(*a*) Unroll liner so that stovepipe and window openings match those of tent (1, fig. 16).

(*b*) Raise butt end of rear center pole and place it through hole in liner; run liner hoisting lines up poles

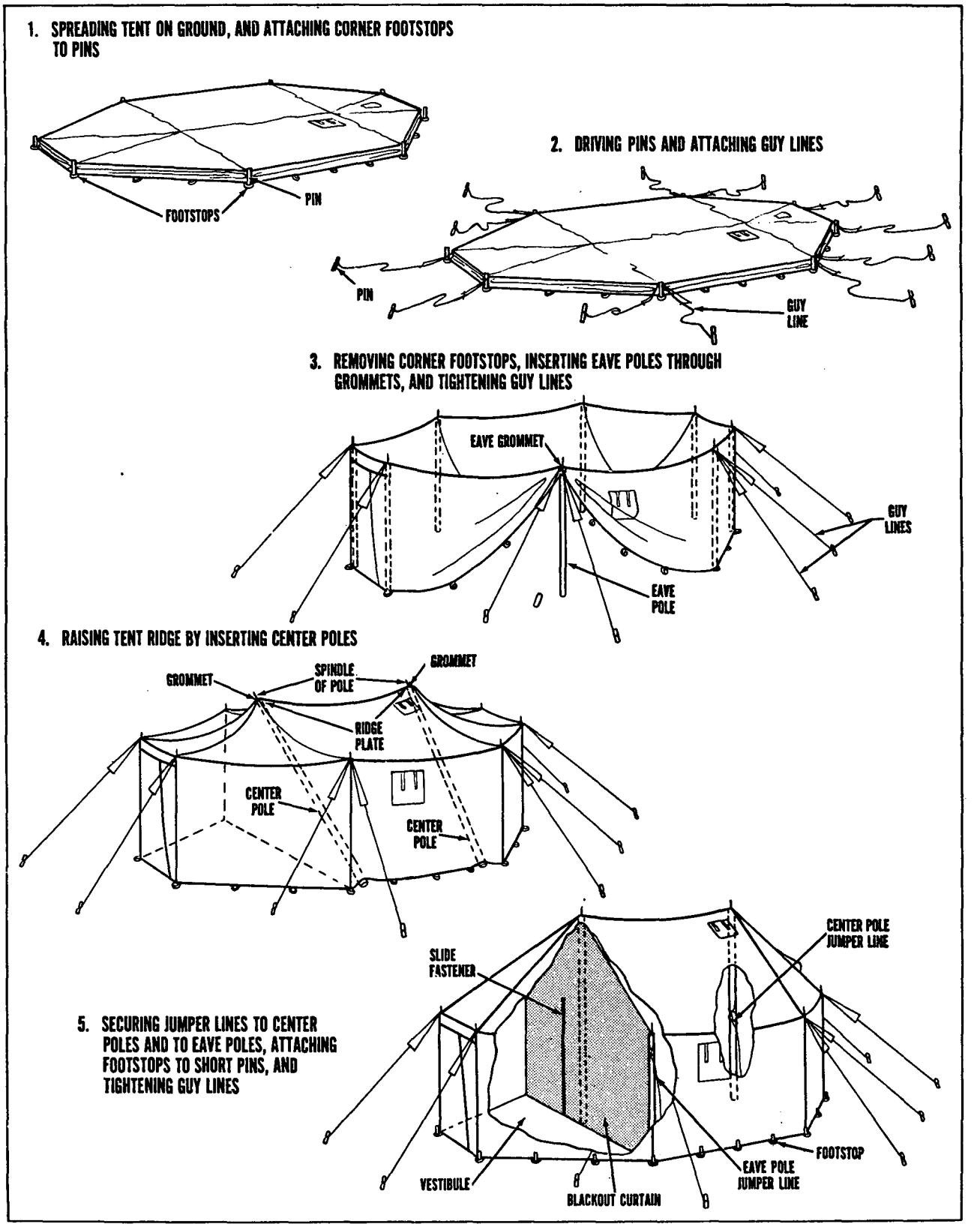


Figure 15. Steps in pitching tent, command post, M–1945.

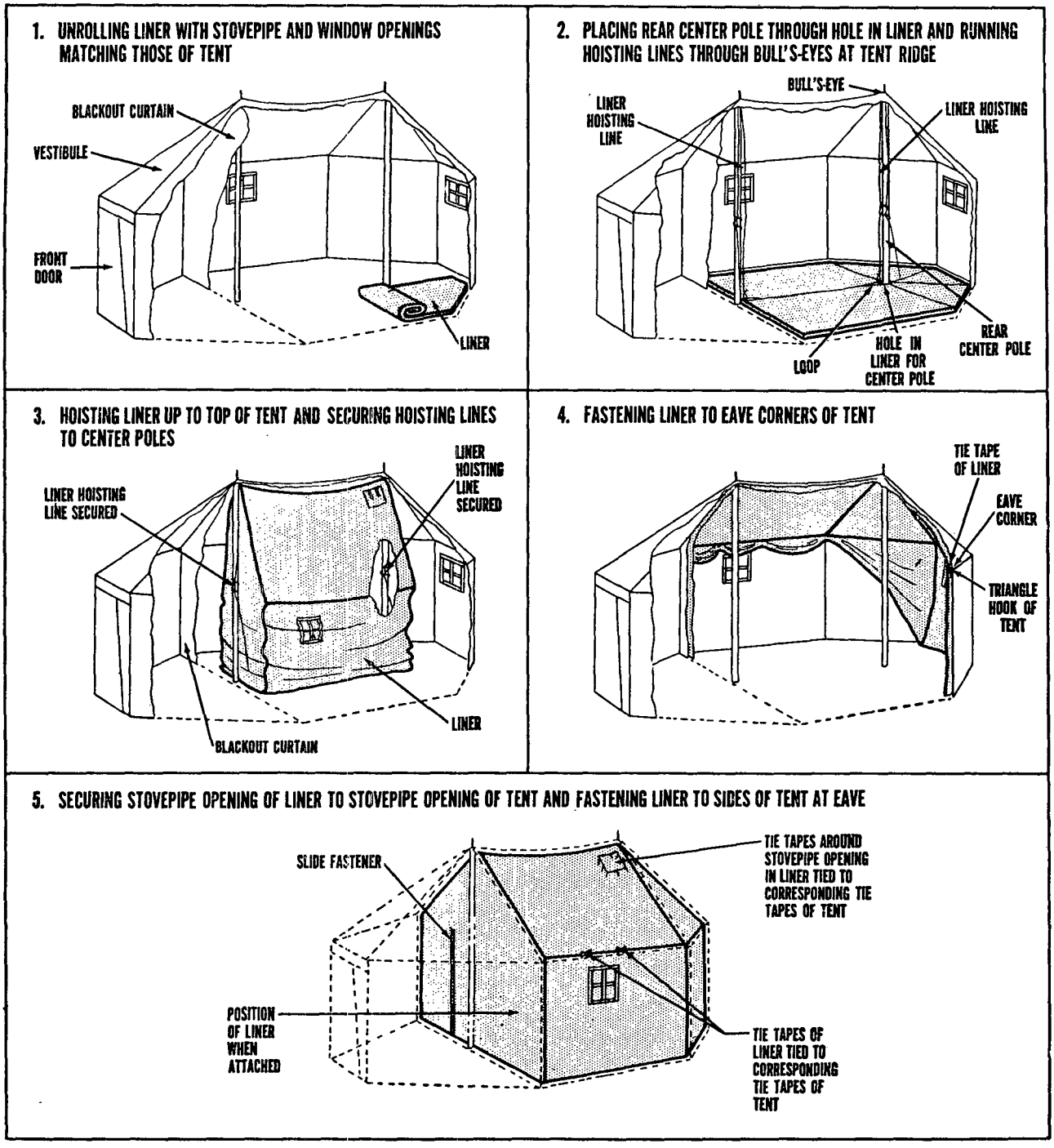


Figure 16. Steps in attaching liner to tent, command post, M-1945.

through bull's-eyes at tent ridge (2, fig. 16).

(*c*) Hoist liner up to top of tent and secure lines to center poles (3, fig. 16).

(*d*) Fasten liner to eave corners of tent by tying tie tapes of liner to triangular hooks of tent (4, fig. 16).

(*e*) Tie tie tapes at stovepipe opening of liner to corresponding tie tapes at

stovepipe opening of tent. Tie tie tapes at sides of liner at eave to corresponding tie tapes at sides of tent at eave (5, fig. 16).

(3) *Attaching screens to sidewalls* (fig. 17). Remove footstops from sidewalls, open slide fasteners at corners, and roll up sidewalls and liner of tent and tie them with tie tapes near eave reinforcement. Then place a screen between lugs at each side of tent, alining grommets on screen with grommets on lugs. Run the 13-foot rope, attached to a top corner of screen, through alined grommets of screen and lugs at the top, securing with a knot at the last set of alined grommets. In the same manner, run the 8-foot rope, attached to each side of screen, downward through alined grommets of screen and lugs, securing with a knot at the last set of alined grommets. Fold screens at bottom so sod cloths are on ground inside tent. Fasten footstops that were removed from sidewalls to grommets at bottoms of screens, and attach footstops to the 16-inch pins.

e. Striking.

(1) Remove screens, and lower sidewalls of tent.

(2) Loosen liner hoisting lines, and untie tapes fastening liner to tent.

(3) Remove liner.

(4) Remove all footstops from 16-inch pins.

(5) Loosen all guy lines and remove center poles.

(6) Remove all 5-foot 8-inch eave poles.

(7) Remove all guy lines from 24-inch pins.

(8) Remove all pins.

f. Folding (fig. 18).

(1) Fold tent at ridge, with tent laid out flat one side on top of the other, sod cloth and vestibule door flaps extended, and blackout curtain folded neatly one half on top of the other half (1).

(2) Fold door flaps over on top of vestibule, then fold rear of tent over body

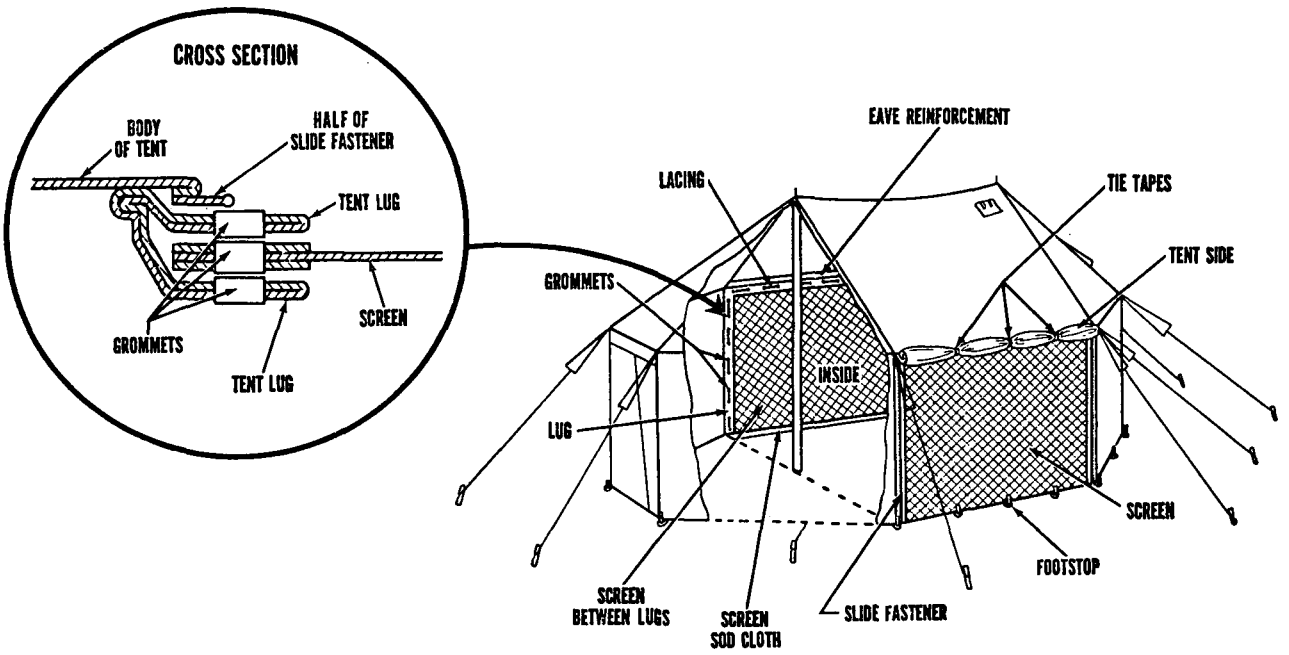


Figure 17. Attaching screens to sidewalls of tent, command post, M-1945.

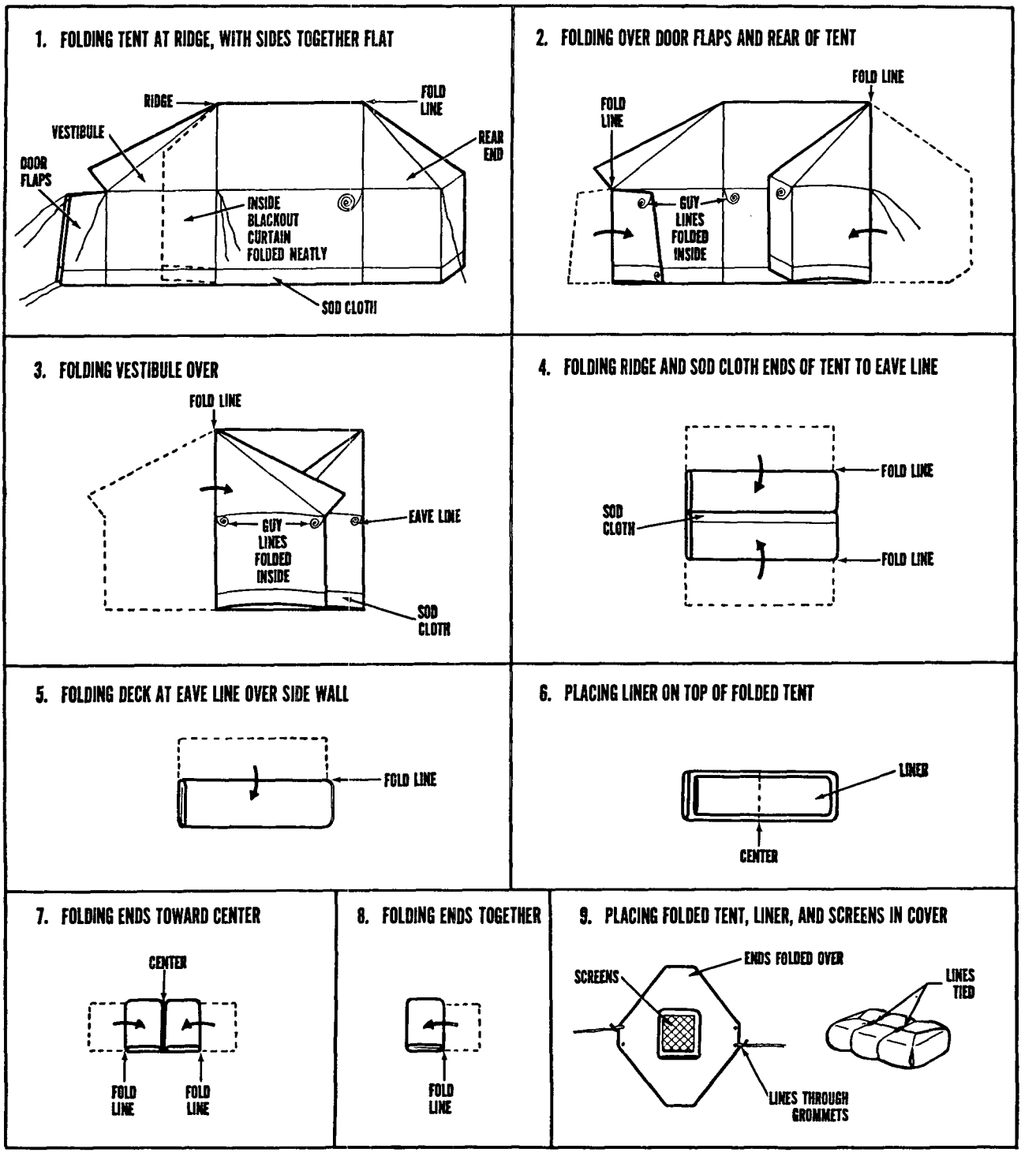
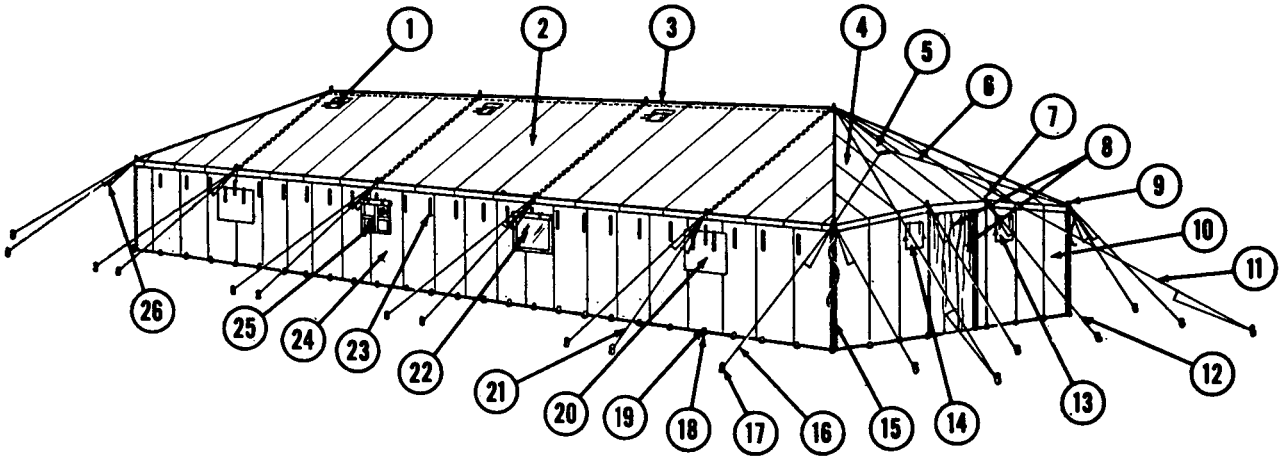


Figure 18. Steps in folding tent, command post, M-1945.

of tent, the fold line extending from rear ridge plate down along rear body slide fasteners (2). Fold guy lines inside folded tent.

(3) Fold vestibule over body of tent, the fold line extending from front ridge plate down along front body slide fasteners (3).



1 Stovepipe opening
2 Side roof
3 Center pole
4 End roof
5 Ventilator
6 Ventilator flap line
7 Door pole
8 Door curtain
9 Eave pole
10 End wall
11 Ridge guy line
12 Door eave guy line
13 Care and maintenance instructions flap
14 Erection instructions flap
15 Slide fastener
16 Corner eave guy line
17 Guy line pin
18 Footstop
19 Footstop pin
20 Window blackout flap
21 Side eave guy line
22 Windowpane
23 Tie tape
24 Sidewall
25 Window screen
26 Tent slip

Figure 19. Tent, general purpose, large.

(4) Fold both the ridge end of tent and the sod cloth end of tent to the eave line (4).

(5) Fold deck of tent to eave line over sidewall. Place exposed guy lines on folded tent (5).

(6) Place liner, folded in the same way as the tent, on top of tent (6).

(7) Fold ends of folded tent and liner toward center (7).

(8) Fold the two ends together (8).

(9) Place folded tent and liner in cover; place screens, each folded in fourths, on top of folded tent and liner; close cover, and tie with the two tielines (9).

7. Tent, General Purpose, Large

a. Use. The tent, general purpose, large, FWWMR, OD, complete with pins and poles (fig. 19), is designed to be used as a hospital ward, surgical operating room, command post, fire direction center, or messhall. It can also be used for quartering troops, as an assembly tent, for a storage area, or to house components of a field bakery. The tent is intended to be used in temperate and tropical climates; however, with the liner, it can be used effectively in cold climates.

b. Description. The tent is a rectangular, hip-roofed, pole-supported tent consisting of eave poles, door poles, center upright poles, tent, and tent liner.

(1) *Tabulated data.*
Height: 12 feet 3 inches at the offset ridge; eave height, 5 feet 6 inches.
Length: 52 feet.
Width: 18 feet.
Weight: tent, 420 pounds; liner, 155 pounds; pins and poles, 245 pounds.
Cube: 69 cubic feet.
Floorspace: 936 square feet.

(2) *Material.* The roof, sidewalls, and end walls are made of 12.29-ounce cotton duck, FWWMR. The whole tent is made in one piece. The canvas is suspended on a webbing framework, which carries the stress and supports the canvas. The walls are split at the four corners and can be fastened together with a slide fastener at each corner.

(3) *Doors.* The tent has two door entrances, one at each end. Each door entrance is 6 feet high and 4 feet wide.

(*a*) *Door curtains.* Two curtains, attached to each end near the door entrances, slide along a double wire cable at the eave to open or shut the door entrances.

(*b*) *Door screens.* A screen is attached on the inside to each side of each door entrance. When in use, the door screens are pulled across the door entrances and secured in place by tying tie tapes at the top of the screens to metal rings at the eave above the door entrances. When not in use, the door screens are rolled to the side inside the tent and secured by tying the screens with the tie tapes at one side of the door.

(4) *Windows.* There are four window assemblies on each side of the tent below the eave. Each window assembly consists of a plastic window screen, a vinyl plastic windowpane, and a canvas blackout flap. The window screen is attached to the sidewall. The windowpane is attached at the top to the sidewall and is secured at the bottom and the two sides by a slide fastener. The slide fastener can be unfastened and the windowpane rolled up and tied at the top with tie tapes. A blackout flap is attached at the top to the sidewall. When the flap is in use, it is secured by tying tie tapes at the two sides and at the bottom; when not in use, it is rolled up and tied at the top with the tapes.

(5) *Ventilation.*

(*a*) The tent is ventilated by two ventilators, one at the top of each end section near the ridge. The openings are protected by canvas flaps.

(*b*) When stoves are not being used, the stovepipe openings can also be used as ventilators.

(*c*) Additional ventilation can be obtained by rolling up the window blackout flaps and the windowpanes and tying them with tie tapes.

(*d*) The door curtains can be opened for more ventilation.

(*e*) Additional ventilation can be obtained by rolling up the sides of the tent to the eaves and tying them with tie tapes.

(6) *Heating.* The tent is heated by three M–1941 tent stoves. There are three stovepipe openings built in the top of the tent. Each opening is protected by canvas flaps.

(7) *Cover.* The tent is provided with a cover for use when it is in storage or is being transported.

(8) *Liner.* A liner is available as a separate item of issue. It provides insulation from the cold in winter and reduces radiation from the sun in summer. The liner has 5.2-ounce cotton cloth sidewalls below the eaves and, in addition, has screening sidewalls made of plastic. The fabric sidewalls can be rolled up to the eaves and secured by tie tapes and thus permit the use of the screening alone. The screening provides protection from insects and permits the liner to be used in hot as well as cold weather. There are two built-in ventilator screens corresponding in location to the two ventilators in the tent. There are four vinyl plastic windows on each fabric sidewall corresponding in location to the windows in the tent. There are three stovepipe openings in the liner corresponding in location to the stovepipe openings in the tent.

c. Ground Plan. Before pitching the tent, study the ground plan carefully (fig. 20).

d. Pitching. Six men can pitch the tent in approximately 1¼ hours.

(1) *Securing tent to ground in preparation for raising tent walls* (1, fig. 21).

(*a*) Remove tent from cover, and place in position on ground so that corners are square.

(*b*) Close slide fasteners at tent corners.

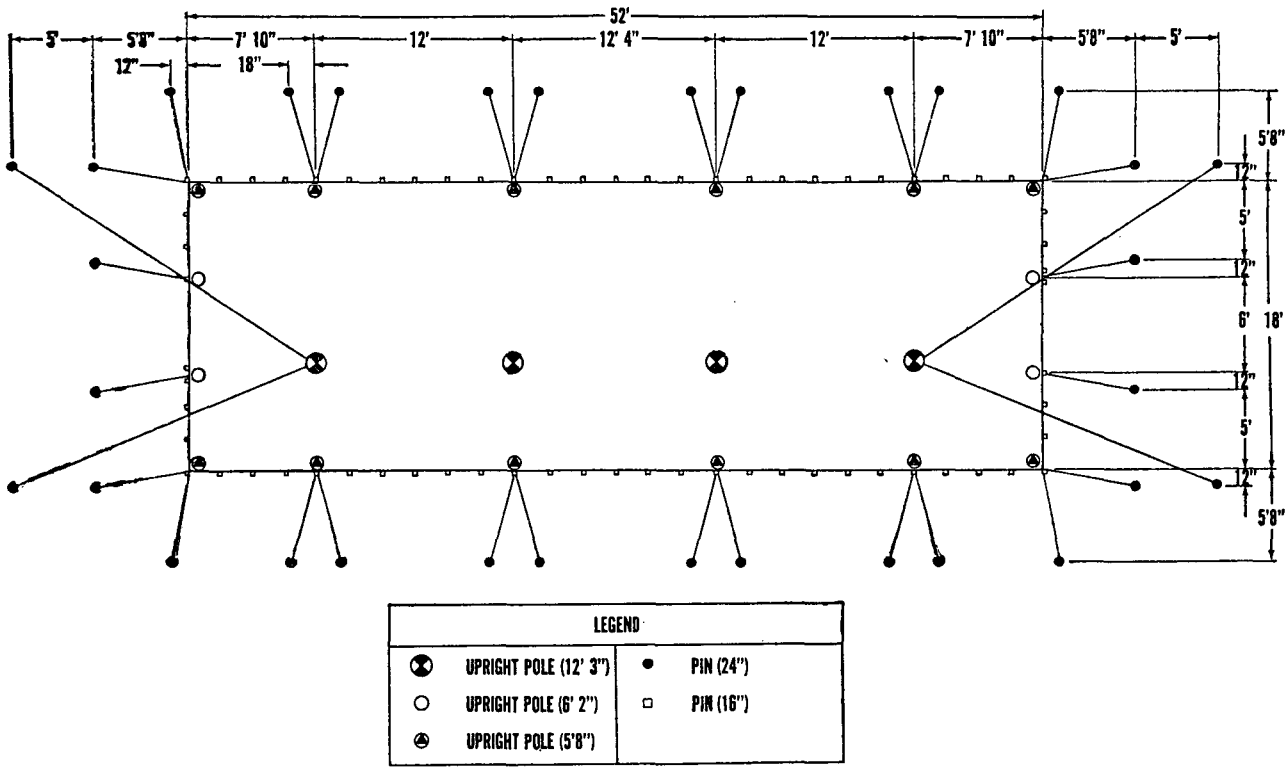


Figure 20. Ground plan of tent, general purpose, large.

(*c*) Drive a 16-inch wood pin, or in cold climate a 9-inch aluminum pin, at each corner, and attach end wall and sidewall corner footstops to pins.

(*d*) Drive the 24-inch wood pins, or in cold climate the 12-inch steel pins, according to ground plan, using 5-foot 8-inch poles to measure distance from tent.

(*e*) Attach side, corner, and door eave lines to pins.

(2) *Raising tent sidewalls* (2, fig. 21).

(*a*) Insert spindles of 5-foot 8-inch poles through handworked rings at sides and corners of tent.

(*b*) Insert spindles of 6-foot 2-inch poles through handworked rings at front and rear doors.

(*c*) Raise tent walls by raising side, corner, and door eave poles to an upright position.

(*d*) Tighten eave lines just enough to hold poles up.

(3) *Preparing to raise tent roof* (3, fig. 21).

(*a*) Assemble center upright poles, and insert spindles of poles through ridge plates and handworked rings in ridge of tent.

(*b*) Attach guy lines to spindles of center upright poles at each end of tent.

(4) *Raising tent roof* (4, fig. 21).

(*a*) Raise the four center upright poles to a vertical position.

(*b*) Attach all guy lines to pins and tighten.

(*c*) Drive remaining 16-inch wood pins, or in cold climate the 9-inch aluminum pins, and attach footstops to pins.

(*d*) Tie jumper lines to side and corner eave poles, door poles, and center upright poles.

(*e*) Adjust ventilator flap lines and tie them to spindles of corner eave poles.

(*f*) Straighten all poles, and tighten all lines until tent is smooth.

(*g*) Tie tie tapes at inside corners of tent around corner eave poles.

(5) *Attaching liner to tent* (fig. 22).

(*a*) Loosen slightly all guy lines by adjusting tent slips (1).

(*b*) Unfold tent liner inside tent on one side of center poles so that stovepipe openings of tent liner are on the same side of tent as stovepipe openings of tent (2).

(*c*) Lift each center upright pole, pull liner under pole, and slip liner pole sleeve over pole (3).

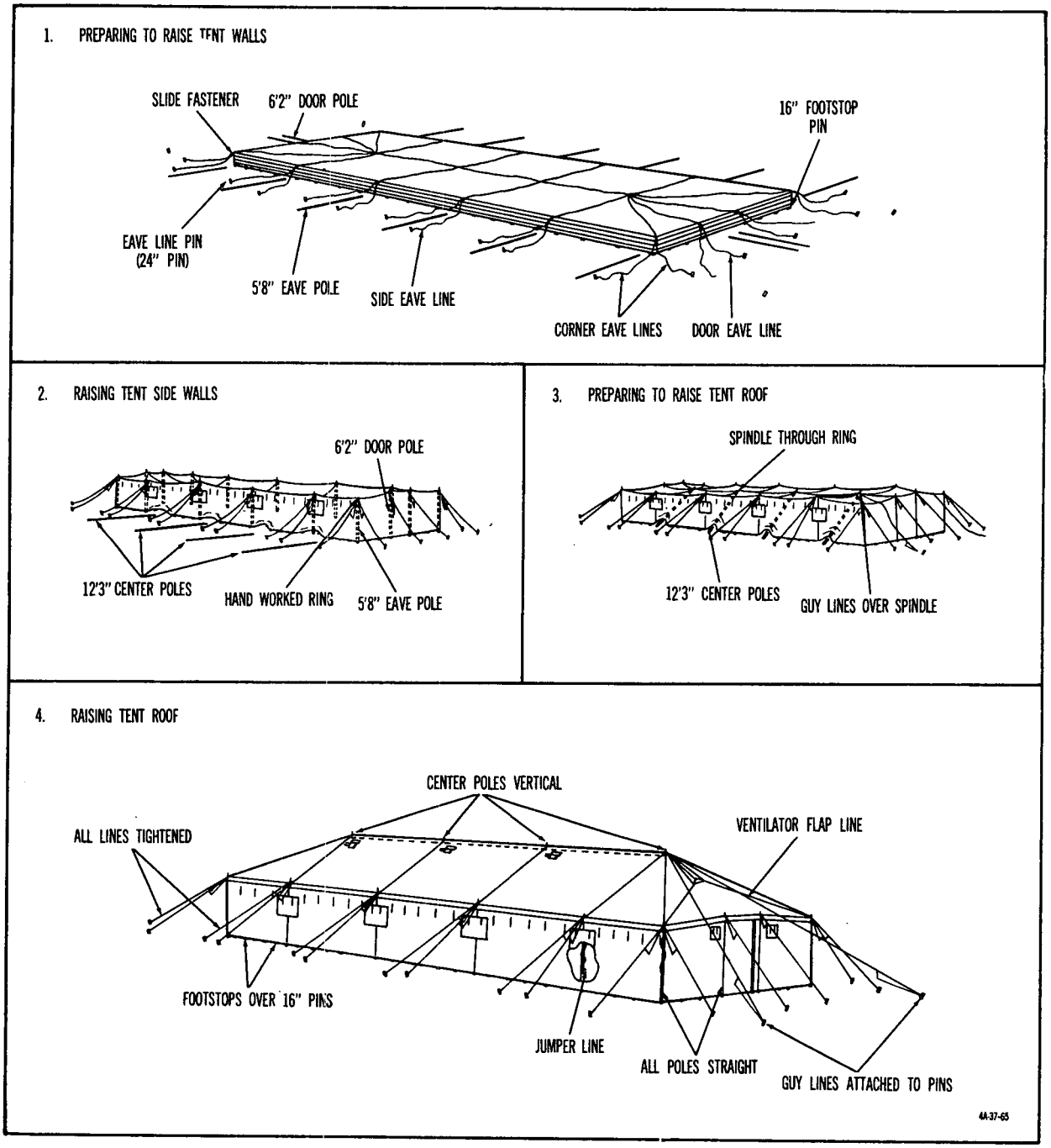


Figure 21. Steps in pitching tent, general purpose, large.

(*d*) Tie ridge suspension lines at liner pole openings to tent ridge plates above center upright poles, and then tie liner suspension lines at ridge of liner to D-rings located along tent ridge (4).

(*e*) Secure liner to tent doors, corners, and sidewall eaves by passing eave suspension lines on liner through hardware eye on inside of tent; and then run suspension lines through grommets in liner and secure to D-rings on liner (5).

(*f*) Tie tie tapes at sides of liner door openings to door eave poles.

(*g*) Wrap liner pole sleeves around center upright poles and tie with tie tapes (6).

(*h*) Secure footstops in liner sidewall screen to tent footstop pins (6).

(*i*) Tighten all tent guy lines.

e. Striking. Six men can strike the tent in approximately 50 minutes.

(1) *Removing liner.*

(*a*) Remove tent and tent liner footstops from 16-inch wood or 9-inch aluminum pins.

(*b*) Untie tie tapes at liner corners. Untie tie tapes from door eave poles.

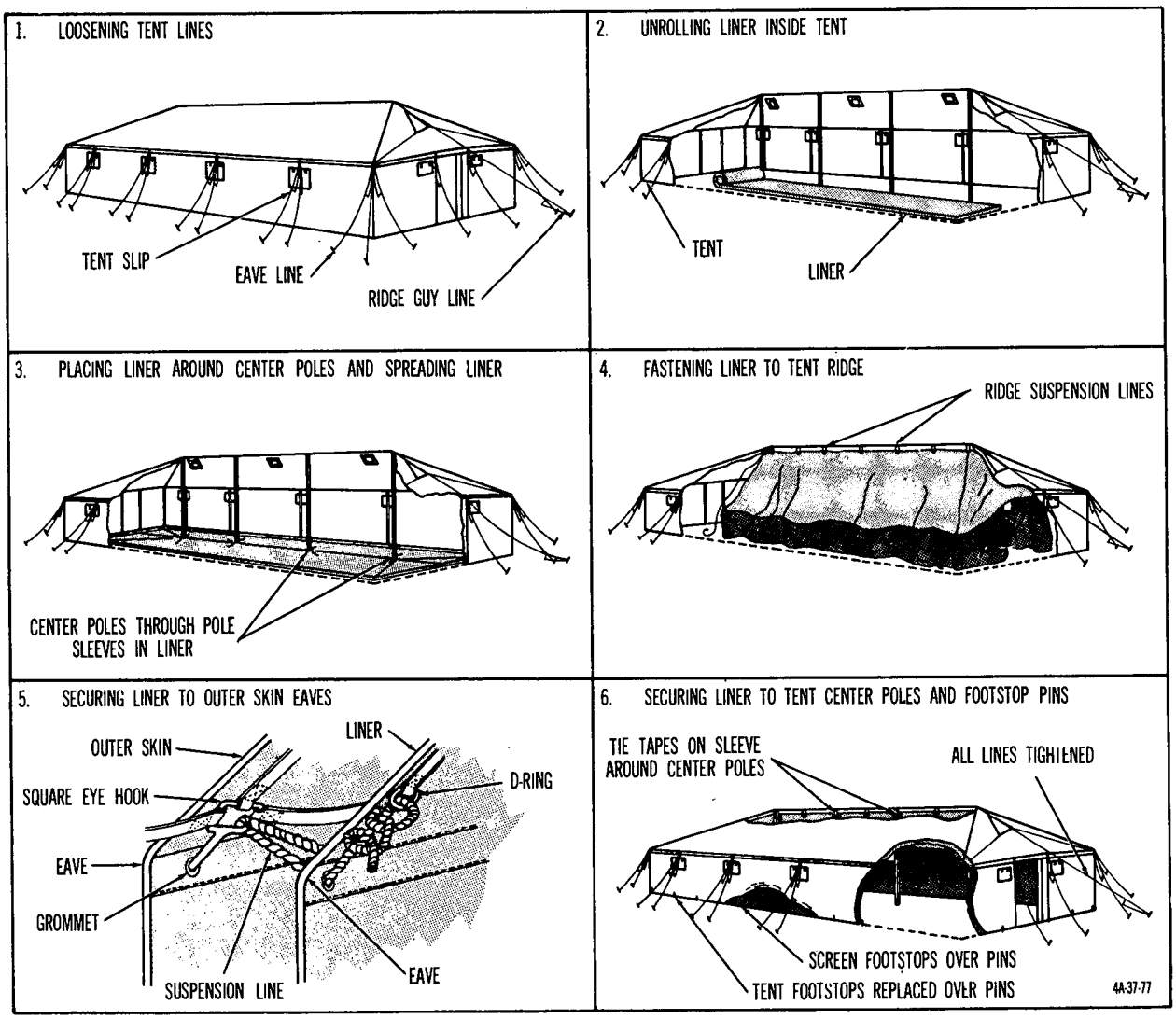


Figure 22. Steps in attaching liner to tent, general purpose, large.

Untie tie tapes of pole sleeves from around center upright poles.

(*c*) Untie and remove eave suspension lines from liner D-rings and grommets and tent hardware eye.

(*d*) Untie ridge suspension lines from tent ridge plates and D-rings, and allow liner to drop to the ground.

(*e*) Loosen all guy lines. Lift center upright poles slightly and remove liner from the poles.

(2) *Striking tent.*

(*a*) Untie corner lug tie tapes and unwrap lugs from corner eave poles.

(*b*) Close all window assemblies. Close doors and fasten wooden toggles to toggle chapes.

(*c*) Untie jumper lines from center upright poles and from eave and door poles.

(*d*) Remove all footstop pins except those at each corner of the tent.

(*e*) Remove all eave guy lines from guy-line pins except those at the corners of the tent. Remove all unused guy-line pins.

(*f*) Remove door eave poles and all other eave poles except those at corners.

(*g*) Remove ridge guy lines from tent pins, and lower center upright poles gently to the ground. Remove all unused tent pins.

(*h*) Unfasten the eight corner eave guy lines from guy-line pins, remove corner eave poles, remove corner footstops from footstop pins, and remove remaining tent pins.

f. Folding.

(1) *Folding liner* (fig. 23).

(*a*) Lay liner out as flat as possible with eave suspension lines rolled and placed on top of liner. Fold side and end walls and sidewall screens under liner; fold triangular ends of end walls over liner roof (1).

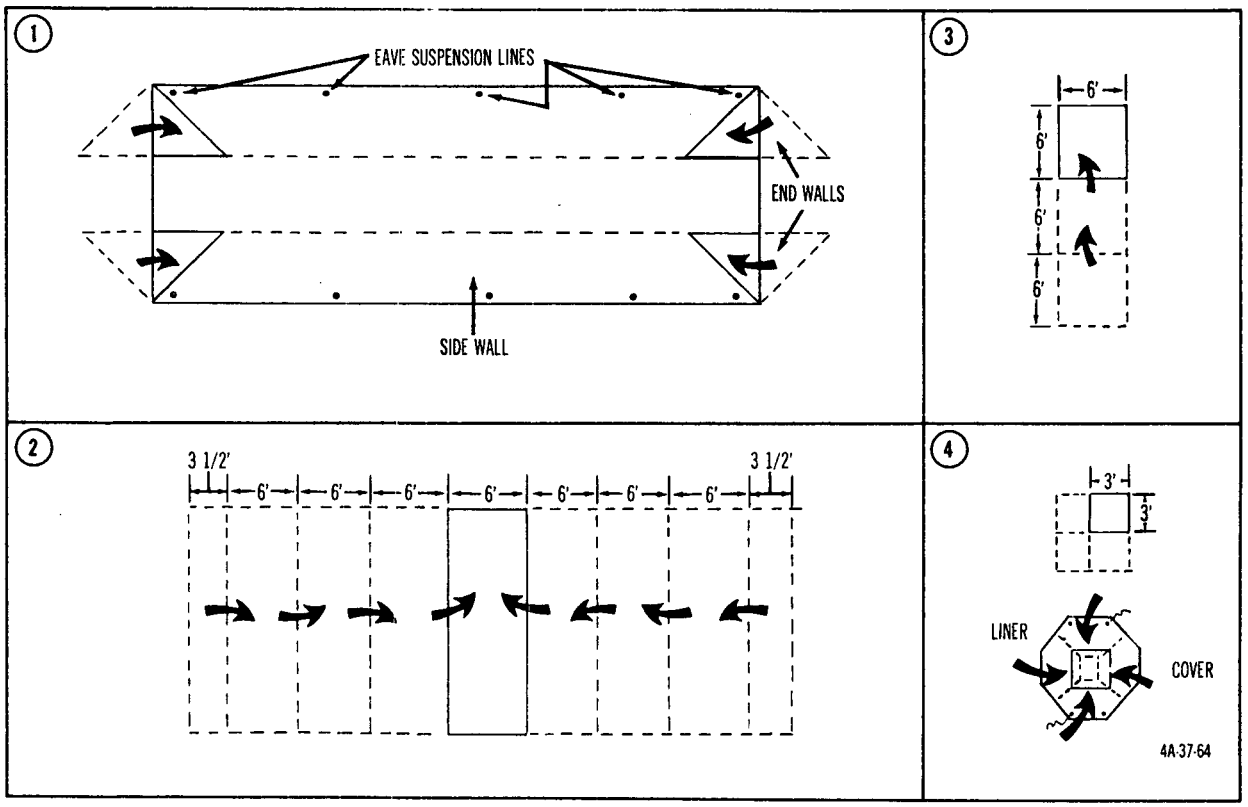


Figure 23. Steps in folding liner of tent, general purpose, large.

(*b*) Fold ends of liner toward center, first making a 3½-foot fold and succeeding folds of 6 feet each. Fold one end of folded liner over the other (2). Make sure that folds do not come at windows. Dimensions of folded liner at this point are approximately 6 by 18 feet.

(*c*) Fold one end of liner toward the center and over the other end so that dimensions of folded liner are approximately 6 by 6 feet (3). Make sure that folds do not come at the windows.

(*d*) Fold liner in half twice so that dimensions of folded liner are approximately 3 by 3 feet; place folded liner in center of liner cover, fold all cover ends or flaps neatly within package, and close cover securely (4).

(2) *Folding tent* (fig. 24).

(*a*) Open corner slide fasteners, close tent doors, close and secure stovepipe openings, and close and secure window assemblies.

(*b*) Spread tent out flat, outside up, and coil guy lines and place them on tent roof.

(*c*) Fold end and sidewalls, along eave line, on tent roof (1).

(*d*) Fold ends of tent toward center, first making a 3½-foot fold and succeeding folds of 6 feet each. Fold one end of tent over the other (2). Care should be taken that folds do not come at windows.

(*e*) Fold tent in half across the length; fold tent again in half; place folded tent in center of cover (2). Close cover securely.

8. Tent, General Purpose, Medium

a. Use. The tent, general purpose, medium, FWWMR, OD, complete with pins and poles (fig. 25), is designed to be used primarily for the quartering of troops. It can also be used as a command post, a fire support control center, or a messhall; and it can be used for artillery operations, storage, housing components of a field hospital, or for housing components of a field bakery. The tent is intended to be used in temperate and tropical climates; however, with the liner, it can be used effectively in cold climates.

b. Description. The tent is a rectangular, hip-roofed, pole-supported tent consisting of eave poles, door poles, center upright poles, ridge pole, tent, and tent liner.

(1) *Tabulated data.*

Height: ridge height, 10 feet; eave height, 5 feet 6 inches.
Length: 32 feet 8 inches.
Width: 16 feet.
Weight: tent, 334 pounds; liner, 100 pounds; pins and poles, 200 pounds.
Cube: 33 cubic feet.
Floorspace: 512 square feet.

(2) *Material.* The roof, sidewalls, and end walls are made of 12.29-ounce duck, FWWMR. The whole tent is made in one piece. The canvas is suspended on a webbing framework which carries the stress and supports the canvas. The walls are split at the four corners and can be fastened together with a slide fastener at each corner.

(3) *Doors.* The tent has two door entrances, one at each end. Each door entrance is 6 feet high and 4 feet wide.

(*a*) *Door curtains.* Two curtains, attached to each end near the door entrances, slide along a double wire cable at the eave to open or shut the door entrances.

(*b*) *Door screens.* A screen is attached on the inside to each side of each door entrance. When in use, the door screens are pulled across the door entrances and secured in place by tying tie tapes at the top of the screens to metal rings at the eave above the door entrances. When not in use, the door screens are rolled to the side inside the tent and secured by tying tie tapes along the sides of the screens.

(4) *Ventilation.*

(*a*) The tent is ventilated by two ventilators, one at the top of each end

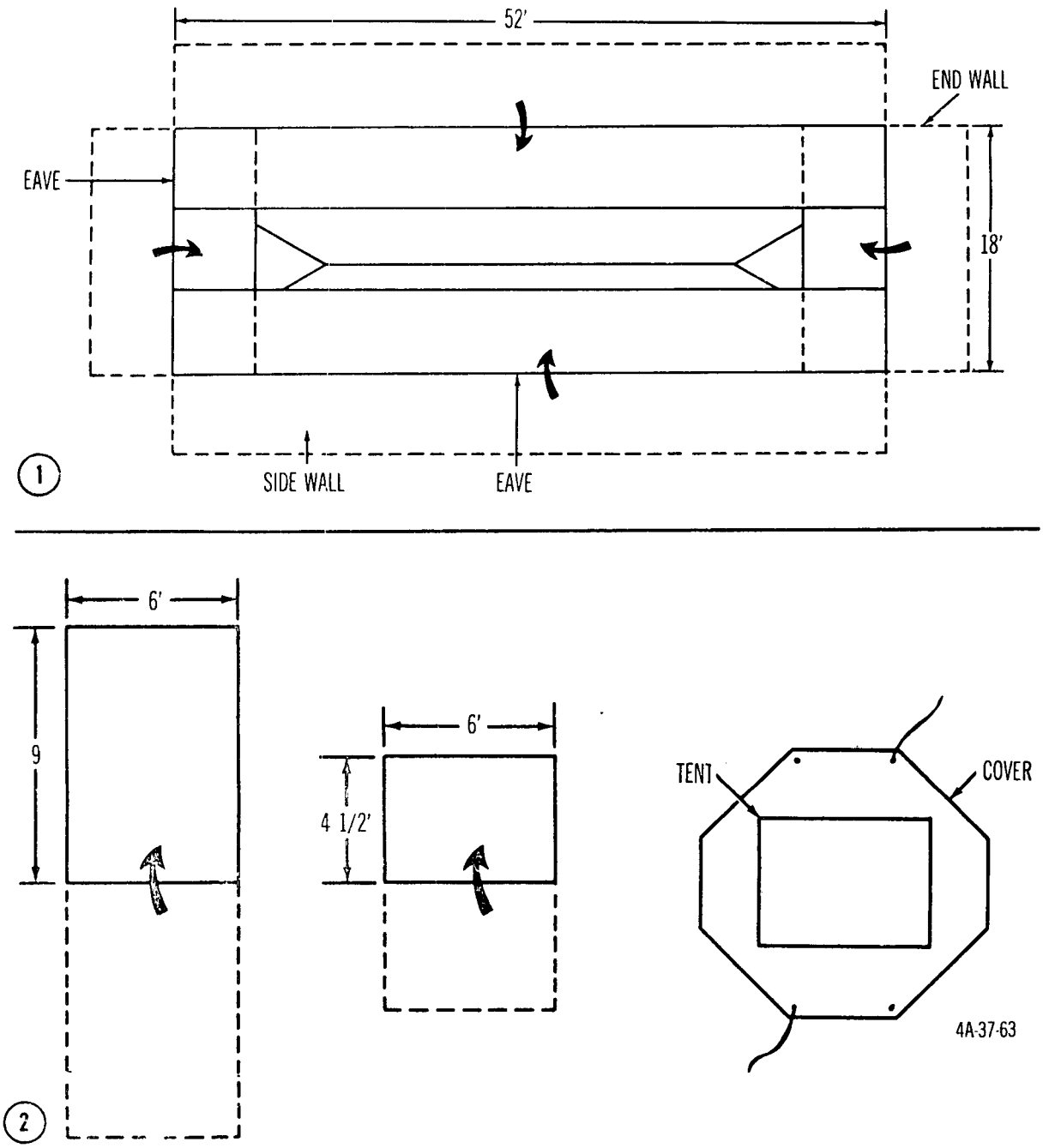


Figure 24. Steps in folding tent, general purpose, large.

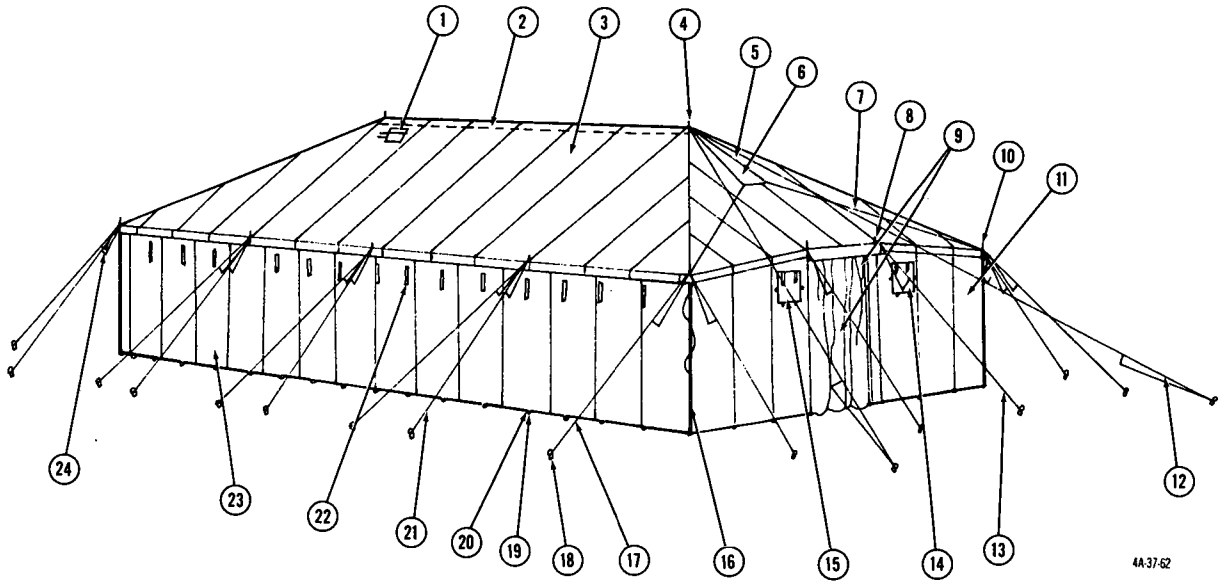
section near the ridge. The openings are protected by canvas flaps.

(*b*) When stoves are not being used, the stovepipe openings can also be used as ventilators.

(*c*) The door curtains can be opened for more ventilation.

(*d*) Still more ventilation can be obtained by rolling up the sides of the tent to the eaves and tying them with tie tapes.

(5) *Heating.* The tent is heated by two M–1941 tent stoves. There are two stovepipe openings built in near the



1	Stovepipe opening	13	Door eave line
2	Ridge pole	14	Care and maintenance instructions flap
3	Side roof	15	Erection instructions flap
4	Center pole	16	Slide fastener
5	End roof	17	Corner eave line
6	Ventilator	18	24-inch wood tent pin, or 12-inch steel tent pin
7	Ventilator flap line	19	Footstop
8	Door pole	20	16-inch wood tent pin, or 9-inch aluminum tent pin
9	Door curtain	21	Side eave line
10	Eave pole	22	Tie tape
11	End wall	23	Sidewall
12	Ridge guy line	24	Tent slip

Figure 25. Tent, general purpose, medium.

two large upright poles of the tent. The openings are protected by canvas flaps.

(6) *Cover.* The tent is provided with a cover for use when it is in storage or is being transported.

(7) *Liner.* A liner with cover is available as a separate item of issue. It provides insulation from the cold in winter and reduces radiation from the sun in summer. The liner can be attached to the inside of the tent. The liner has both fabric and screening sidewalls below the eaves. The fabric sidewalls are made of 5.2-ounce cotton cloth. The screening sidewalls are made of plastic. The fabric sidewalls can be rolled up to the eaves and secured by tie tapes and thus permit the use of the screening alone. The screening provides protection from insects and permits the liner to be used in hot as well as cold weather. There are two built-in ventilator screens corresponding in location to the two ventilators in the tent. There are two stovepipe openings in the liner corresponding in location to the stovepipe openings in the tent.

c. Ground Plan. Before pitching the tent, study the ground plan carefully (fig. 26).

d. Pitching. Four men can pitch the tent in approximately 40 minutes.

(1) *Securing tent to ground in preparation for raising tent walls* (1, fig. 27).

(*a*) Remove tent from cover, and place it in position on the ground so that corners are square.

(*b*) Close slide fasteners at tent corners.

(*c*) Drive a 16-inch wood pin, or in cold climate a 9-inch aluminum pin, at

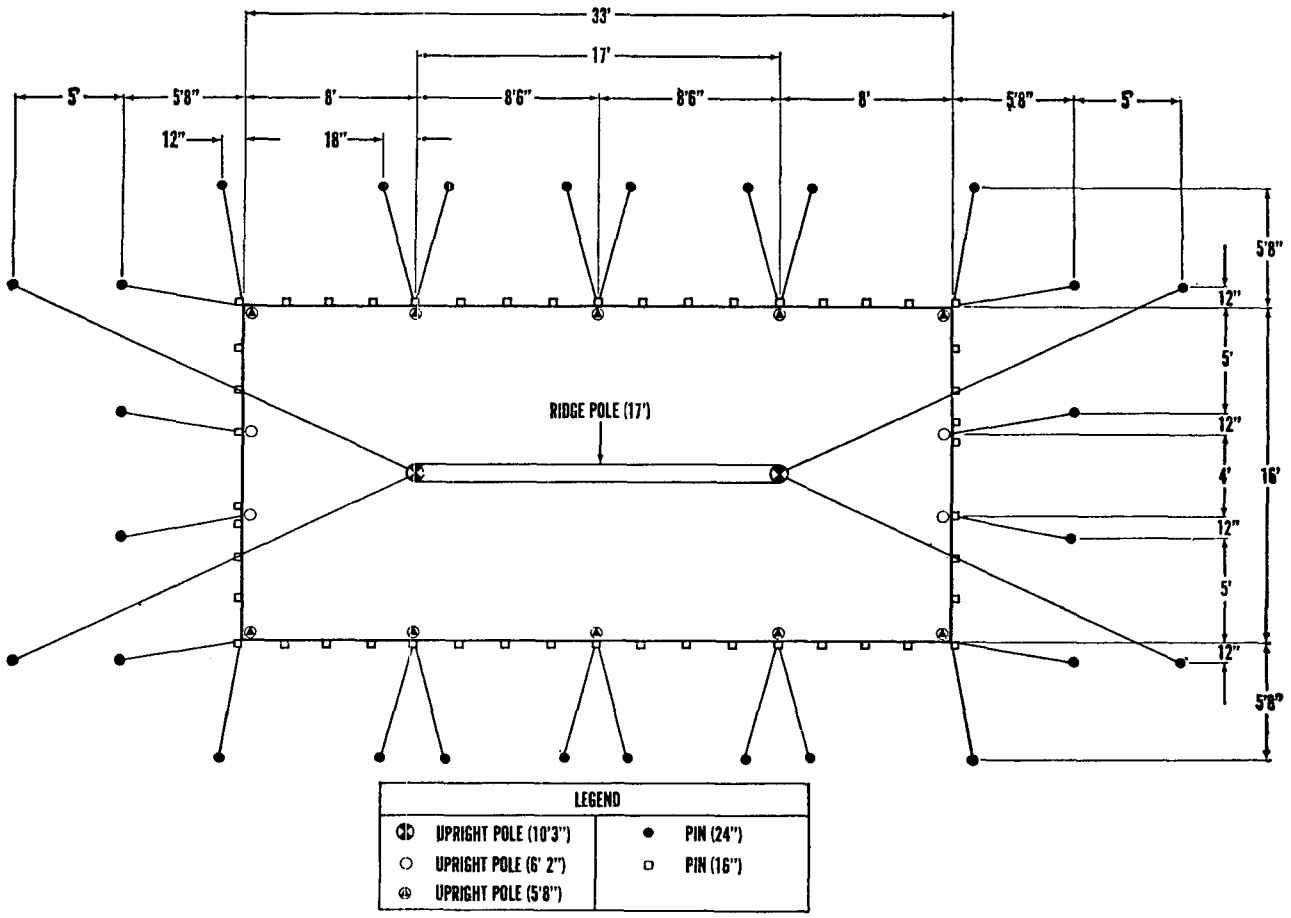


Figure 26. Ground plan of tent, general purpose, medium.

each corner, and attach end wall and sidewall corner footstops to pins.

(*d*) Drive the 24-inch wood pins, or in cold climate the 12-inch steel pins, according to the ground plan, using the 5-foot 8-inch poles to measure distance from the tent.

(*e*) Attach side, corner, and door eave lines to pins.

(2) *Raising tent sidewalls* (2, fig. 27).

(*a*) Insert spindles of 5-foot 8-inch poles through handworked rings at sides and corners of tent.

(*b*) Insert spindles of 6-foot 2-inch poles through handworked rings at front and rear doors.

(*c*) Raise tent walls by raising side, corner, and door eave poles to an upright position.

(*d*) Tighten eave lines just enough to hold poles up.

(3) *Preparing to raise tent roof* (3, fig. 27).

(*a*) Assemble center upright poles and ridge pole.

(*b*) Slide ridge pole through tent door and position it under tent ridge.

(*c*) Insert spindles of center upright poles through holes in ridge pole, through tent ridge plates, and through handworked rings in tent ridge.

(*d*) Attach guy lines to spindles of center upright poles at each end of the tent.

(4) *Raising tent roof* (4, fig. 27).

(*a*) Raise the two center upright poles to a vertical position.

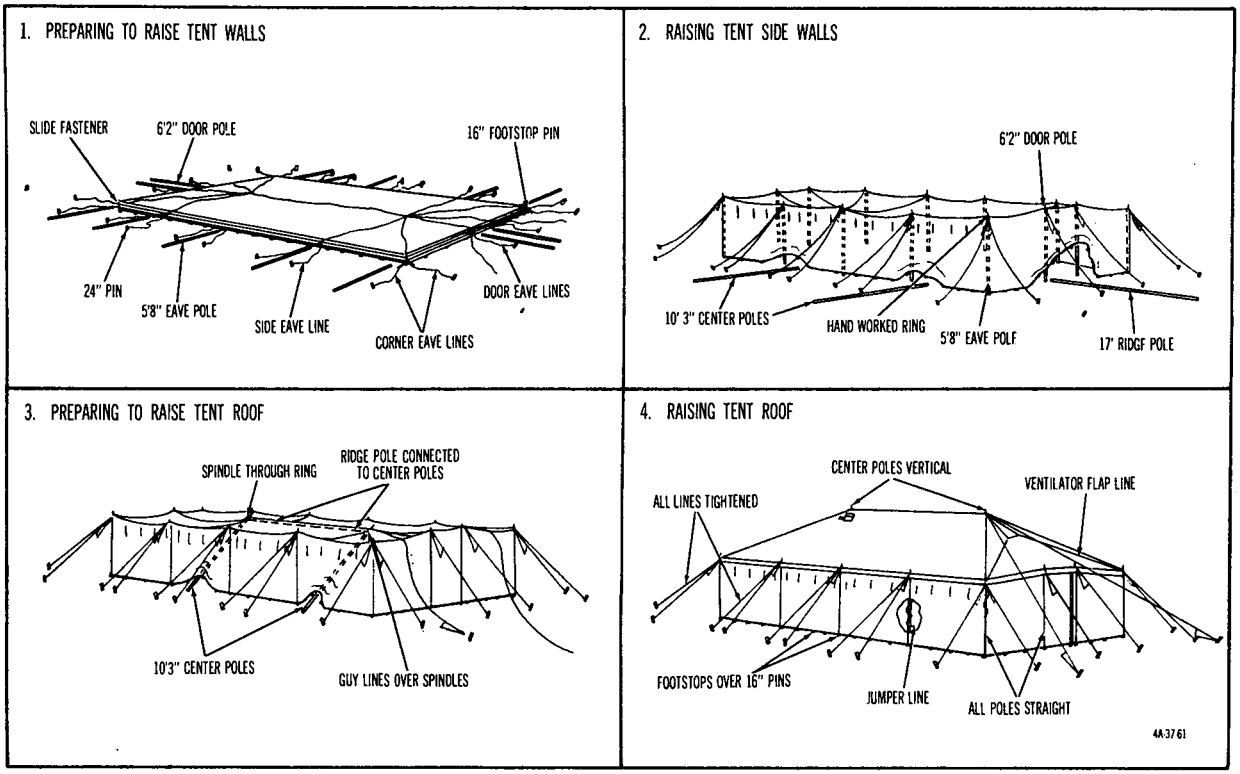


Figure 27. Steps in pitching tent, in general purpose, medium.

(*b*) Attach all guy lines to pins and tighten.

(*c*) Drive remaining 16-inch wood pins, or in cold climate the 9-inch aluminum pins, and attach footstops to pins.

(*d*) Tie jumper lines to side and corner eave poles, door poles, and center upright poles.

(e) Adjust ventilator flap lines and tie them to spindles of corner eave poles.

(*f*) Straighten all poles and tighten all lines until tent is smooth.

(*g*) Tie tie tapes at inside corners of tent around corner eave poles.

(5) *Attaching liner to tent* (fig. 28).

(*a*) Loosen slightly all guy lines by adjusting tent slips (1).

(*b*) Unfold tent liner inside tent on one side of center poles so that stovepipe openings of tent liner are on same side of tent as stovepipe openings in tent (2).

(*c*) Lift each center upright pole, pull liner under pole, and slip liner pole sleeve over pole (3).

(*d*) Tie liner ridge suspension lines to tent ridge plates and to tent ridge pole (4).

(*e*) Secure liner to tent doors, corners, and sidewall eaves by passing eave suspension lines on liner through hardware eye on inside of tent; and then run suspension lines through grommets in liner and secure to D-rings on liner (5, fig. 22).

(*f*) Tie tie tapes at sides of liner door openings to door eave poles.

(*g*) Wrap liner pole sleeves around center upright poles and tie with tie tapes (5, fig. 28).

(*h*) Secure footstops in liner sidewall screen to tent footstop pins (5, fig. 28).

(*i*) Tighten all tent guy lines.

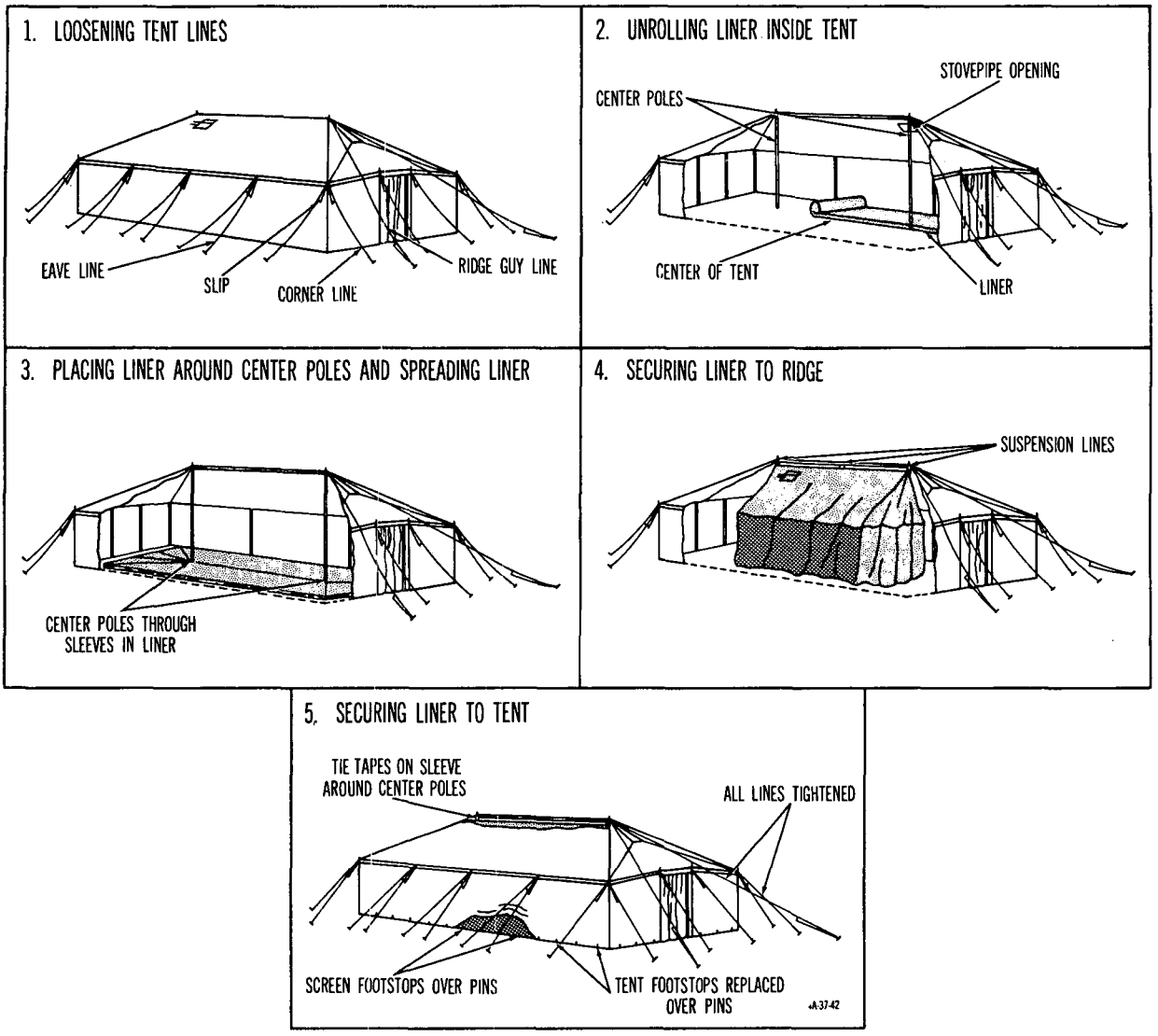


Figure 28. Steps in attaching liner to tent, general purpose, medium.

e. Striking. Four men can strike the tent in approximately 30 minutes.

(1) *Removing liner.*

(*a*) Untie tie tapes at corners. Untie tie tapes at door entrances from door eave poles. Untie tie tapes of pole sleeves from around center upright poles.

(*b*) Remove footstops of tent and liner screen from footstop pins.

(*c*) Untie and remove eave suspension lines from liner D-rings and grommets, and tent hardware eye.

(*d*) Untie ridge suspension lines from tent ridge plates and ridge pole, and allow tent liner to drop to the ground.

(*e*) Loosen all guy lines. Lift center upright poles slightly and remove liner from the poles.

(2) *Striking tent.*

(*a*) Untie corner lug tie tapes and unwrap lugs from corner eave poles.

(*b*) Close doors and fasten wooden toggles to toggle chapes.

(*c*) Untie jumper lines from center upright poles and from eave and door poles.

(*d*) Remove all footstop pins except those at each corner of the tent.

(*e*) Remove all eave guy lines from guy-line pins except those at the corners of the tent. Remove all unused guy-line pins.

(*f*) Remove door eave poles and all other eave poles except those at corners.

(*g*) Remove ridge guy lines from tent pins, and lower center upright poles gently to the ground. Remove all unused tent pins.

(*h*) Disconnect center poles from ridge pole and remove poles from tent. Disassemble ridge pole and center poles.

(*i*) Unfasten the eight corner eave guy lines from guy-line pins; remove corner eave poles; remove corner footstops from footstop pins; and remove remaining tent pins.

f. Folding.

(1) *Folding liner.*

(*a*) Lay liner out as flat as possible with eave suspension lines rolled and placed on top of liner. Fold side and end walls and sidewall screens under liner; fold triangular ends of end walls over liner roof (1, fig. 29).

(*b*) Fold ends of liner toward center, making 6-foot folds. Fold one end of folded liner over the other (2, fig. 29).

(*c*) Fold one end of folded liner toward the center and over the other end

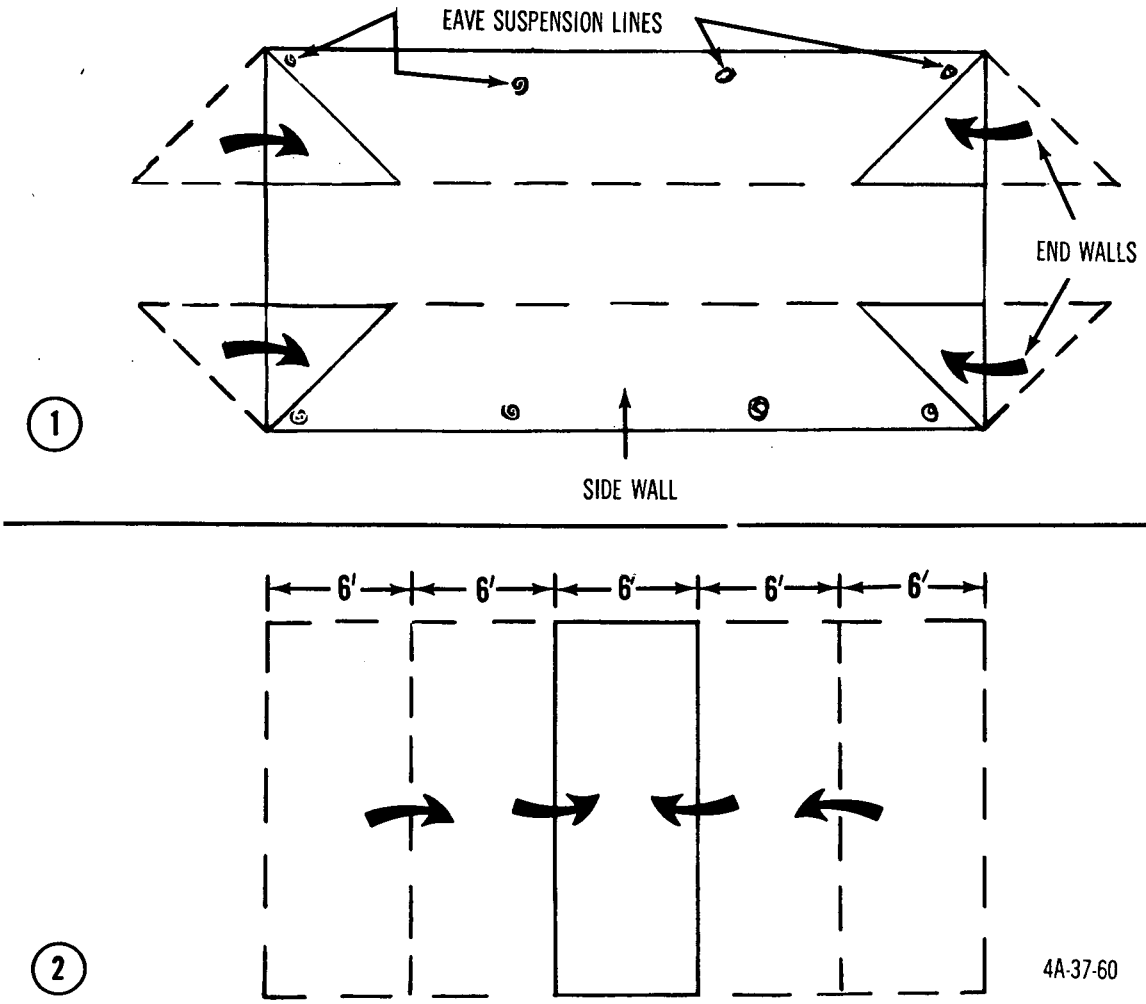


Figure 29. Steps in folding liner of tent, general purpose, medium.

so that dimensions of folded liner are approximately 6 feet by 6 feet (3, fig. 23).

(*d*) Fold liner in half twice so that dimensions of folded liner are approximately 3 by 3 feet, place folded liner in center of liner cover, fold all cover ends of flaps neatly within package, and close cover securely (4, fig. 23).

(2) *Folding tent.*

(*a*) Open corner slide fasteners, close tent doors, and close and secure stovepipe openings.

(*b*) Spread tent out flat, outside up, and coil guy lines and place them on tent roof.

(*c*) Fold end and sidewalls, along eave line, on tent roof (1, fig. 24).

(*d*) Fold ends of ten toward center, making 6-foot folds. Fold one end of folded tent over the other (2, fig. 29).

(*e*) Fold each end of folded tent toward center, making 3-foot folds; and overlap one end over the other (fig. 30).

(*f*) Fold tent in half and place in center of cover (fig. 30). Close cover securely.

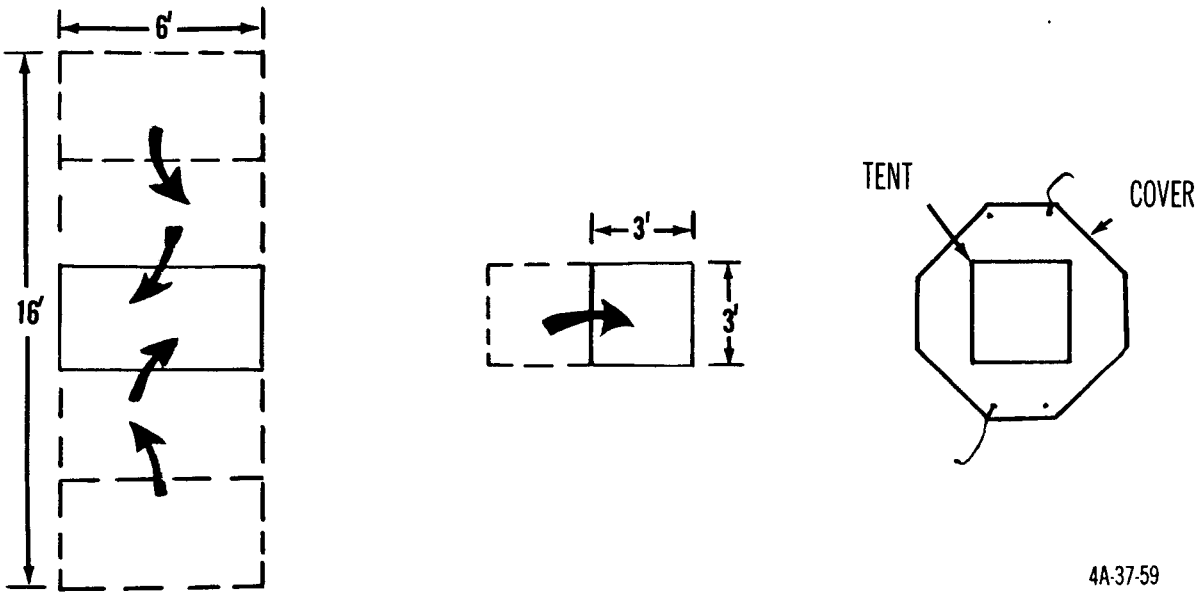


Figure 30. Folding tent, general purpose, medium.

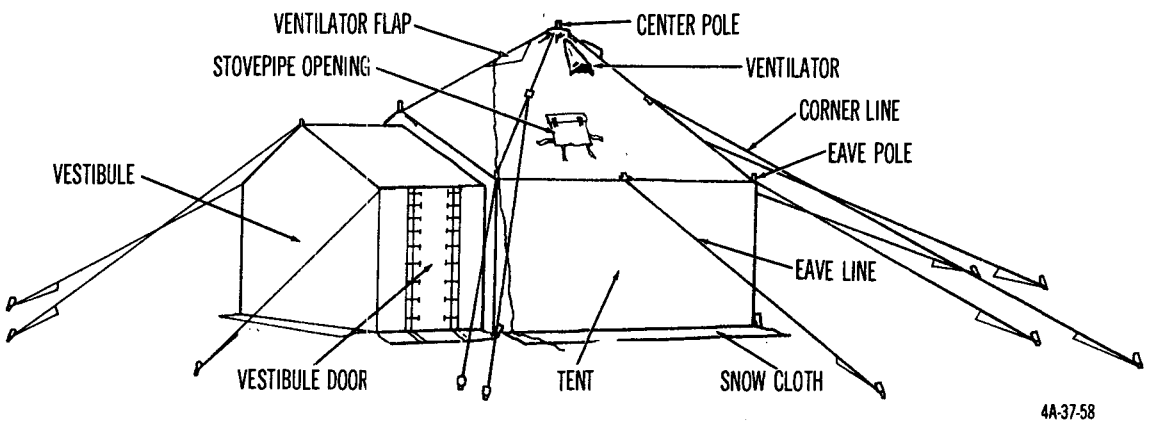


Figure 31. Tent, general purpose, small.

9. Tent, General Purpose, Small

a. Use. The tent, general purpose, small, FWWMR, OD, complete with pins and poles (fig. 31), is designed to be used as a command post, fire direction center, battalion aid station, or for any general purpose use. The tent is intended to be used in temperate and tropical climates; however, with the liner, it can be used effectively in cold climates.

b. Description. The tent is a six-sided pyramidal tent, supported by a telescopic center pole and eight telescopic eave poles. A front and rear entrance is provided, each with a lacing flap arrangement to permit vestibule attachment or the erection of tents in tandem.

(1) *Tabulated data.*
Height: peak height, 10 feet 6 inches; eave height, 5 feet.
Length: each side of the tent is 8 feet 9 inches.
Width: the hexagonal floor of the tent is 17 feet 6 inches in diameter.
Weight: tent, 116 pounds; liner, 23 pounds; pins and poles, 47 pounds.
Cube: 8 cubic feet.
Floorspace: 198.9 square feet.

(2) *Material.* The tent is made of 9.85-ounce duck, FWWMR.

(3) *Doors.* The tent has two doors 7 feet high on opposite sides, permitting tents to be joined together with suitable access from one to the other. Door flaps can be securely closed either by slide fasteners or by loops over wooden toggles. The doors are operated from both inside and outside.

(4) *Ventilation.* The tent is ventilated by six ventilators. Four ventilators have inside ducts, which can be closed by tie cords. These ventilators have hoods of the fixed type, each hood being constructed with a stiffener inserted in the hem to keep it extended out from the ventilator opening. The other two ventilators consist of nonmetallic mesh insect screens and opening flaps with ventilator tielines.

(5) *Heating.* The tent is heated by an M–1950 Yukon stove. A stovepipe opening is built in one side of the tent near the eave. When the stove is not in use, the opening can be closed by securing stovepipe opening flaps to the tent with tie tapes.

(6) *Snow cloths.* There is a snow cloth sewed to the bottom of each side of the tent. When the tent is pitched, the snow cloths are flat on the ground on the outside of the tent. Snow is deposited on the snow cloths for insulation purposes.

(7) *Screen doors.* Two screen doors are provided; they may be attached to the front and rear of the tent for protection against insects.

(8) *Sock lines.* Sock lines are provided for drying clothing and equipment.

(9) *Liner.* A fire-resistant liner, made of 5.2-ounce permeable cotton cloth, is provided to insulate the tent and to prevent frost from falling on the occupants. The liner is held in place by metal toggles.

c. Ground Plan. Before pitching the tent, study the ground plan carefully (fig. 32).

d. Pitching. The tent can be pitched by four men in approximately 30 minutes.

(1) *Preliminary instructions* (1, fig. 33).
(*a*) Spread tent on ground. Check to see if liner is in place; if it is not in place, spread it out beneath the tent.
(*b*) Secure D-rings to snaps inside front and rear doors.
(*c*) Close slide fasteners in front and rear doors.
(*d*) Secure D-rings to snaps outside front and rear doors.
(*e*) Drive six corner pins and four door pins, and attach footstops to pins.

(2) *Attaching corner eave lines and inserting tentpole* (2, fig. 33).
(*a*) Drive six pins about 11 feet from corners of tent, and attach corner eave lines. Pins on opposite sides of tent should be in a straight line.
(*b*) Open front door and push pole, extended to 10 feet 6 inches, under tent.
(*c*) Insert spindle of pole through hole in peak of liner and through supporting ring in peak of tent.

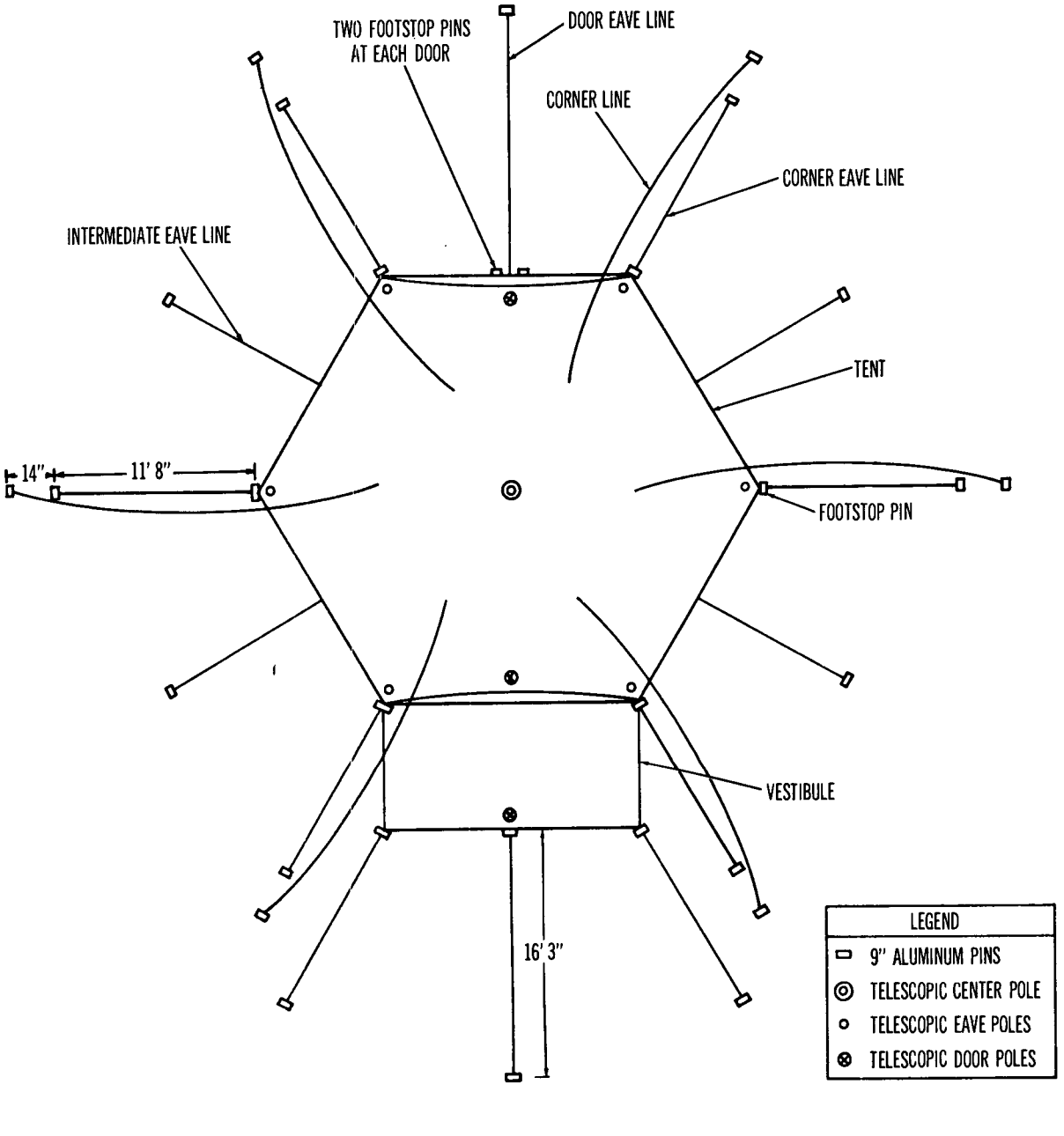


Figure 32. Ground plan of tent, general purpose, small.

(3) *Raising tent* (3, fig. 33).

(*a*) With one man inside the tent, close inside and outside D-rings and snaps on doors; close slide fasteners.

(*b*) Fasten loops to wood toggles on doors.

(*c*) Lift tentpole; and line up door openings, stovepipe, and vent openings of liner with like openings in tent.

(*d*) Insert D-rings at peak of liner into snaps near peak of tent.

(*e*) Raise tentpole, placing butt of tentpole in center of tent area.

(*f*) Extend six eave poles to 5-foot length, and insert spindles of eave poles through tent grommets at corners of tent (4, fig. 33).

(*g*) Drive remaining eave-line pins as shown on ground plan.

(*h*) Attach corner lines, intermediate eave lines, and door eave lines to tent pins.

(*i*) Extend two eave poles to 7-foot length, and insert spindles of poles through tent grommets at center of tent doors (4, fig. 33).

(*j*) Adjust and tighten all lines.

(4) *Fastening liner to inside of tent.*

(*a*) Insert metal toggles on inside of tent through grommets on liner, allowing approximately 2 inches between tent and liner for insulating purposes.

(*b*) Tie tapes around stovepipe opening in liner to corresponding tapes around stovepipe opening in tent, to keep stovepipe opening in place.

(*c*) Tie liner door tie tapes to screen door tie tapes.

(*d*) Thread sock lines through lines of metal toggles around tent, and tie.

(5) *Joining two tents together.*

(*a*) When two tents are to be joined together, erect the first tent as described above. Fasten lugs (4, fig. 33) at front or rear of tents together by inserting grommet lug of one tent between grommet lug and the becket lug of other tent, and chain-lace beckets (fig. 4) on lug of one tent through grommets on each lug of both tents. Begin chain-lacing at bottom (near the ground) of lugs and continue until bottom (near the ground) at other end of the same lugs is reached, securing last becket with a knot. Then erect the second tent in the same manner as the first tent.

(*b*) An alternate method of joining two tents together is to spread both tents on the ground with the front or rear of one tent next to the front or rear of the other tent, and fasten the lugs of the two tents together as described in (*a*) above. Then erect the two tents as described in (1) through (4) above.

(6) *Attaching vestibule.*

(*a*) Attach vestibule to door of tent in in the same manner used for attaching two tents together (5 above).

(*b*) Drive vestibule guy-line tent pins as shown in ground plan.

(*c*) Attach vestibule guy lines to guy-line tent pins.

(*d*) Extend two eave poles to 5-foot length, and insert spindles of eave poles through tent grommets at corners of vestibule.

(*e*) Extend one eave pole to 7-foot length, and insert spindle of eave pole through grommet in end of vestibule.

(*f*) Adjust and tighten all guy lines.

e. Striking.

(1) Loosen vestibule guy lines and remove guy line pins.

(2) Remove vestibule eave poles and telescope poles to their shortest length.

(3) Remove vestibule from tent.

(4) Loosen tent footstops from footstop pins, and remove footstop pins.

(5) Loosen door eave lines and remove door eave poles. Telescope poles to their shortest length.

(6) Remove door eave lines from tent pins and remove tent pins.

(7) Loosen all other lines and remove all other eave poles. Telescope poles to their shortest length.

(8) Remove tentpole and telescope pole to its shortest length.

(9) Remove all lines from tent pins and remove all tent pins.

f. Folding (fig. 34).

(1) Engage D-rings into snaps inside front and rear doors, close slide fasteners, and engage D-rings into snaps outside front and rear doors.

(2) Spread tent on ground and locate stovepipe opening panel. Grasp corner eave line (to right of stovepipe opening) and pull out corner of panel. Then coil intermediate eave line, cor-

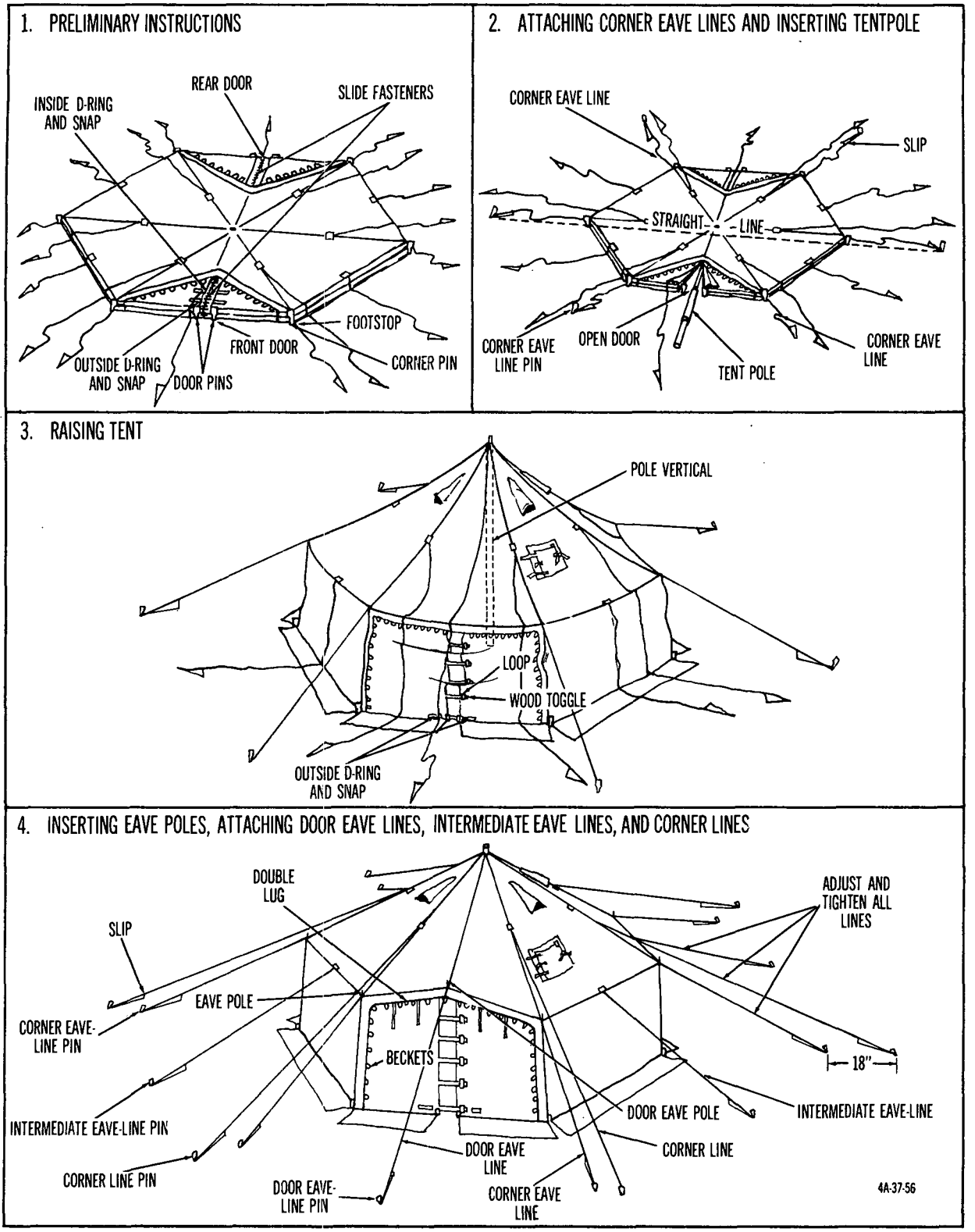


Figure 33. Steps in pitching tent, general purpose, small.

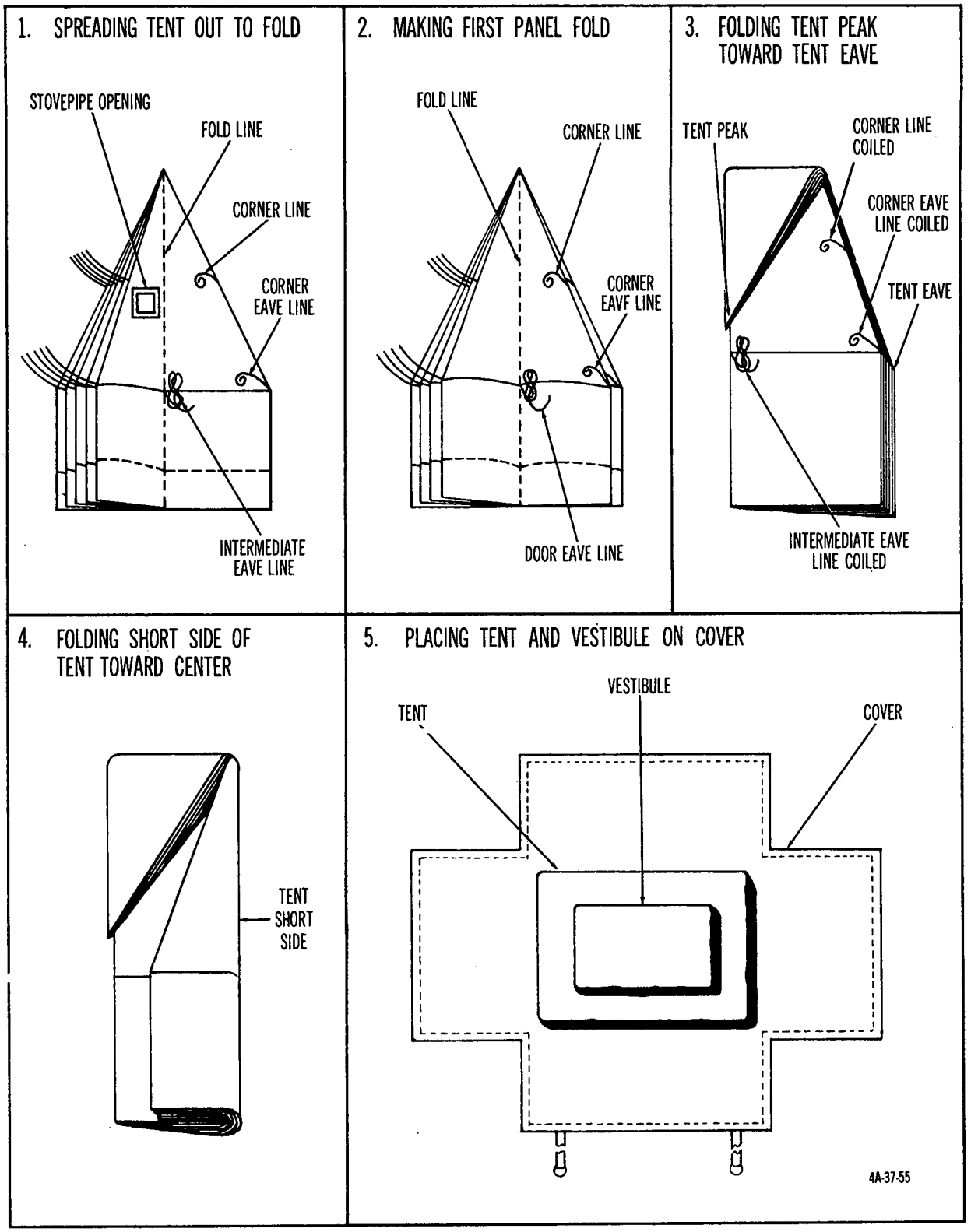


Figure 34. Steps in folding tent, general purpose, small.

ner line, and corner eave line neatly on extended panel (1).

(3) Reaching to the left, grasp corner eave line (to left of stovepipe opening) and pull second panel to the right, making an accordion fold (2).

(4) Fold remaining panels in the same manner, having six folds in all. As each fold is completed, coil intermediate eave lines or door eave lines neatly between folds. Coil corner lines and corner eave lines on top of each panel.

(5) Fold peak of tent about half way to eave of tent (3).

(6) Fold short side of tent toward center to make a rectangle of the tent (4).

(7) Roll or fold tent to the smallest possible size, and place tent on cover (5).

(8) Fold vestibule to dimensions equal to, or smaller than, the dimensions of the folded tent. Place folded vestibule on top of folded tent, (5).

(9) Strap cover tightly around tent.

Section II. SPECIAL PURPOSE TENTS

10. Tent, Hexagonal, Lightweight, M–1950

a. Use. The tent, hexagonal, lightweight, M–1950, FWWMR, OD, complete with pins and poles (fig. 35), is used to provide shelter for troops operating in extremely cold-dry or cold-wet areas. Normally the tent will accommodate five men and their individual clothing and equipment; under emergency conditions, the tent will provide shelter for five men sleeping and one on watch.

b. Description. The tent is a six-sided pyramidal tent, supported by a telescopic center pole.

(1) *Tabulated data.*
Height: peak height, 8 feet 6 inches; eave height, 2 feet.
Length: each side of the tent is 6 feet 7 inches long.
Width: the hexagonal floor of the tent is 13 feet 3 inches in diameter.
Weight: tent and liner, 48 pounds; pins and pole, 8 pounds.
Cube: 3.8 cubic feet.
Floorspace: 113.2 square feet.

(2) *Material.* The tent is made of plied yarn, wind-resistant, sateen cotton cloth, FWWMR, which weighs approximately 9 ounces per square yard.

(3) *Door.* The tent has one door 5 feet high, which is located in the center of one side. Door flaps may be closed either by the slide fastener or by loops over wood toggles.

(4) *Ventilation.* The tent is ventilated by two built-in ventilators on opposite sides and near the peak of the tent. The ventilators have inside ducts, which can be closed by tie cords. The ventilator hoods are of the fixed type, each hood being made with a stiffener inserted in the hem to keep it extended out from the ventilator opening.

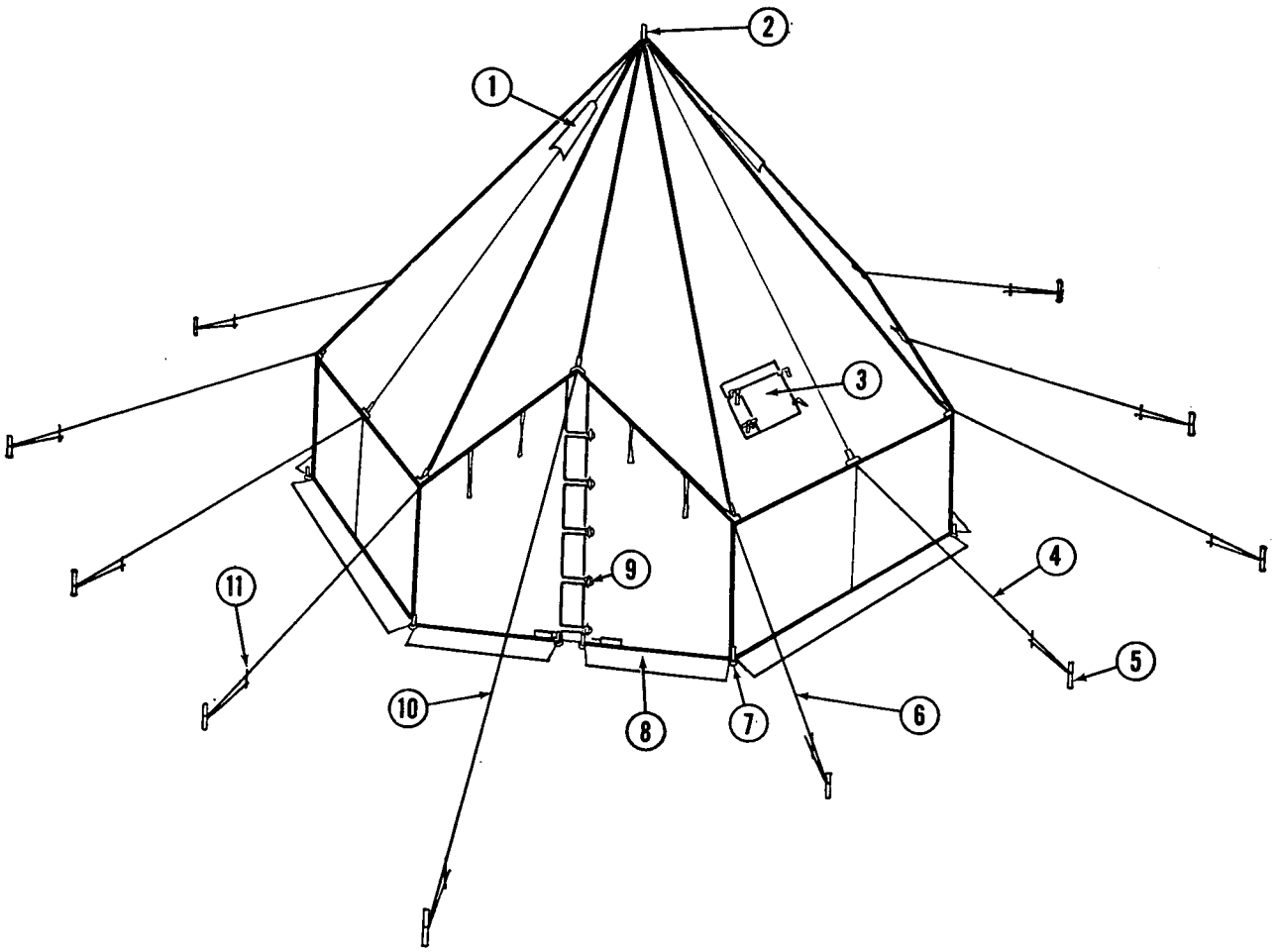
(5) *Heating.* The tent is heated by an M–1950 Yukon stove. A stovepipe opening with a silicone rubber-molded ring is built in one side of the tent near the eave. When the stove is not in use, the stovepipe opening can be protected by a canvas flap.

(6) *Sock lines.* Three sock lines are provided for drying clothing and equipment.

(7) *Snow cloths.* There is a snow cloth sewed to the bottom of each side of the tent. When the tent is pitched, the snow cloths are flat on the ground on the outside of the tent. Snow is deposited on the snow cloths for insulation purposes.

(8) *Liner.* A fire-resistant liner, made of 5.2-ounce cotton cloth, is provided to insulate the tent and to prevent frost from falling on the occupants. The liner is held in place by metal toggles.

(9) *Cover.* The tent is provided with a cover for use when it is in storage or



1 Ventilator
2 Telescopic tentpole
3 Stovepile opening
4 Intermediate eave line
5 9-inch aluminum tent pin
6 Corner eave line
7 Footstop
8 Snow cloth
9 Wood tent toggle
10 Door eave line
11 Tent slip

Figure 35. Tent, hexagonal, lightweight, M–1950.

is being transported. The tent and liner, when folded, fit into the cover. Aluminum tent pins are nested, and the magnesium pole is telescoped to its shortest length and placed in the pocket at one side of the cover.

c. Ground Plan. Before pitching the tent, study the ground plan carefully (fig. 36).

d. Pitching. The tent can be pitched by five men in approximately 15 minutes.

(1) *Preliminary procedures* (1, fig. 37).

(*a*) Spread tent on ground. Check to see if liner is in place; usually it is not in place in a new tent. If liner is not in place, spread it out beneath tent.

(*b*) Secure D-ring to snap inside door.

(*c*) Close slide fastener in door.

(*d*) Drive six corner pins and two door pins and attach footstops to pins.

(2) *Attaching corner eave lines and inserting tent pole* (2, fig. 37).

(*a*) Drive pins about 6 feet from corners of tent and attach corner eave lines to pins. Pins on opposite sides of tent should be in a straight line.

(*b*) Open door and push pole, extended to 8 feet 6 inches, under tent.

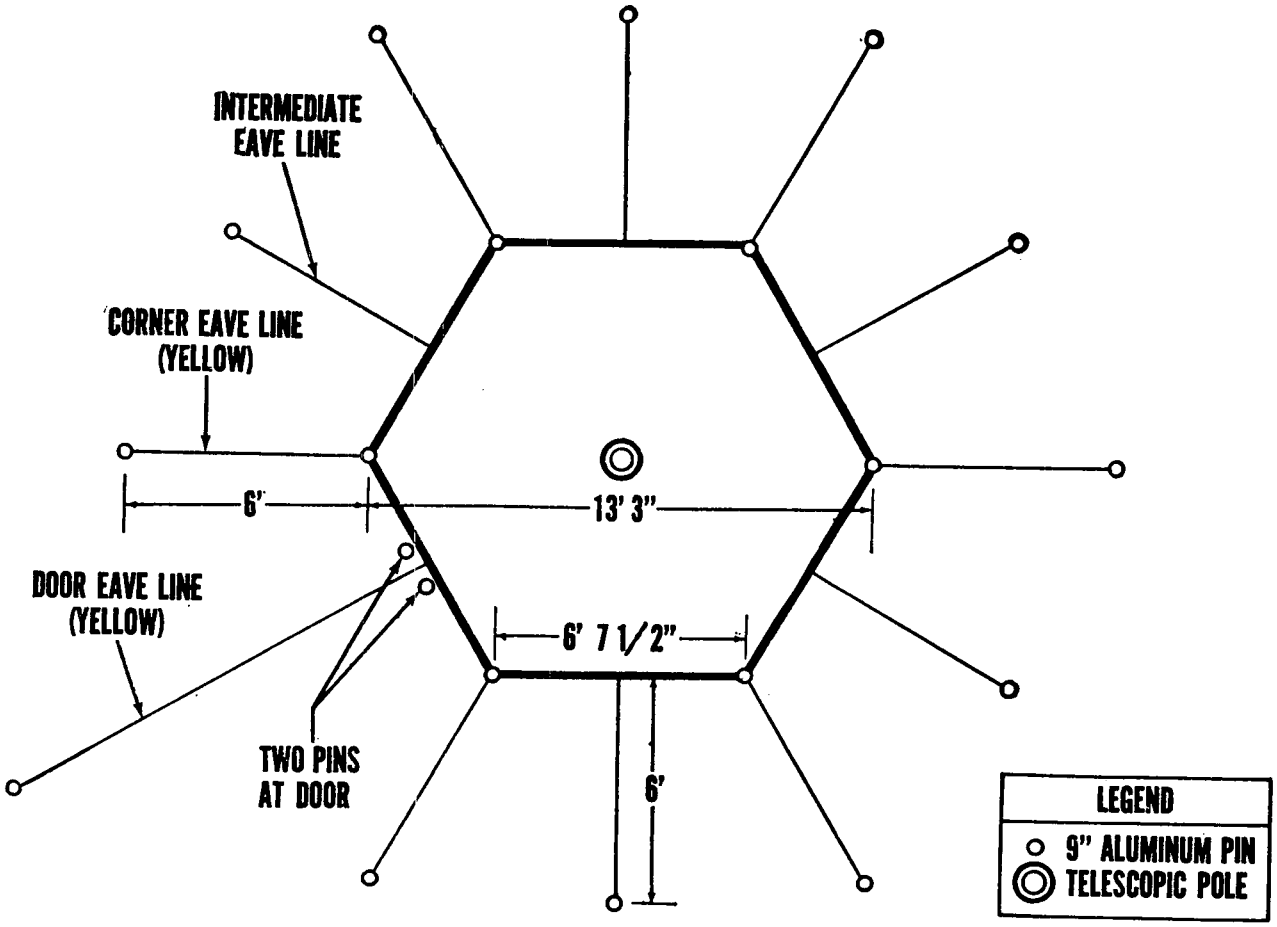


Figure 36. Ground plan of tent, hexagonal, lightweight, M–1950.

(*c*) Insert spindle of pole through grommet in peak of liner and through handworked ring in peak of tent.

(3) *Raising tent* (3, fig. 37).

(*a*) With one man inside the tent, close inside and outside D-rings and snaps on door; close slide fastener.

(*b*) Fasten loops to wood toggles on door.

(*c*) Raise tent and liner; place butt of tentpole in center of tent area.

(4) *Attaching door eave line and intermediate eave lines* (4, fig. 37).

(*a*) Stake door eave line far enough to hold door vertical.

(*b*) Stake intermediate eave line pins.

(*c*) Attach the five intermediate lines to pins.

(*d*) Adjust and tighten all lines.

(5) *Propping up door eave line.* The door eave line can be propped up by placing the line over an improvised pole (tree branch or other object higher than the door entrance) at a distance of about 5 feet in front of the door and then staking the line out to a pin. This keeps the door from sagging, makes the slide fastener work better, makes the tent easier to get into and out of, and gives the tent greater stability.

(6) *Fastening liner.* Fasten liner in place by inserting wire toggles, which are secured to tent, into grommets set in liner. Allow approximately 2 inches between tent and liner for insulating purposes. Tie tapes around stovepipe opening in liner to corresponding tapes around stovepipe opening in

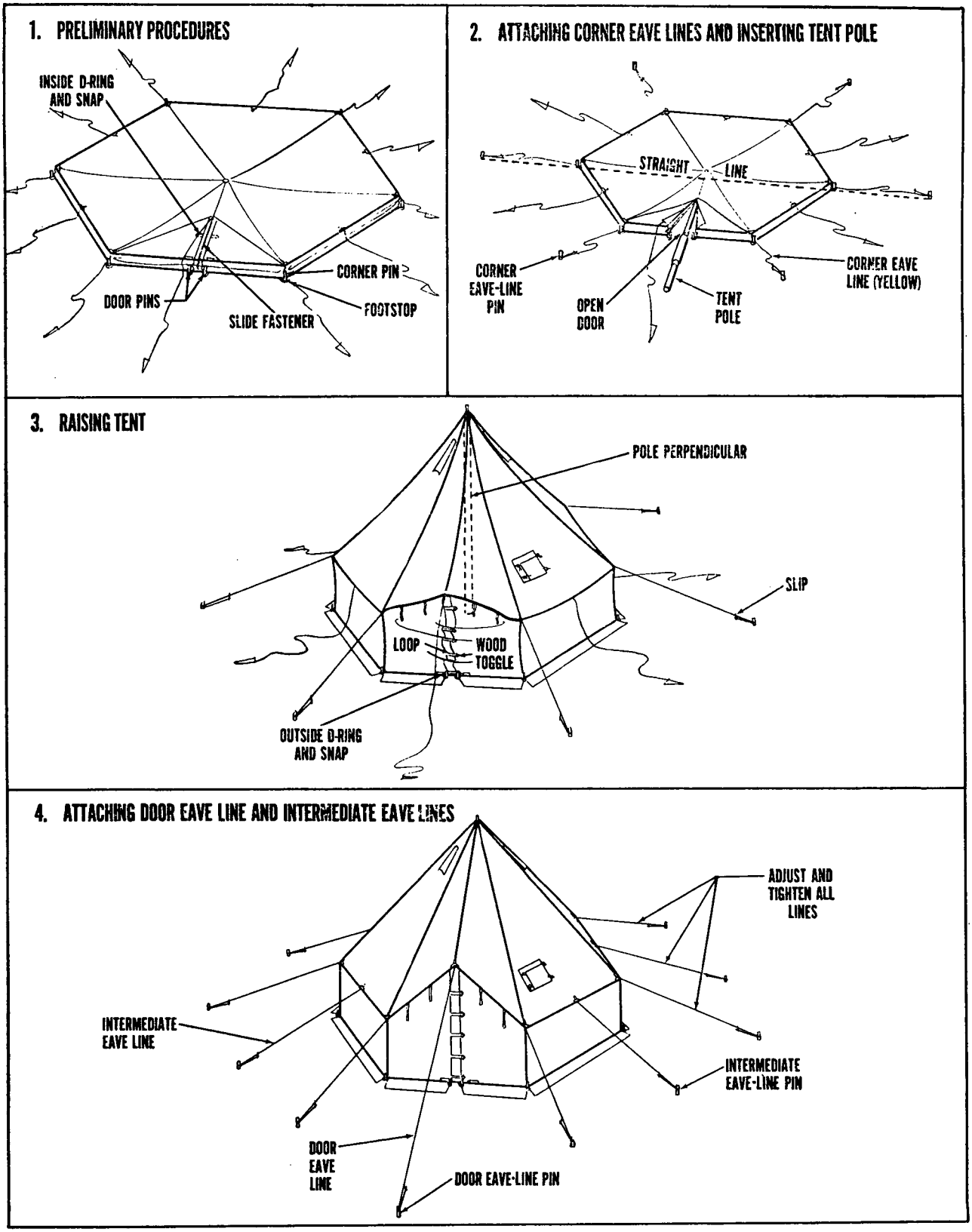


Figure 37. Steps in pitching tent, hexagonal, lightweight, M–1950.

tent to keep stovepipe opening in place. The 35-foot sock line is threaded through the eyes of the toggles at the eave line and tied to the toggle at each corner of the door. The 30-foot sock line is threaded through the eyes of the next row of toggles and the two ends are tied in a square knot. The 19-foot sock line is threaded through the eyes of the remaining row of toggles and the ends are tied in a square knot.

e. Striking.

(1) Loosen liner tie tapes.
(2) Loosen door eave line.
(3) Remove all footstop pins.
(4) Loosen all eave lines and remove all all eave line pins.
(5) Remove tentpole, and telescope pole to its shortest length.
(6) Remove liner only if repairs are needed.

f. Folding.

(1) *Folding tent* (fig. 38).
(*a*) Engage snap into D-ring inside door and close door slide fasteners.
(*b*) Spread tent on ground and locate stovepipe opening panel on top fold. Grasp corner eave line (to the right of stovepipe opening) and pull out corner of panel. Then coil intermediate eave line and corner line neatly on extended panel (1).
(*c*) Reaching to the left, grasp corner eave line (to the left of stovepipe opening) and pull the second panel to the right, making an accordion fold (2).
(*d*) Fold remaining panels in the same manner, having six folds in all. As each fold is completed, coil intermediate eave lines, corner eave line, and door eave line neatly between folds (3).
(*e*) Coil on top of folded tent panels the last remaining intermediate eave line and corner eave line (4).
(*f*) Fold snow cloth over sidewalls of tent. Fold peak of tent to edge of snow cloth (5).
(*g*) Fold short side of tent toward center to make a rectangle of the tent (6).
(*h*) Roll or fold tent to the smallest possible size, and place tent on cover. Place nested pins and telescoped pole into pocket of cover (7).
(*i*) Close cover, securing it with straps and loops. Care should be taken that flaps are tucked neatly inside cover.

(2) *Folding liner.* Ordinarily the liner is not removed from the tent. When necessary, the liner can be folded separately in the same manner as the tent. After the liner is folded, it can be placed inside the cover with the tent, pins, and pole.

11. Tent, Kitchen, Flyproof, M–1948

a. Use. The tent, kitchen, flyproof, M–1948, FWWMR, OD, complete with pins and poles (fig. 39), is a screened shelter for cooking and serving food where flies and other insects are numerous.

b. Description. The tent is an A-shaped, square-ended, rectangular tent. The back or field range section of the tent forms a stack, elevated in turret fashion 3 feet higher than the front or service section to accommodate the field ranges. Both sections have a similar contour, sloping gently to each side of a central ridge. The side and front walls of the tent may be guyed out, forming awnings on the side and front. A wall screen, which snaps to the tent, provides an insect-proof closure on sides and front when the walls are raised. The tent can be completely blacked out.

(1) *Tabulated data.*
Height: stack ridge height, 12 feet; stack sidewall height, 9 feet; service section ridge height, 9 feet; service section sidewall height, 6 feet.
Length: 18 feet overall; length of stack, 6 feet.
Width: 12 feet.
Weight: tent, 202 pounds; pins and poles, 218 pounds.
Cube: 26.2 cubic feet.
Floorspace: 216 square feet.

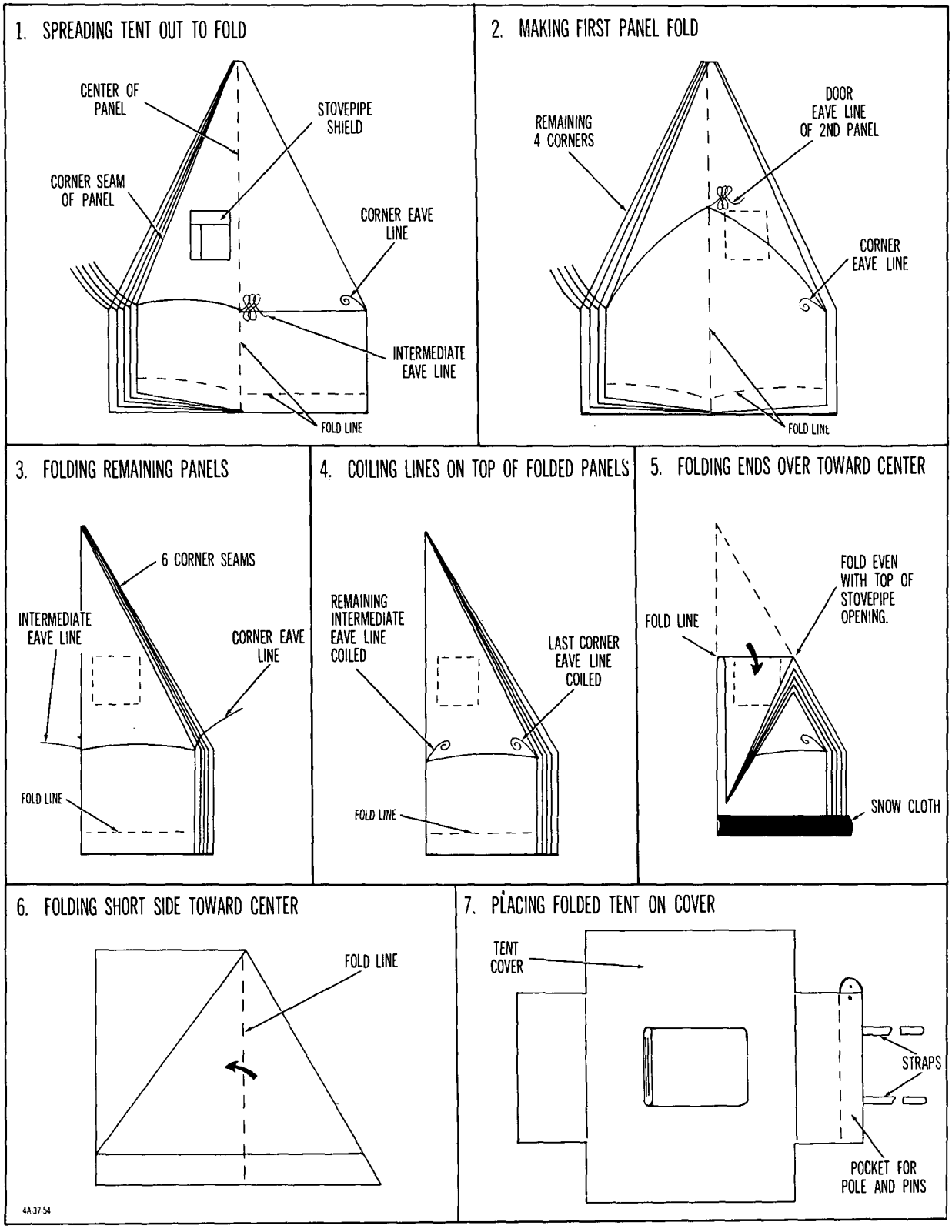
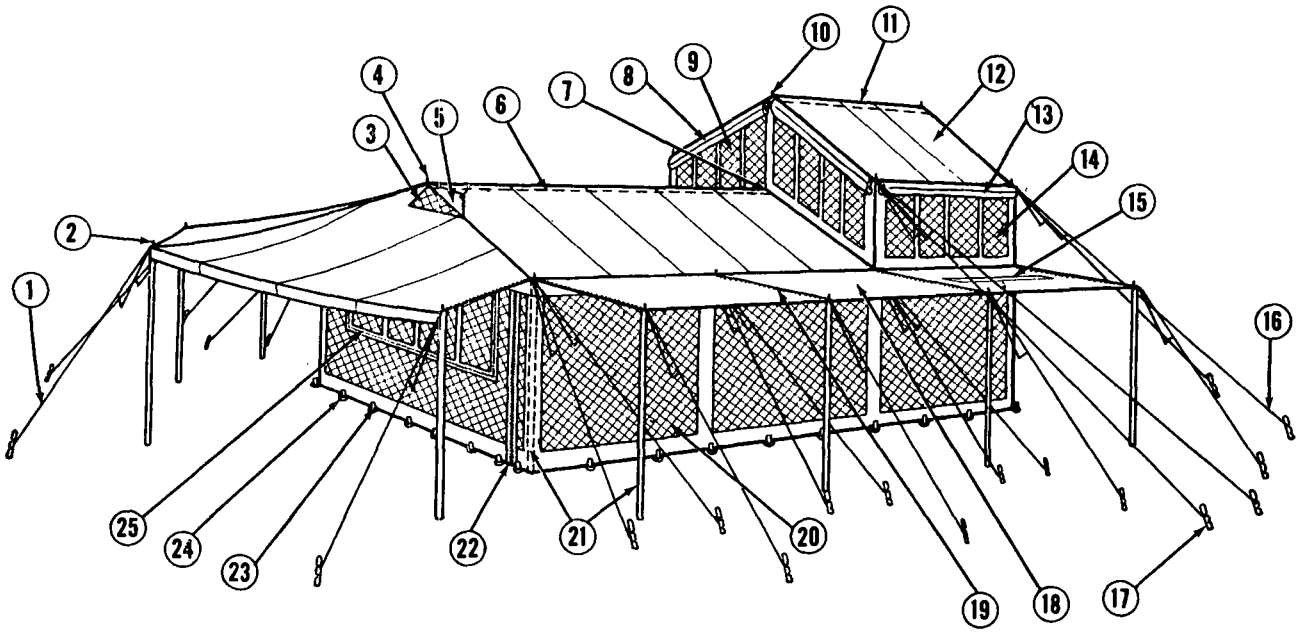


Figure 38. Steps in folding tent, hexagonal, lightweight, M-1950.



1 Eave line
2 7-foot tentpole
3 Front ventilator screen
4 9-foot tent pole
5 Front ventilator flap
6 11-foot 10-inch jointed ridge pole
7 Spindle of 11-foot 10-inch ridge pole
8 Front stack ventilator flap
9 Front stack ventilator screen
10 12-foot 3-inch tentpole
11 5-foot 11¼-inch solid ridge pole
12 Roof stack
13 Stack side flap
14 Stack side screen
15 Sidewall ventilator opening
16 Guy line
17 24-inch tent pin
18 Sidewall awning section
19 Awning slide fastener
20 Tent screen
21 6-foot 2-inch tentpole
22 Entrance opening slide fastener
23 16-inch tent pin
24 Footstop
25 Service window opening slide fastener

Figure 39. Tent, kitchen, flyproof, M–1948.

(2) *Material.* The tent is made of 12.29-ounce duck, FWWMR.

(3) *Support.* The tent is supported by 13 upright poles and 2 ridge poles. When the sides and front are guyed out to form awnings, 11 additional upright poles are required.

(4) *Entrances.* The vertical sidewalls of the tent are equipped with eight slide fasteners. Entrance to the tent can be gained by opening any one of the fasteners. However, when the screen wall is attached, entrance can be gained only by opening the one slide fastener in the corner near the service window.

(5) *Ventilation.*

(*a*) The four elevated sides of the stack section are equipped with air-permeable screening. This induces a draft, so that heat from the field ranges is taken away through the screening.

(*b*) When conditions are favorable, slide fasteners can be released and the sidewalls and front end of the tent lifted from the bottom to provide increased ventilation. The side and front walls can be guyed out, with the bottom seams supported by tentpoles to form awnings.

(*c*) When the sidewalls and front end of the tent are lowered and the slide fasteners closed to provide safe blackout operation conditions, adequate ventilation can be obtained by adjusting the ventilator flaps on the sides and the rear of the stack section near the base and on the front of the service section near the ridge pole.

(6) *Screens.*

(*a*) A detachable screen, made of 2.9-ounce type II nylon cloth, snaps to the tent and can be used as an insect-proof closure on the sides and front of the tent. The screen is fastened at the top of both end and side tentpoles and drapes vertically to the ground, where it is attached to 16-inch tent pins. The screen has a service window in the front section which can be opened by slide fasteners and rolled up. The front end and sidewalls of the tent can be raised and guyed out to form awnings, in which case the screen wall offers insect protection.

(*b*) There are built-in screens on the front and sides of the stack section near the top. Flaps operated by hoisting lines can be used to cover or uncover the screens. There are also built-in screens on the sides and rear of the stack section near the base and on the front of the service section near the ridge pole.

(7) *Cover.* The tent is provided with a cover for use when it is in storage or is being transported.

c. Ground Plan. Before pitching the tent, study the ground plan carefully (fig. 40).

d. Pitching. The tent can be pitched by five men in approximately 60 minutes. When conditions permit, the tent should be pitched away from natural elevations or tall equipment that might obstruct a draft through the tent stack.

(1) *Preliminary procedure* (1, fig. 41). Spread tent out according to ground plan with the four 9-foot and the six 6-foot 2-inch side poles and twenty 24-inch pins in proper position.

(2) *Raising sides and attaching guy lines* (2, fig. 41).

(*a*) Drive ten 24-inch pins on one side of tent site, according to ground plan.

(*b*) Insert spindles of two 9-foot upright poles through grommets in eave at one side of stack section of tent, raise stack section side, and attach guy lines to pins.

(*c*) Insert spindles of three 6-foot 2-inch upright poles through grommets in eave at one side of service section of tent, raise service section side, and attach guy lines to pins.

(*d*) Raise the other side of tent in the same manner as the first.

(*e*) Straighten poles, close slide fasteners, drive 16-inch pins, and attach footstops to pins.

(3) *Raising short ridge pole* (3, fig. 41). Insert spindles of the two 12-foot 3-inch upright center poles through holes at ends of short ridge pole, raise poles, and insert spindles of the 12-foot 3-inch upright center poles into grommets in stack ridge. Make sure that the 12-foot 3-inch upright poles are at the front and rear center of stack section 6 feet from each side, and that they are perpendicular.

(4) *Raising long ridge pole* (4, fig. 41).

(*a*) With one man at each end of the long ridge pole, raise pole to a position where a third man can insert the spindle of the 9-foot upright front pole through the hole in the front end of the ridge pole and into the grommet in the service ridge of the tent; and then set upright pole in place perpendicularly as indicated on ground plan.

(*b*) Fasten connector end of long ridge pole to the 12-foot 3-inch upright front center pole (fig. 42) about 3 feet from the top of the stack so that the long ridge pole is level with the ground. This is done by placing connector of ridge pole around upright pole, swinging swivel plate into position on one side of upright pole, and tightening nut. Attach jumper line at front stack ridge around short ridge pole with a half hitch, and secure it to metal loop of connector with a round turn and two half hitches. Insert spindle of connector through grommet at

ridge at rear end of service section of tent.

(5) *Preparing to attach screen* (5, fig. 41).

(*a*) Unfasten slide fasteners at front and rear corners of sidewalls, and detach footstops from pins. Extend sidewalls outward with eight 6-foot 2-inch poles and front wall with two 6-foot 2-inch poles and one 7-foot pole, to form awnings. Drive pins and attach guy lines, according to ground plan. The slide fasteners on the sidewall awnings and at the front end of the stack can be unfastened, and the long guy lines from the 9-foot front side stack poles can go through the openings.

(*b*) Spread out screen around outside of side and front poles at base of tent.

(6) *Attaching screen* (6, fig. 41).

(*a*) Hang screen to tent by fastening snap fasteners at eave and rear corners. Remove tops of sidewall poles from eave grommets, insert spindles of poles into tabs in screen, and replace poles. Tie front peak of screen to ridge pole with screen wall tieline.

(*b*) Drive remaining 16-inch pins and

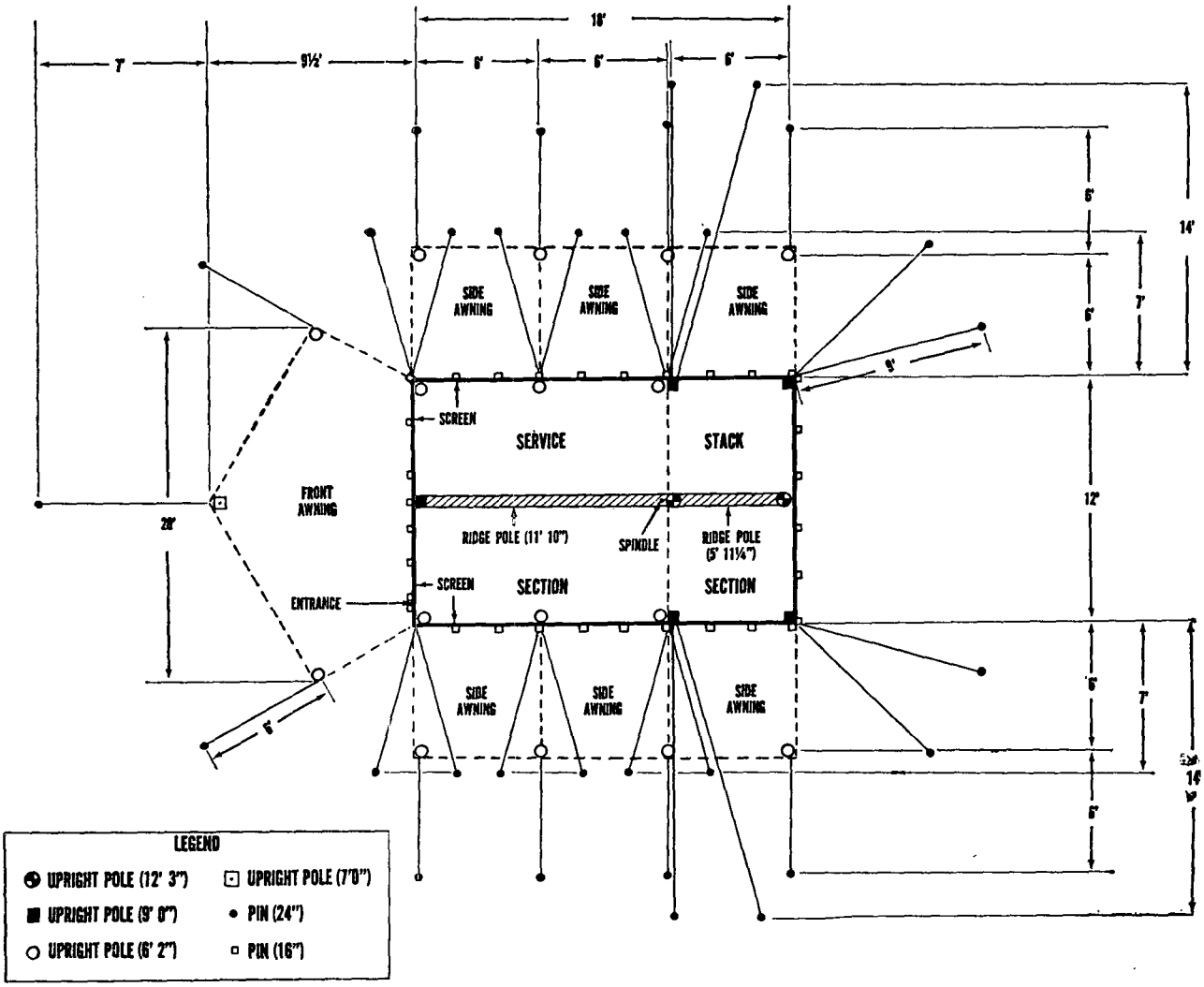


Figure 40. Ground plan of tent, kitchen, flyproof, M–1948.

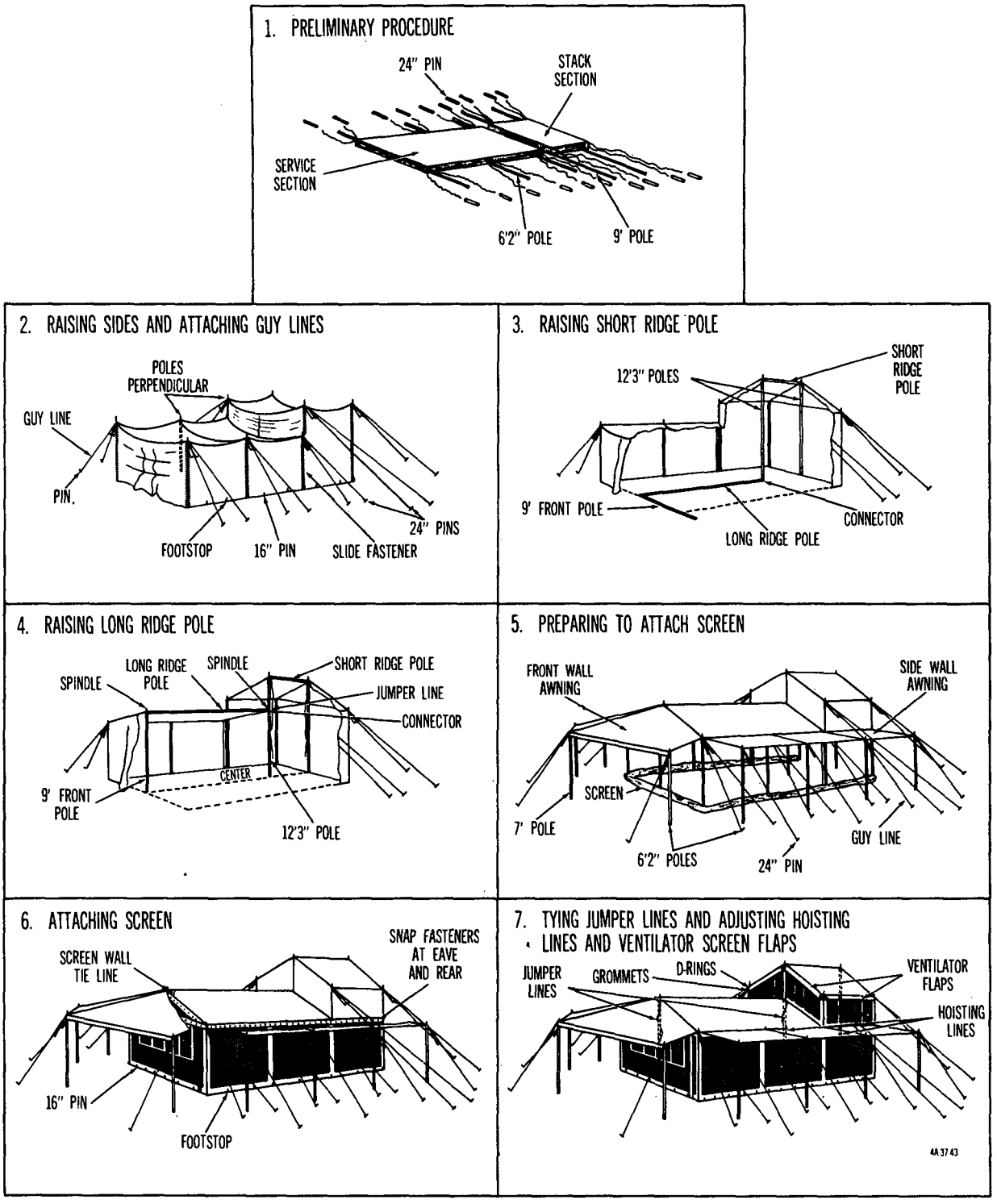


Figure 41. Steps in pitching tent, kitchen, flyproof, M-1948.

attach footstops to pins in front of screen; attach footstops on sides of screen to 16-inch pins already driven.

(7) *Tying jumper lines and adjusting hoisting lines and ventilator screen flaps* (7, fig. 41).

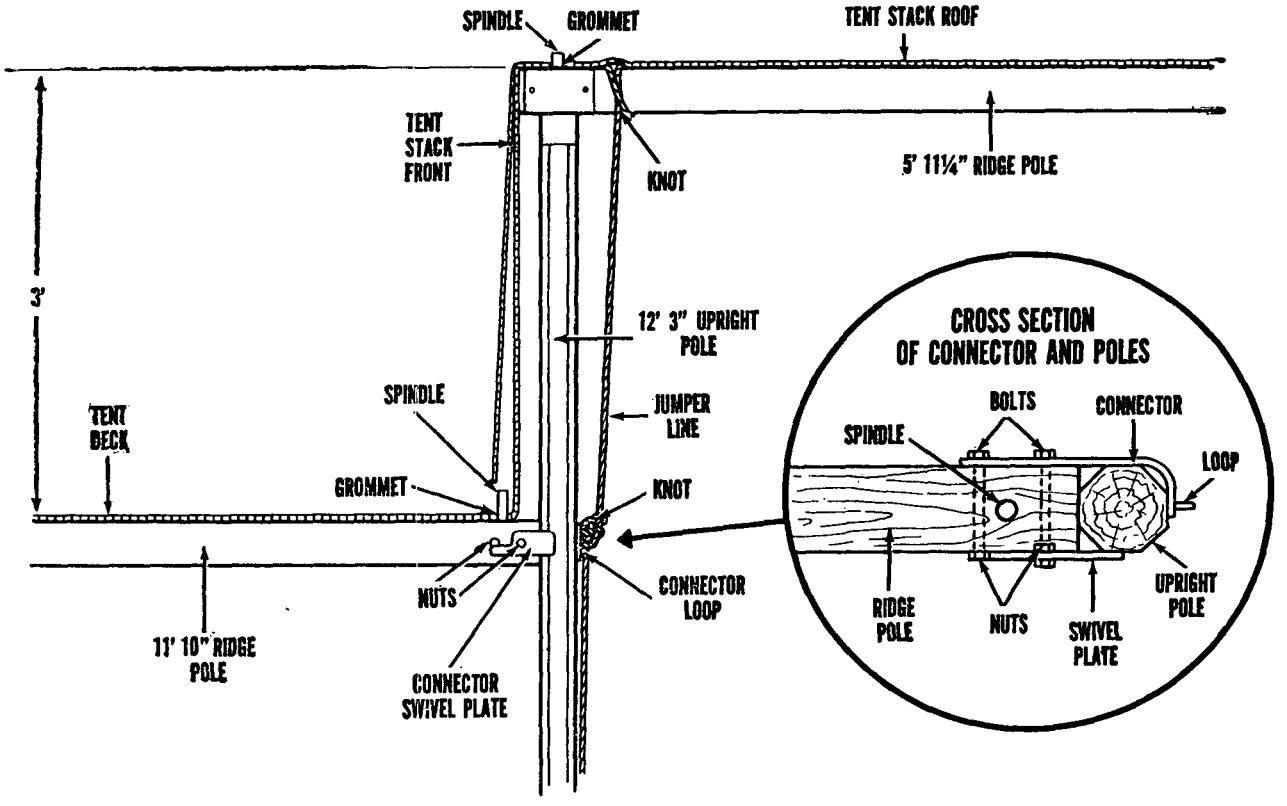


Figure 42. Fastening ridge poles to 12-foot 3-inch upright center pole (tent, kitchen, flyproof, M-1948).

(*a*) Tie all jumper lines to eave and center poles.

(*b*) Adjust hoisting lines which go through D-rings on stack ventilator flaps and grommets on screen panel. Raise flaps and tie hoisting lines around stack upright poles.

(8) *Closing tent for blackout* (fig. 43). Remove awning poles. Drop awnings and close slide fasteners. Place footstops over the same pins that are used for the screens. Close top stack section ventilator flaps. Make sure that top front service section ventilator flaps are open. Tie lines of bottom stack section ventilator hoods in sides and rear to pins to assure a draft through the tent.

e. Striking.

(1) Unfasten slide fasteners along tent sidewalls.

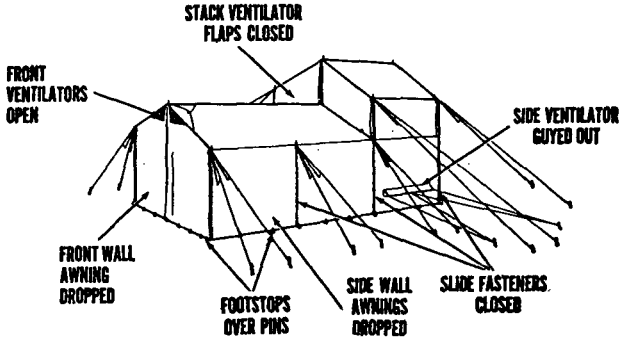


Figure 43. Closing tent, kitchen, flyproof, M–1948 for blackout.

(2) Release footstops and remove the 16-inch pins.

(3) Raise awnings temporarily, using the 6-foot 2-inch poles.

(4) Incline tentpoles supporting screen, remove screen from spindles of poles, and reset poles.

(5) Close all ventilator flaps.

(6) Remove awning poles and drop awnings.

(7) Remove the three center poles and their connecting ridge poles.

(8) Remove the 6-foot 2-inch service section sidewall poles.

(9) Remove the 9-foot stack section sidewall poles.

(10) Remove the 24-inch pins from the ground.

f. Folding.

(1) *Folding screen* (1, fig. 44). Spread screen flat on ground and close slide fasteners. Fold in sod cloth and triangular part at top of front section to form a straight line. Fold ends toward center in 30-inch folds. Fold one end over the other end, making a 3- by 6-foot bundle.

(2) *Folding tent* (2, fig. 44).

(*a*) Spread tent flat on ground, arranging as neatly as possible. Throw all guy and eave lines toward center. Fold side and end walls toward center.

(*b*) Grasp corners of rear, side, and front walls; fold over on front deck and stack. The tent is now a 12-foot square. Fold stack section on front deck. Establish a center line, and place folded screen to right of center line.

(*c*) Fold ends toward center and end over end. Establish a center line. Fold ends toward middle and end over end. The tent is now approximately a 3- by 3-foot bundle.

(*d*) Place in cover. Fold long flaps over first, and then fold the shorter ones. Secure bundle with lines tied through grommets and around bundle.

12. Tent, Mountain, 2-Man

a. Use. The tent, mountain, 2-man, FWW-MR, OD and white, complete with pins and poles (fig. 45), is designed to provide a lightweight, temporary shelter for two men in mountainous and arctic regions.

b. Description. The tent is triangular in cross section, with an entrance and ventilator at each end.

(1) *Tabulated data.*

Height: ridge height, 3 feet, 7 inches; eave height, 12 inches.
Length: 6 feet 10 inches.
Width: 14 feet 6 inches.
Weight: tent, 6 pounds; pins and poles, 3.5 pounds.
Cube: 0.7 cubic feet.
Floorspace: approximately 30.75 square feet.

(2) *Materials.* The tent is made of a wind-resistant cotton twill cloth. The tent floor is made of a waterproof coated nylon cloth. The tent is olive drab in color on one side and white on the other so that it can be camouflaged by exposing the appropriate color.

(3) *Entrances.*

(*a*) The tent has two tubular tunnel entrances, 27 inches in diameter and 24 inches long.

(*b*) A tunnel entrance can be closed by tying it either from the inside or outside with tie tapes. To tie entrances, wind tie tape around tunnel entrance as if entrance were the mouth of a bag, and fasten it with a half hitch.

(*c*) A tunnel entrance can be kept open by pulling it out and securing it to a guy line with tie tapes, or it can be rolled against the tent and secured by tying the tie tapes on the tent through grommets on the outside opening of the entrance.

(*d*) Tubular mosquito netting, attached to the body of the tent inside the entrance tunnels, can be closed by tying it tight either from the inside or outside by tie tapes. To tie the mosquito netting, wind tie tapes around opening of netting as if it were the mouth of a bag, and fasten it with a half hitch.

(4) *Ventilation.*

(*a*) Ventilation is of the greatest importance in the mountain tent, be-

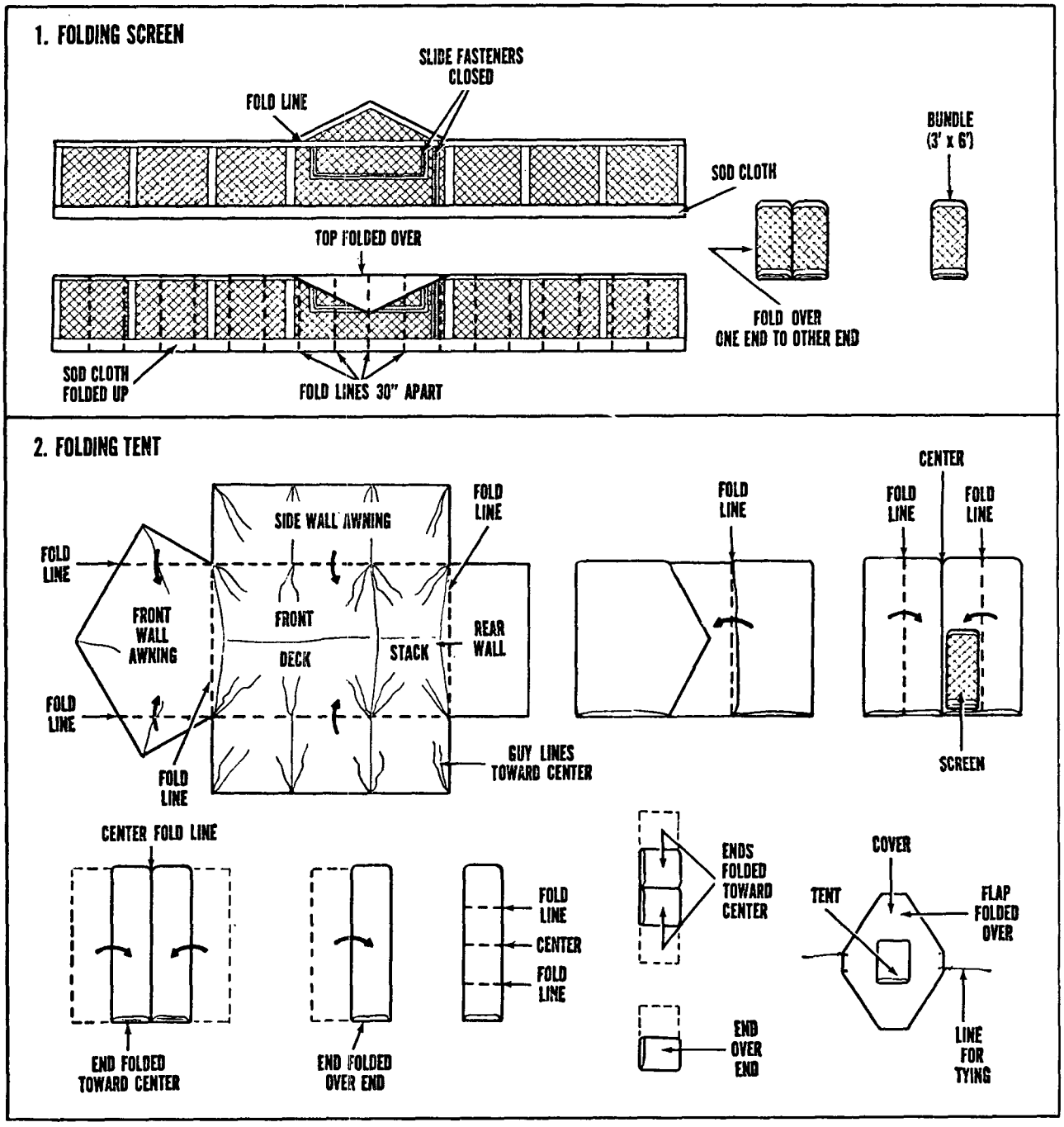
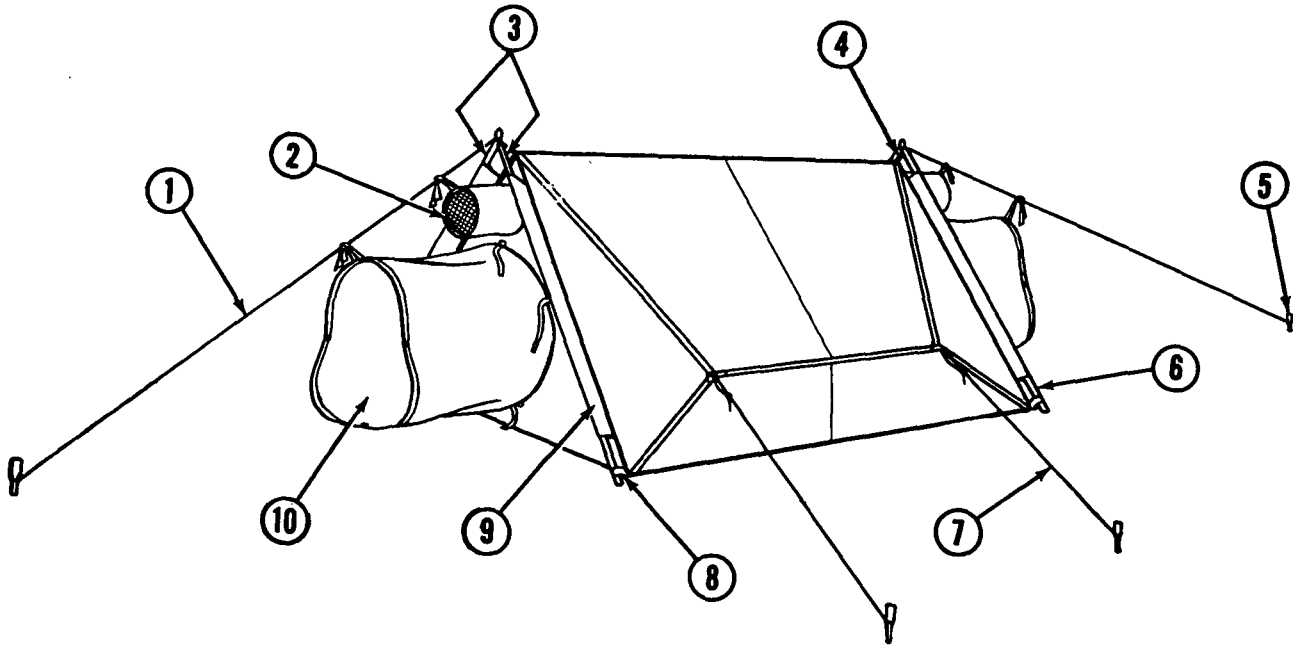


Figure 44. Steps in folding tent, kitchen, flyproof, M–1948.

cause the cloth has been coated to make it impermeable. The tent can be ventilated by opening the tunnel entrances or by using the built-in ventilators.

(*b*) An 8-inch diameter ventilator, with mosquito netting at the outside opening, is at each end of the tent, In good weather, the ventilators are kept wide open by tying them to the guy lines with tie tapes. In storms, they are left hanging loosely to provide adequate protection as well as ventilation. The ventilators should



1 Long guy line
2 Ventilator
3 Tentpole adaptor
4 Loop for guy line
5 9-inch aluminum tent pin
6 Tentpole
7 Eave line
8 Loop for tentpole
9 Pole sleeve
10 Entrance tunnel

Figure 45. Tent, mountain, 2-man.

never be closed when a gasoline-burning stove is lighted. In cold weather, there is an additional reason for leaving the ventilators open. Unless the moisture caused by breathing and cooking can pass off into the outside air, it forms as frost on the roof of the tent. In a wind, this shakes off and wets the clothes and sleeping bags.

(5) *Floor.* The floor is constructed as an integral part of the tent. Special care should be taken not to tear the floor with boots.

c. Pitching. Two men can pitch the tent in approximately 10 minutes.

(1) *Preliminary procedures* (1, fig. 46).

(*a*) Spread tent on ground in position it is to occupy, with desired color on outside; olive drab in normal situations and white under snowy conditions. To reverse tent for proper color, pull inside of tent through one of the entrance tunnels, taking care not to damage the fabric.

(*b*) Assemble tentpoles so that four poles of three sections each are made. Place poles on ground alongside the two tentpole adapters.

(2) *Inserting poles through loops and sleeves and attaching adapters* (2, fig. 46).

(*a*) Insert tentpoles through corner loops and pole sleeves of tent.

(*b*) Attach pole adapters to tentpoles.

(3) *Raising front end of tent* (3, fig. 46).

(*a*) Raise front tentpoles and adapter to a position so that front end of tent is vertical.

(*b*) Place front guy line through ring of adapter and stake guy line out to a pin in front of tent.

(4) *Raising rear end of tent* (4, fig. 46).

(*a*) Raise rear tentpoles and adapter to a position so that ridge of tent is almost level and rear end of tent is vertical.

(b) Place rear guy line through ring of adapter and stake guy line out to a pin to rear of tent.

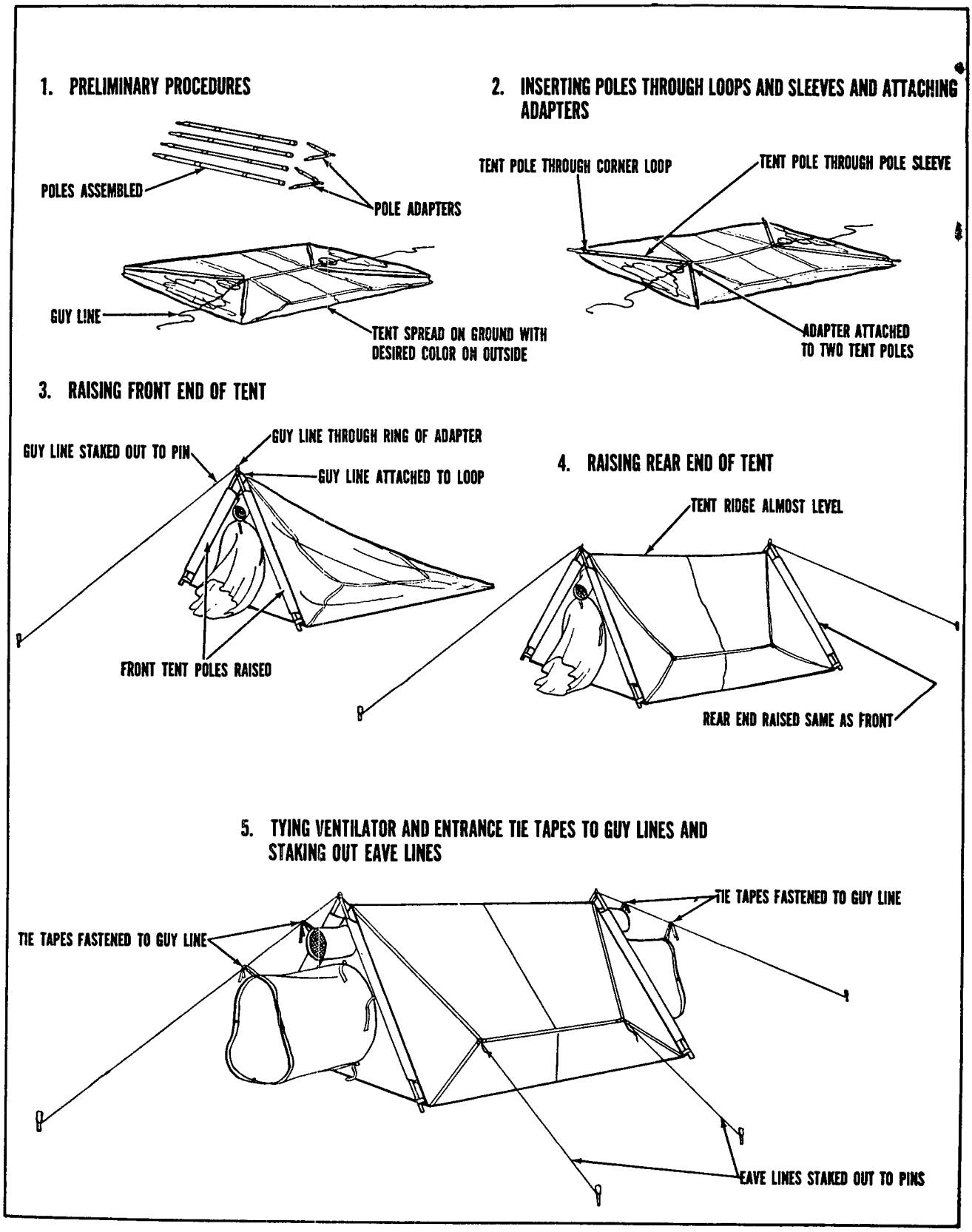


Figure 46. Steps in pitching tent, mountain, 2-man.

(5) *Tying ventilator and entrance tie tapes to guy lines and staking out eave lines* (5, fig. 46).

(*a*) Tie ventilator and tunnel entrance tie tapes to guy lines.

(*b*) Attach eave lines to the two loops on each side of tent and stake eave lines out to pins.

(6) *Anchoring corner.* When additional anchorage of the tent is required, lines can be attached to the corner loops and secured to the guy-line pins.

(7) *Pitching tent without poles and pins.* To achieve maximum mobility, the tent can be pitched without using poles and pins. This procedure is especially valuable in wooded terrain. The corners of the tent and the front and rear guy lines can be staked down with available sticks or stones. If the ridge of the tent sags, it can be supported by attaching a line to the loop in the center of the ridge and securing the line to a tree. Skis and ski poles can be used in place of tentpoles and pins. Although the tent can be pitched without pins and poles, these items should always be available.

(8) *Pitching tent in rocky terrain.* In rocky terrain, it may be impossible to drive tent pins into the ground. In this case, attach guy lines to rocks.

(9) *Pitching tent in loose and powdery snow.* When the snow on which the tent is pitched is loose and powdery, the guy lines can be attached to ski poles or ice axes, which are driven down into the snow after it has been packed; or the lines can be attached to a "dead man" anchor. This is made by burying a tent pin or stick horizontally in a hole in the snow and stamping the snow on top of the anchor until it is thoroughly packed.

d. Striking.

(1) Untie ventilator and tunnel entrance tie tapes from guy lines.

(2) Remove guy and eave lines from pins.

(3) Remove pins from ground.

(4) Untie guy lines from webbing loops at front and rear peaks of tent.

(5) Unfasten adapters from poles and remove poles from tent, and then disassemble poles.

e. Folding and Rolling (fig. 47).

(1) Place tent so that bottom is flat on ground. Push ventilators and tunnel entrances inside tent (1).

(2) With one man at each end of the tent, make an accordion fold by folding one side of tent inward at center and folding the other side over so that it covers bottom of tent (2).

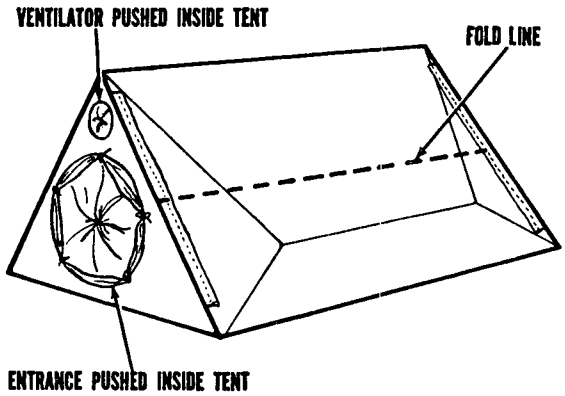
(3) Place pole sections, adapters, and pins at center of one end of folded tent (3). Eave lines should remain attached.

(4) Fold sides of folded tent over toward center (4).

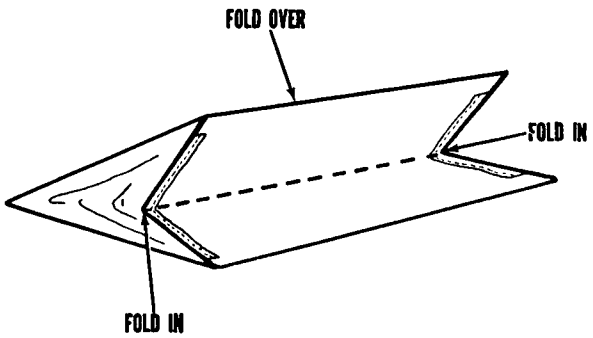
(5) Starting at the end with pins and poles, roll folded tent tightly toward the other end (5).

(6) Tie rolled tent with two guy lines (6). The tent can now be placed on the pack or stored.

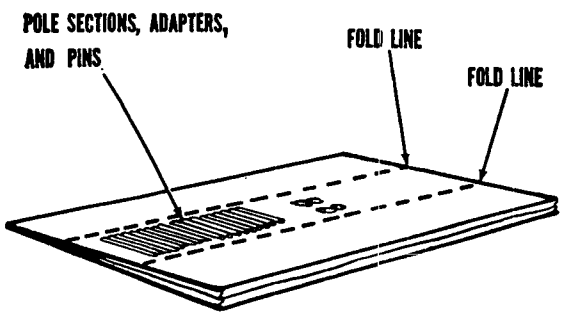
1. PLACING FLOOR FLAT ON GROUND AND PUSHING VENTILATORS AND ENTRANCES INSIDE TENT



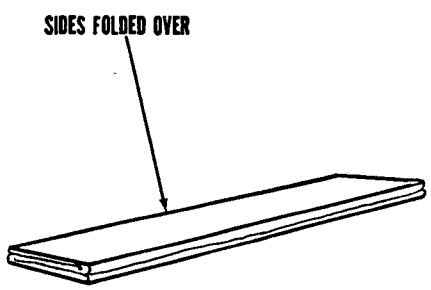
2. MAKING ACCORDION FOLD



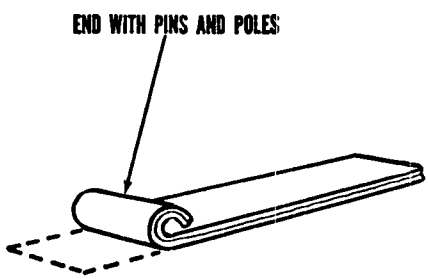
3. PLACING POLE SECTIONS, ADAPTERS, AND PINS ON TENT



4. FOLDING SIDES OVER



5. ROLLING TENT



6. TYING TENT

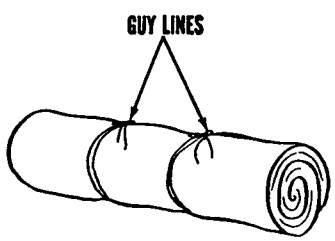


Figure 47. Steps in folding and rolling tent, mountain, 2-man.

CHAPTER 3

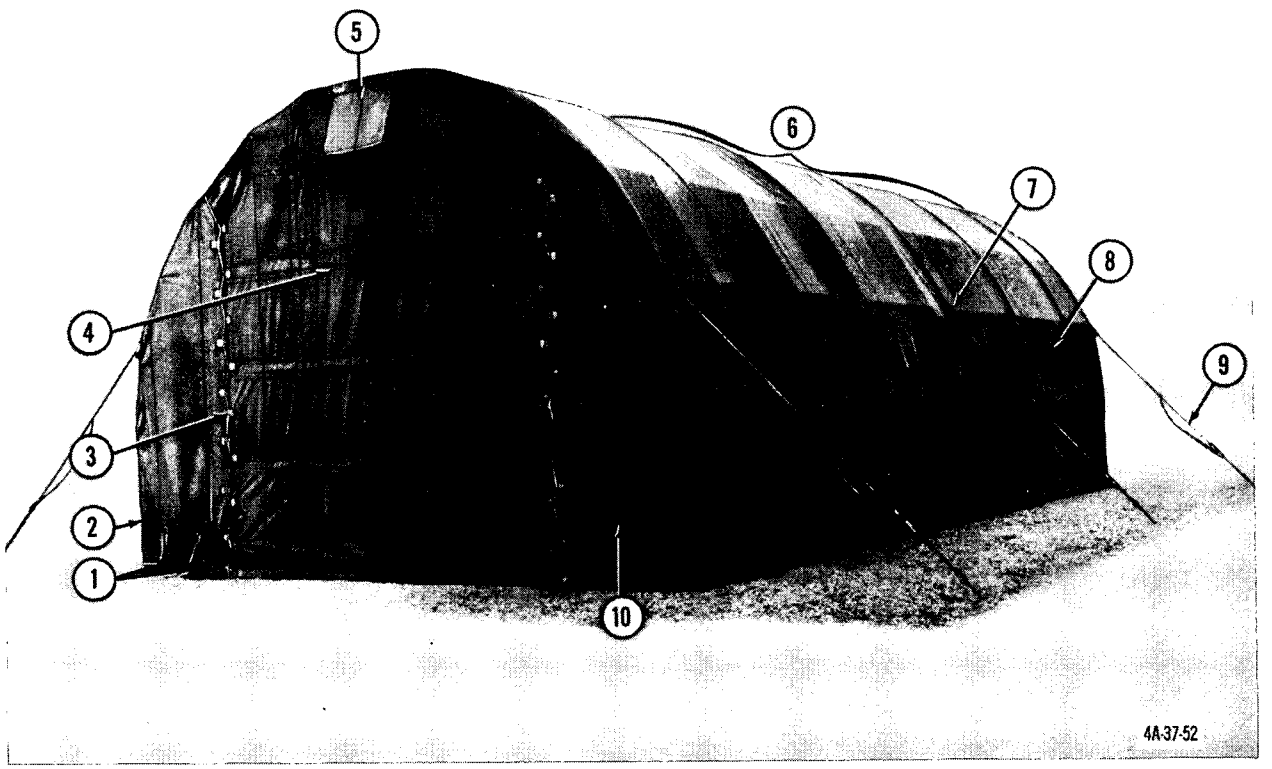
FRAME SUPPORTED TENTS

Section I. GENERAL PURPOSE TENTS

13. Tent, Frame-Type, Maintenance, Medium Light Metal

a. Use. The tent, frame-type, maintenance, medium light metal, FWWMR, OD, complete with frame, tent, and tent liner (fig. 48), is designed to be used as a medium sized maintenance tent for repair of wheeled and tracked vehicles in temperate or cold climates. It is also designed to be used as a maintenance shelter for personnel performing maintenance and assembly operations for the Hawk or Corporal missiles.

b. Description. The tent is rectangular shaped with an arched top consisting of a sectionalized magnesium frame, a sectionalized outer fabric or skin, and a sectionalized tent liner.



1 Heater duct sleeves
2 End section
3 Lacing line
4 Vehicle door
5 Ventilator
6 Intermediate sections
7 Guy line sleeve
8 Window
9 Guy line assembly
10 Personnel door

Figure 48. Tent, frame-type, maintenance, medium light metal.

(1) *Tabulated data.*

Height: 14 feet.

Length: basic tent (two tent frame end sections, two tent outer fabric end sections, two tent liner end sections, three frame intermediate sections, three tent outer fabric intermediate sections, and three tent liner intermediate sections) is 32 feet. Additional 8-foot intermediate sections can be added as required, up to a maximum tent length of 64 feet.

Width: 20 feet.

Weight: basic tent: tent frame, 1042 pounds; tent outer fabric, 540 pounds; tent liner, 475 pounds; intermediate section: tent frame, 116 pounds; tent outer fabric, 100 pounds; tent liner, 95 pounds.

Cube: basic tent outer fabric, 52 cubic feet; basic tent liner, 185 cubic feet intermediate section tent outer fabric, 10 cubic feet intermediate section tent liner, 37 cubic feet.

Floorspace: basic tent, 640 square feet.

(2) *Material.* The outer fabric is made of 12.29-ounce duck, FWWMR, OD, and is issued in combinations of end and intermediate sections. There are two end sections and three intermediate sections issued for the basic tent.

(3) *Doors.* The tent has a vehicle door and a personnel door at each end.

(*a*) *Vehicle doors.* The vehicle doors, in conjunction with portions of the frame, operate on a venetian-blind principle. When closed, the doors are secured by means of J-hooks and lacing lines.

(*b*) *Personnel doors.* The personnel door, at each end of the tent, is a curved slide fastener opening, 89 inches long. When closed, the doors are secured with toggle chapes and wood toggles.

(4) *Windows.* Each tent intermediate section contains a window assembly consisting of a cloth netting screen, a plastic windowpane with slide fastener, and a blackout flap with tie tapes. The window screen is attached to the sidewall of the tent. The windowpane is attached at the top of the sidewall of the tent; it is secured at the bottom and two sides by a slide fastener which can be unfastened to allow the windowpane to be rolled up and tied at the top with tie tapes. When the blackout flap is in use, it is secured by tying tie tapes at the two sides and at the bottom; when not in use, it is rolled up and tied at the top with tie tapes.

(5) *Ventilation.* The tent is ventilated by two ventilators located near the top of each end section. Each ventilator assembly consists of a cloth netting insect screen, a hood with spring assembly, and a ventilator flap with tie tapes and D-ring chapes. The flaps should be closed when the tent is used at night under blackout conditions.

(6) *Heating.* The tent is heated by an external heater. Heater duct sleeves are located in each tent end section to accommodate the heater ducts.

(7) *Liner.* The tent liner is made of 8.5-ounce, natural color, corded sateen cloth that is fiberglass-insulated, and fire- and mildew-resistant treated. The liner consists of end sections and intermediate sections to match the tent outer fabric. Each liner end section contains a personnel door, a vehicle door, ventilator flap, and heater duct sleeves. The end sections are marked A and B. The difference between them is the type of fastener provided for attachment to an intermediate liner section. Each liner intermediate section contains a plastic windowpane which must be alined with the windowpane in each intermediate tent outer section. Liner sections are joined with becket lacing. Each liner section is supplied with nine aluminum arch pipes, an arch pipe rope, and S-hook and chain assemblies, which are used to secure the liner to the tent frame.

(8) *Covers.* The tent is provided with one tent cover for the two tent outer fabric end sections, one tent cover for each tent outer fabric intermediate section, and one tent cover for each tent liner end section. A tent liner cover is provided for each tent liner intermediate section.

c. Pitching. The basic tent can be erected by eight men in approximately 4 hours.

(1) *Assembling arches* (fig. 49).

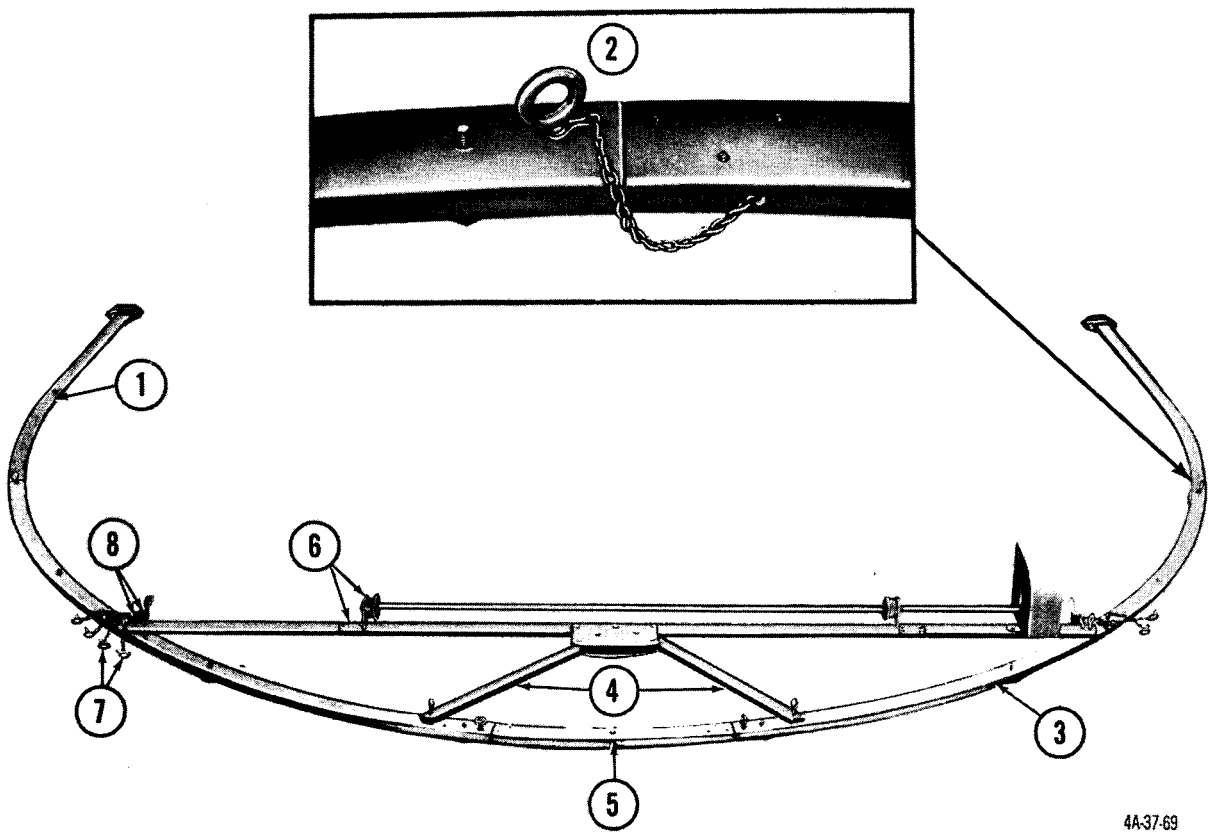
(*a*) Lay out end arch segments on the ground in the proper order, with the heads of the captive hex bolts down. Insert joints of intermediate arch segments into lower arch segments; insert joints of upper arch segment into intermediate arch segments. Fasten segments together with eyebolt and chain assemblies. Place ends of transom chord and ends of transom chord struts over the capscrews protruding from the intermediate arch segments. Fasten with eye nut and chain assemblies.

(*b*) Lay out intermediate arch segments on the ground in the proper order. Join the segments as described in (*a*) above.

(2) *Assembling frame* (fig. 50).

(*a*) Attach short purlins marked with a yellow band to captive hex bolts of an assembled end arch. Hand tighten hex bolts.

(*b*) Place an assembled intermediate arch on short purlins. Thread stud bolts of long purlins through holes



1 Lower arch segment
2 Arch segments fastened together
3 Intermediate arch segment
4 Transom chord struts
5 Upper arch segment
6 Transom chord assembly
7 Eye nut and chain assemblies
8 Capscrews

Figure 49. Assembling arches of tent, frame-type, maintenance, medium light metal.

in intermediate arch, into ends of short purlins marked with yellow bands. Hand-tighten all connections.

(*c*) Raise end arch and intermediate arch to an upright position.

(*d*) Attach another intermediate arch to long purlins protruding from erected section of frame. Thread stud belts of long purlins through holes in intermediate arch and into ends of purlins extending from partial frame. Hand-tighten all connections.

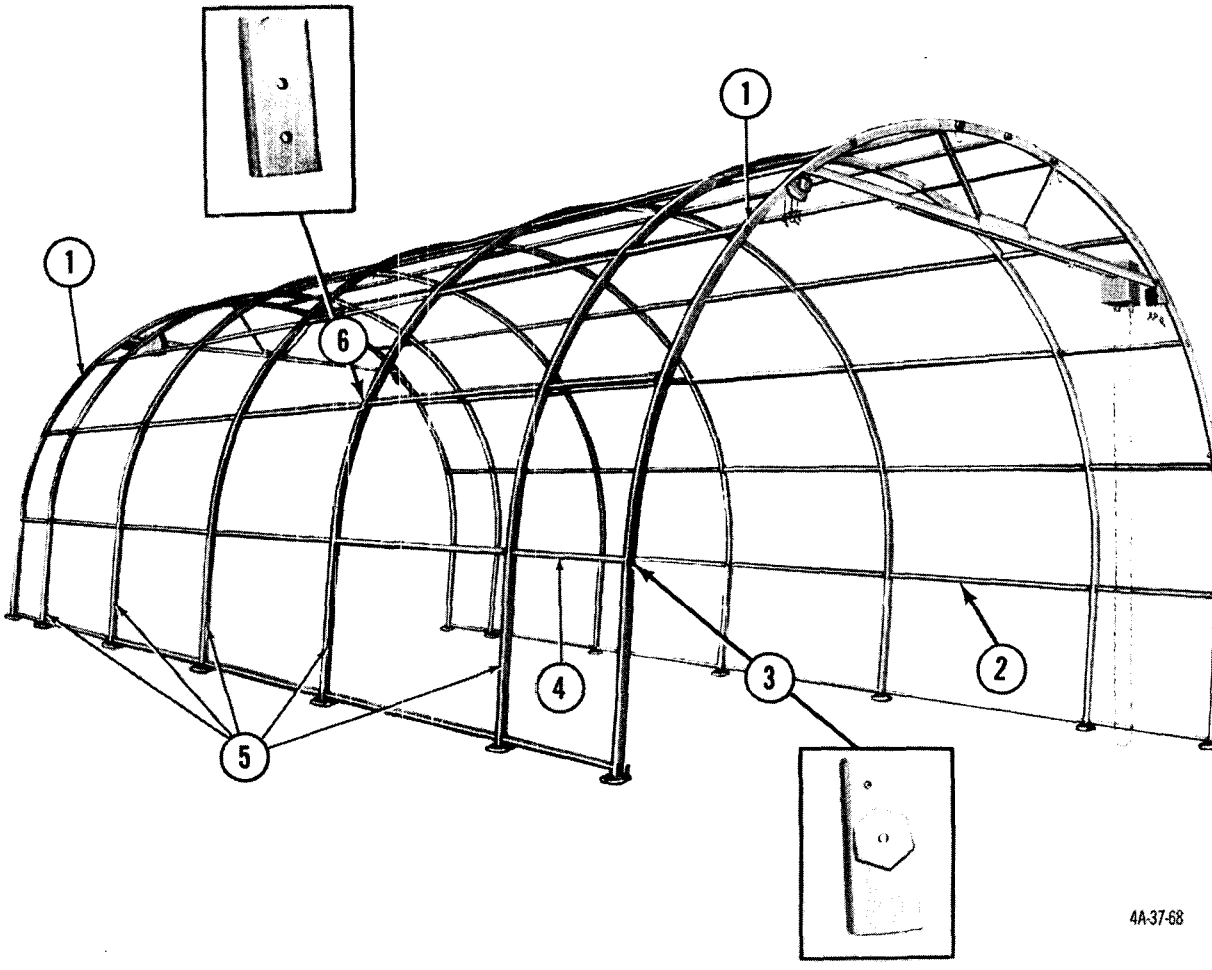
(*e*) Attach additional intermediate arches as described in (*d*) above. Last intermediate arch will be connected to partial frame with short purlins.

(*f*) Attach other end arch to short purlins extending from partial frame. Thread captive hex bolts of end arch into ends of short purlins and hand-tighten all bolts.

(3) *Alining and anchoring arches to the ground* (fig. 51).

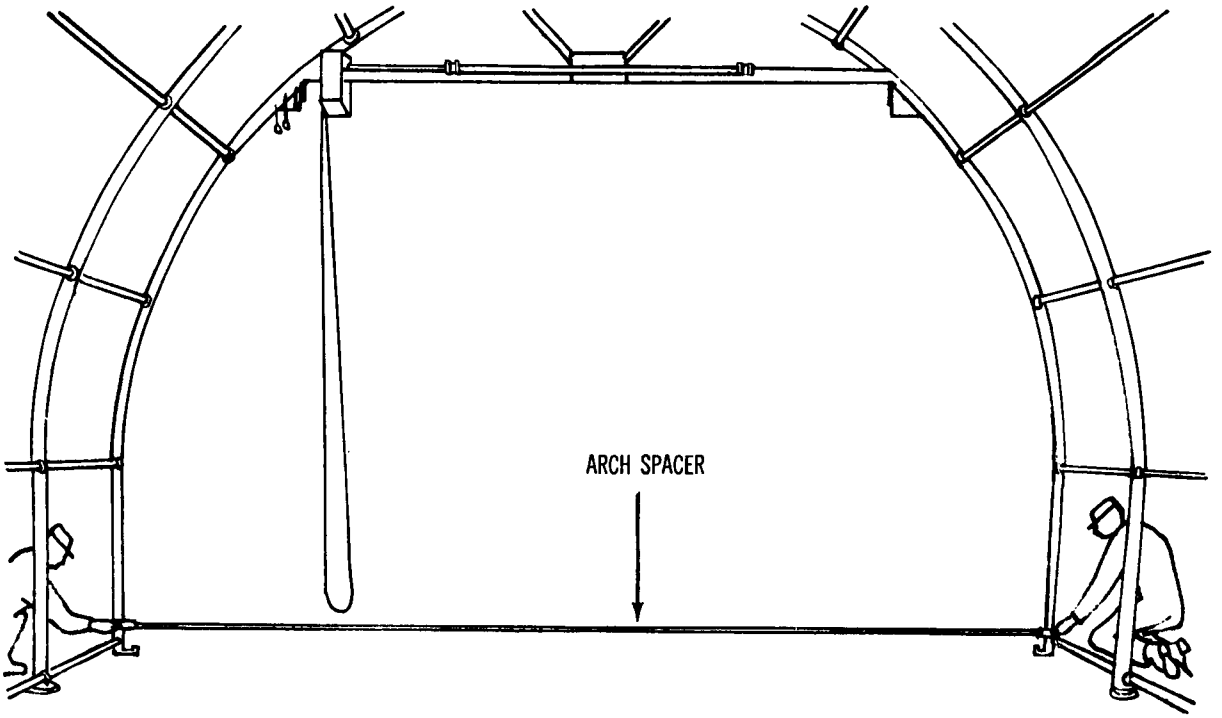
(*a*) Space ends of arches, using the arch spacer assembly. Adjust ends of each arch until arch spacer cable is tight.

(*b*) Aline ends of all arches and anchor arches to the ground with steel tent pins.



1 End arches
2 Long purlin
3 Captive hex bolts
4 Short purlin
5 Intermediate arches
6 Purlin stud hole

Figure 50. Assembling frame of tent, frame-type, maintenance, medium light metal.



4A-37-53

Figure 51. Alining and anchoring arches of tent, frame-type, maintenance, medium light metal.

(4) *Attaching tent sections to frame* (fig. 52).

(*a*) Raise a folded tent end section over end arch. Unfold tent end section so that vehicle door is in center of end arch and rear portion overlaps intermediate arch by approximately 6 inches.

(*b*) Secure arch hooks on inside of tent end section to the end arch (1).

(*c*) Pull sod cloth, at each side of end section, under lowest purlin of frame; wrap flap over purlin; and engage round rings of hem rope to J-hooks of tent end section (2). Tighten hem rope and secure ends of rope to end and intermediate arches (3). Pass ends of transverse line under lowest purlins, through transverse line loop eyes, and tighten and secure ends with a knot (3).

(*d*) Wrap transom chord securing straps around transom chord, and secure straps to D-rings (4).

(*e*) Place folded intermediate tent section on the ground next to portion of tent frame that is to be covered. Attach ropes to end of tent section, throw ropes over tent frame, and pull tent section over tent frame so that the tent fabric overlaps both intermediate arches by approximately 6 inches (5). Make sure windows of all intermediate tent sections are on same side of tent.

(*f*) Secure ends of tent intermediate section to tent frame as described in (*c*) above.

(*g*) Secure transverse line on exposed edge of tent intermediate section as described in (*c*) above.

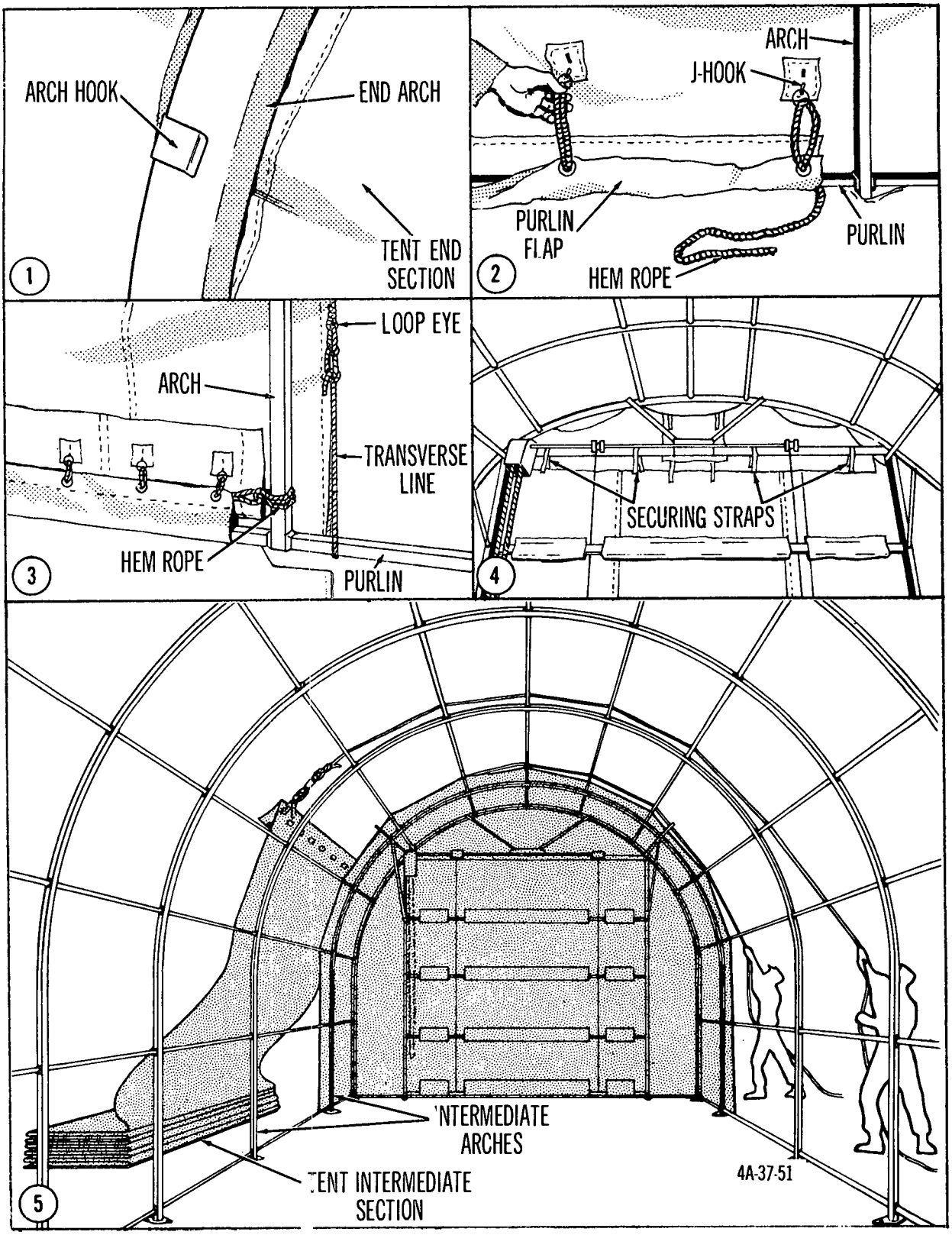


Figure 52. Attaching tent sections to frame of tent, frame-type, maintenance, medium light metal.

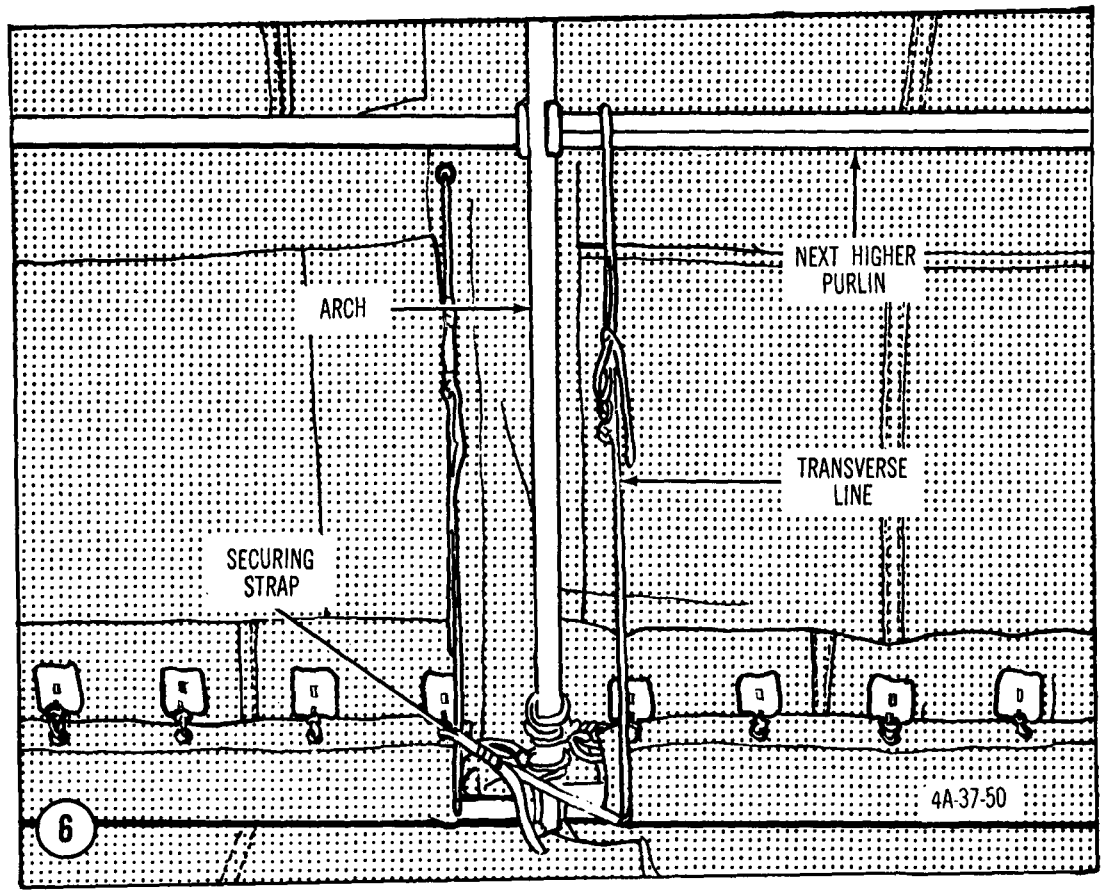


Figure 52—Continued.

(*h*) Pass transverse line and securing straps on overlapping edge of intermediate section through slits in bottom of tent section overlapped. Pass transverse line over next higher purlin, pull down to tighten, and secure with a knot. Pass securing strap across arch, and fasten and secure strap D-ring to nearest J-hook (6).

(*i*) Attach other tent end section as described in (*a*) through (*c*) above.

(*j*) Secure transverse lines and securing straps as described in (*h*) above.

(*k*) Secure transom chord securing straps as described in (*d*) above.

(5) *Installing vehicle doors* (fig. 53).

(*a*) Slide end wall stiffener of tent end section into receiving channel of doorpost (1), and raise doorpost assembly to an upright position.

(*b*) Secure doorpost assembly to movable socket of end arch with eyebolt and eyepin and chain assemblies (2).

(*c*) Insert door control arm into doorpost gusset.

(*d*) Attach diagonal door control arm to control arm and to top post bracket on the doorpost with the toggle pin and chain assemblies (3).

(*e*) Install opposite doorpost assembly in the same manner.

(*f*) Slide three door spars into bottom three door spar pockets of each vehicle door. Insert winch assembly hoisting cables of each vehicle door through a fourth door spar, and alternately through vehicle door D-rings and installed door spars. Lock cable toggles under bottom door spar (4).

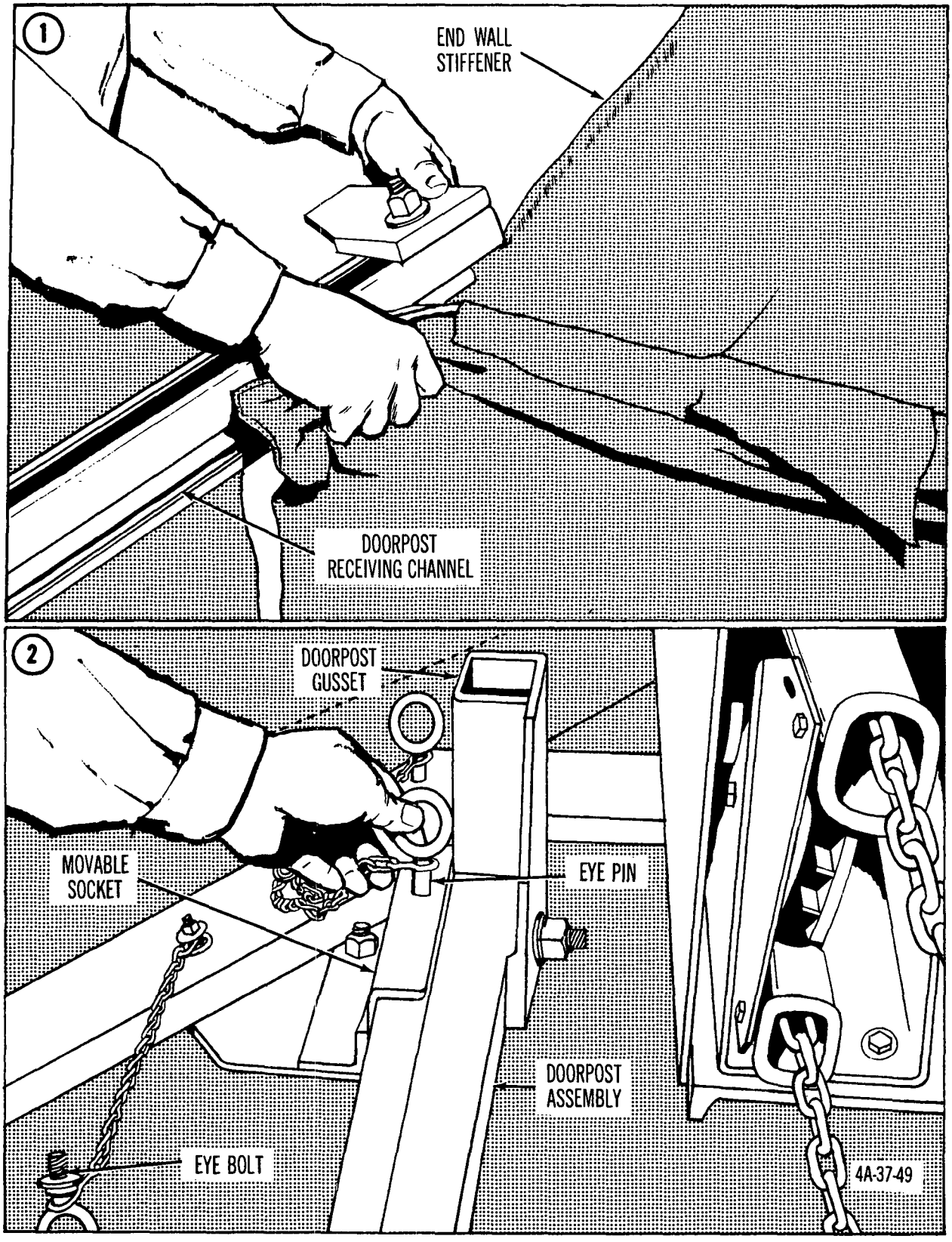
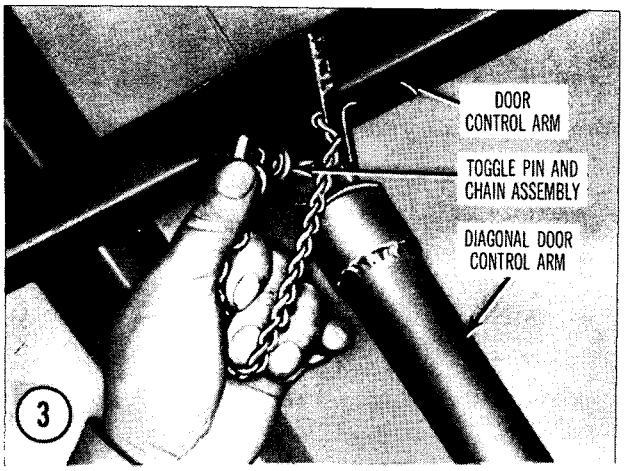
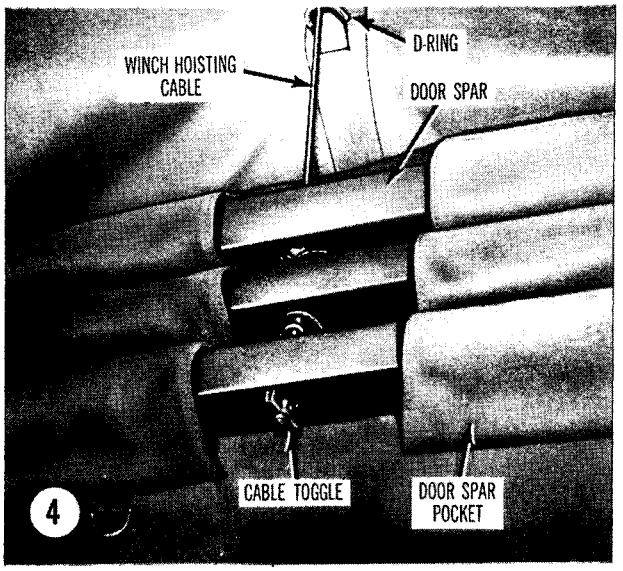


Figure 53. Installing vehicle doors of tent, frame-type, maintenance, medium light metal.





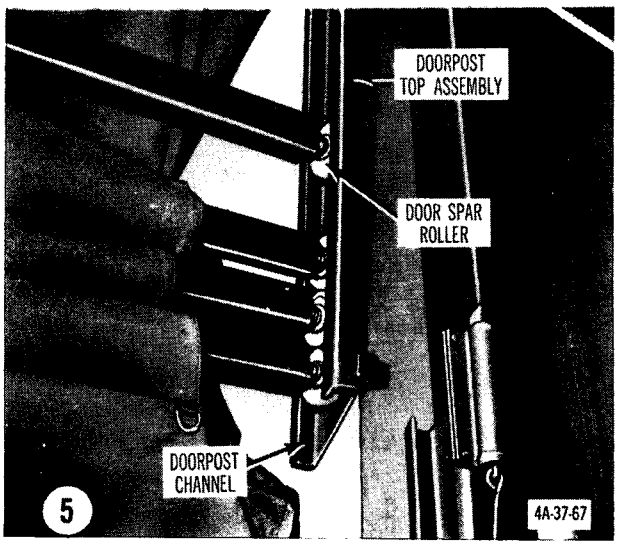


Figure 53—Continued.

(*g*) Open doorpost top assemblies, pull hoist chain to raise vehicle doors, and insert door spar rollers in channels of doorpost (5). Close doorpost top assemblies, lower vehicle doors, lift top door spars to spar pockets, and button pocket flaps over door spars.

(*h*) With doors closed, adjust the hoist cables to eliminate all slack on winch drums.

(6) *Installing end arch purlins and securing end walls* (fig. 54).

(*a*) Attach one end of end arch purlin to captive hex bolt near bottom of each doorpost assembly. Hand-tighten the connection.

(*b*) Thread adjustment shaft and clevis assembly into other end of end arch purlin, fit clevis to bracket of end arch anchor assembly, and secure clevis to bracket with toggle pin and chain assembly.

(*c*) Anchor doorpost to the ground with steel pins.

(*d*) Secure end walls to tent frame as described in (4)(*c*) above.

(7) *Securing tent to ground* (fig. 55).

(*a*) Install three ground anchors on each side of the tent (para. 30*b*); one in line with the guy-line sleeve at each end arch, and one at the center intermediate arch, 6 feet from the bottom of the tent.

(*b*) Slip loop and toggle bar of each guy assembly through a tent guy-line sleeve, pass loop around arch and over purlin inside of tent, and slip toggle bar through loop to secure guy line to tent frame (1).

(*c*) Attach guy assembly S-hook to ground anchor loop, adjust guy assembly for proper tension, and close guy assembly toggle (2).

(8) *Attaching tent liner to inside of tent.* (fig. 56).

(*a*) Determine the end of tent to which each tent liner end section is to be attached, so that the windows of

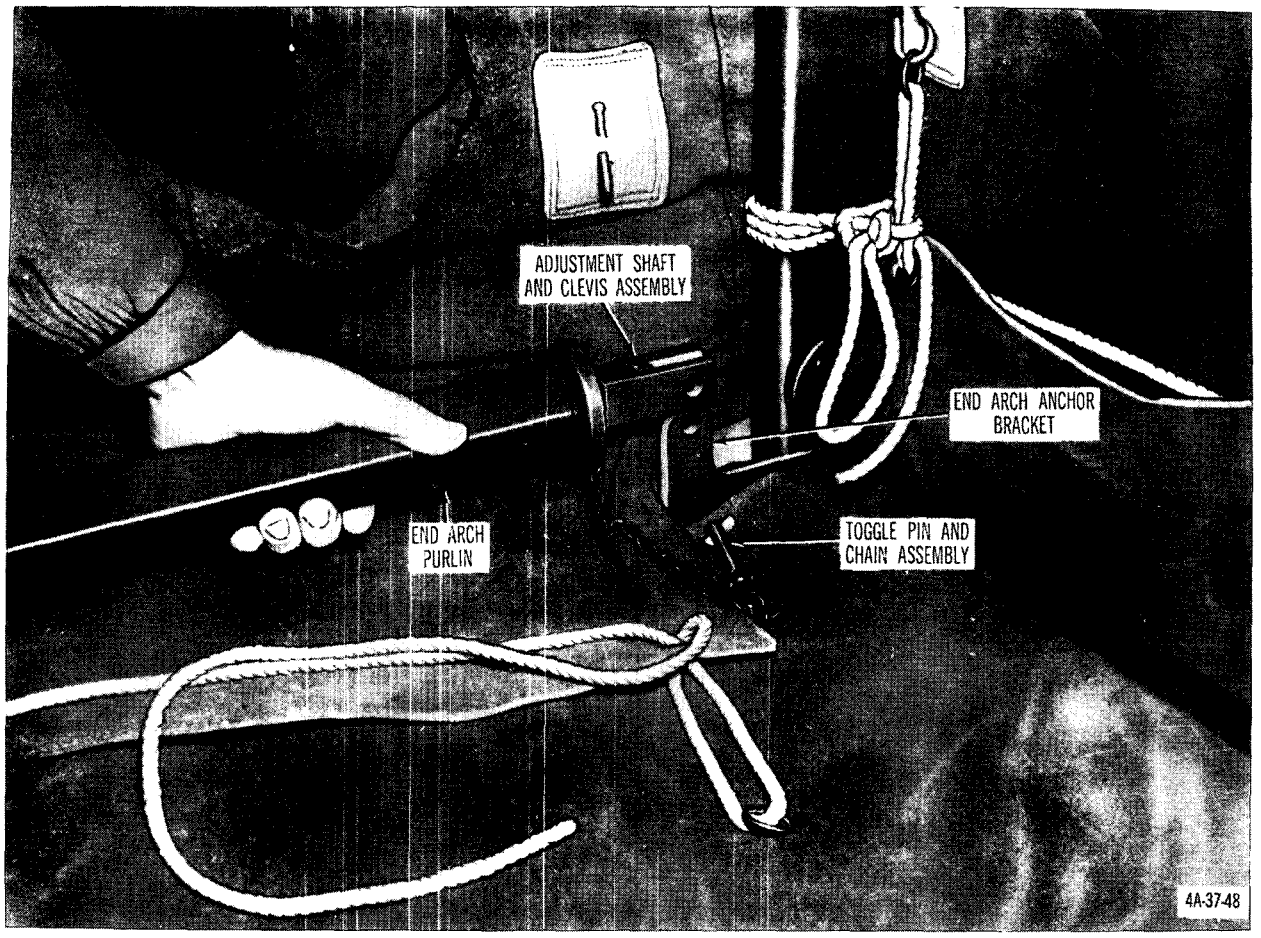


Figure 54. Installing end arch purlin of tent, frame-type, maintenance, medium light metal.

intermediate liner sections correspond with the windows of the erected tent.

(*b*) Release doorpost top assemblies, raise vehicle doors, and lock hoist chain in chain retainer. Pull down on door control arm ropes, and lock door control arms in door control arm locks.

(*c*) Pass arch pipe rope of liner end section over top purlin of frame end section, pull down on rope, and raise liner end section to top of tent (1).

(*d*) Secure center arch pipe of liner end section to top purlin of frame end section with S-hook and chain assemblies (2). Secure remaining arch pipes to frame purlins on each side of tent in a similar manner.

(*e*) Secure tie tapes of liner end walls to D-rings of tent end walls (3).

(*f*) Close vehicle door, and secure liner vehicle door to tent vehicle door with tie tapes and D-rings (4).

(*g*) Raise and secure intermediate liner sections as described in (*c*) and (*d*) above.

(*h*) Fasten liner sections together with beckets of one section laced through grommets of adjacent section, and chain-lace the beckets (fig. 57). Begin lacing at bottom of one side of liner and continue until bottom of other side is reached. Secure last lacing with a knot.

(9) *Installing wiring harness assembly* (fig. 58).

(*a*) Mount circuit breaker to bracket on door control arm lock.

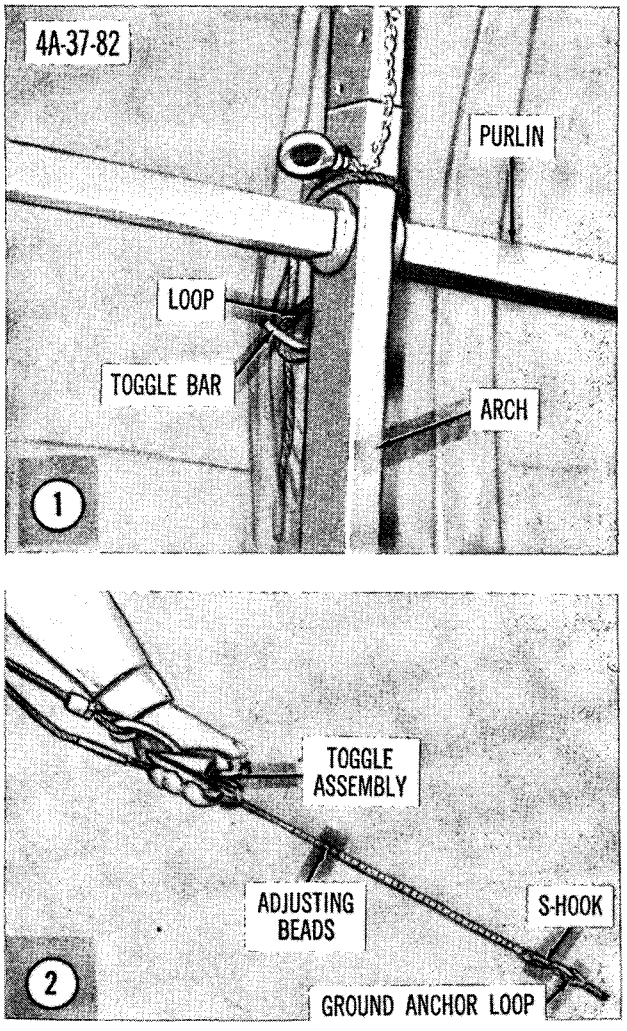


Figure 55. Securing tent, frame-type, maintenance, medium light metal to the ground.

(*b*) Secure long cord assemblies to tent liner arch pipes on each side of tent with hanger hooks, or to tent purlins if liner is not installed.

(*c*) Connect lighting and outlet assemblies to long cord assemblies, and secure assemblies to liner arch pipes or to tent purlins.

(*d*) Attach 6-foot cord from the circuit breaker to an appropriate power source.

d. Striking. The basic tent can be struck by four men in approximately 3 hours.

(1) *Removing wiring harness assembly*

(*a*) Disconnect cord connected to power source.

(*b*) Disconnect lighting and outlet assemblies from long cord assemblies and from liner arch pipes or tent purlins.

(*c*) Unhook long cord assemblies from arch pipes or tent purlins, and remove circuit breaker from mounting bracket.

(2) *Removing tent liner.*

(*a*) Untie liner end section tie tapes from D-rings of tent vehicle door and end walls.

(*b*) Separate liner sections by unlacing becket lacing.

(*c*) Remove arch pipe S-hooks and chain assemblies of each liner section from tent purlins, and remove liner sections.

(3) *Removing guy-assemblies.* Remove all guy assemblies from ground anchors and from tent frame. Ground anchors are not retrieved.

(4) *Disassembling vehicle doors.*

(*a*) Unlock toggles of hoisting cables from bottom door spars and remove all door spars.

(*b*) Untie and release tent end wall hem ropes from end wall J-hooks.

(*c*) Remove each end arch purlin from end arches and doorpost assemblies.

(*d*) Remove diagonal door control arms from doorposts and door control arms.

(*e*) Remove door control arms from doorposts.

(*f*) Remove steel tent pins from doorpost anchors.

(*g*) Disassemble doorposts from movable sockets on end arches.

(*h*) Remove doorposts from tent end wall stiffeners.

(5) *Removing tent end sections.*

(*a*) Untie and remove transverse lines from eye loops and purlins, and remove securing straps from adjacent tent sections.

(*b*) Untie and remove hem ropes from J-hooks.

(*c*) Unhook arch hooks from end arch assembly.

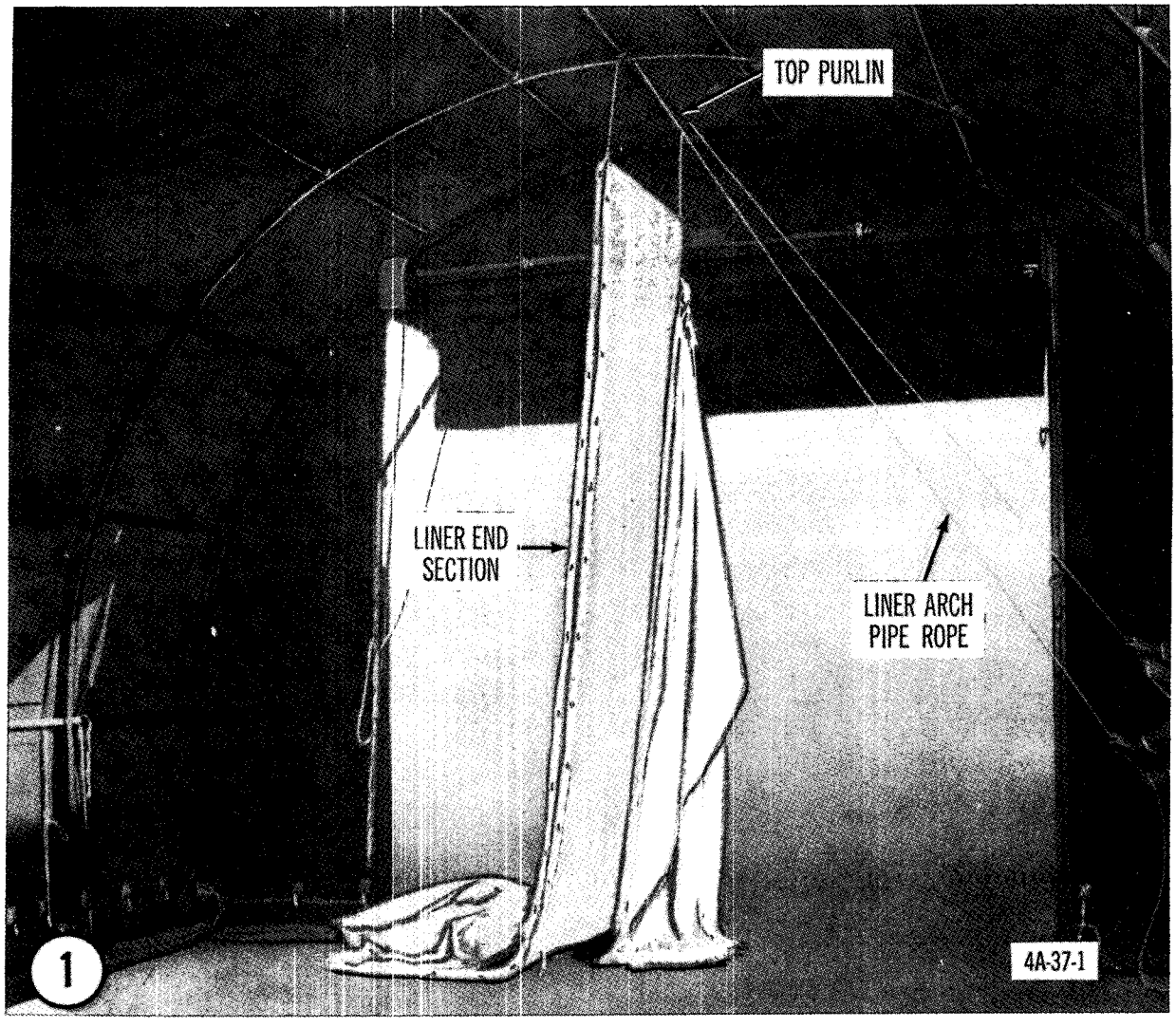


Figure 56. Attaching tent liner to inside of tent, frame-type, maintenance, medium light metal.

(*d*) Remove tent end section from tent frame.

(6) *Removing outer fabric intermediate sections.*

(*a*) Close and secure windowpanes and blackout flaps.

(*b*) Untie and remove transverse lines from eye loops and purlins, and remove securing straps from adjacent tent sections.

(*c*) Untie and remove hem ropes from J-hooks.

(*d*) Pull tent section from one side of tent so that section folds in 5-foot pleats accordion fashion. Do not fold window assembly.

(7) *Disassembling tent frame.*

(*a*) Remove steel tent pins from anchor assemblies of all arches.

(*b*) Unscrew hex bolts of either end arch from purlins, and lower end arch to the ground.

(*c*) Unscrew purlins from intermediate arches, and lower arches to the ground.

(*d*) Lower last end arch to the ground, and remove purlins.

(*e*) Remove door winch and transom chord assemblies from end arches.

(*f*) Remove eyebolt at each segment of each arch, and pull arch segments apart.

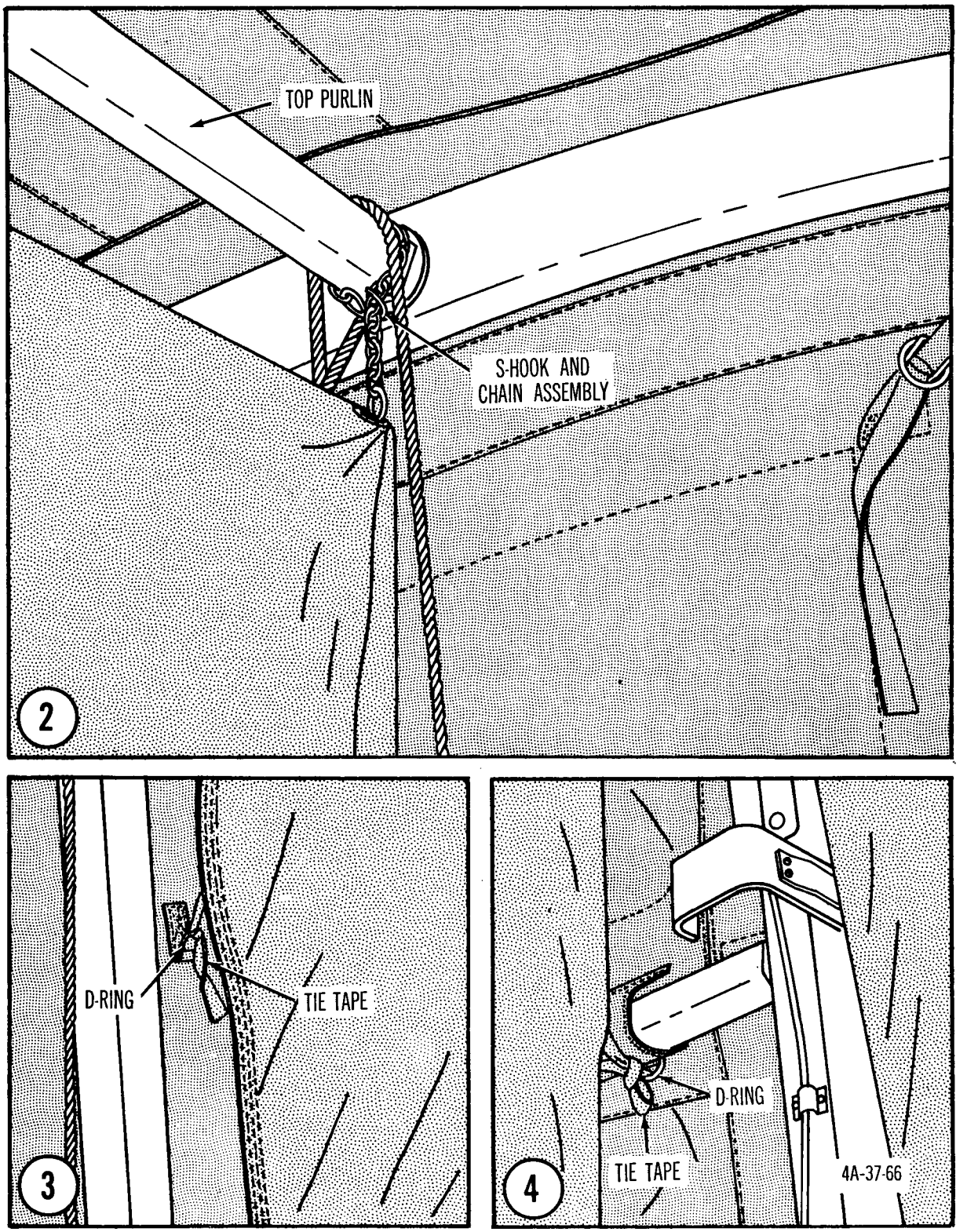


Figure 56—Continued.

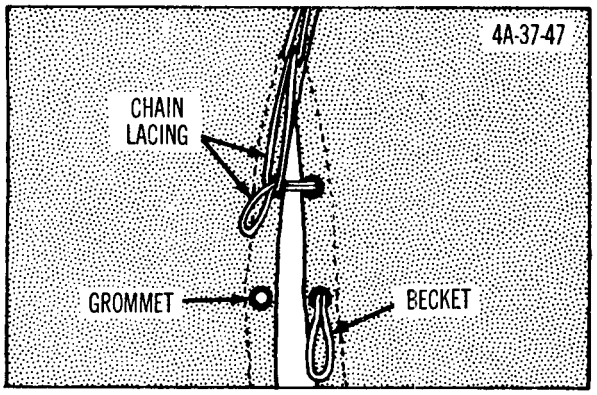


Figure 57. Becket lacing and grommets.

e. Folding.

(1) *Folding tent liner end sections* (fig. 59).

(*a*) Lay out liner end section (1), arch pipes up, and fold end walls and vehicle door over arch pipes. Coil arch pipe rope and place it on top of liner section (2).

(*b*) Fold sides of section toward center, making 5-foot folds; and then fold one side of folded section over the other (3), and place folded liner section on its cover (4). Close and secure cover.

(2) *Folding tent liner intermediate sections* (fig. 60).

(*a*) Lay out intermediate liner section, arch pipes up, and fold liner section in half. Coil center arch pipe rope and place it on top of liner section (1).

(*b*) Roll liner section from folded edge toward open ends, and place rolled section on its cover (2).

(*c*) Fold ends of cover over rolled liner section and tie, through the grommets, the two cover tie lines provided (3).

(*d*) Wrap sides of cover over rolled section and engage S-hooks in grom-

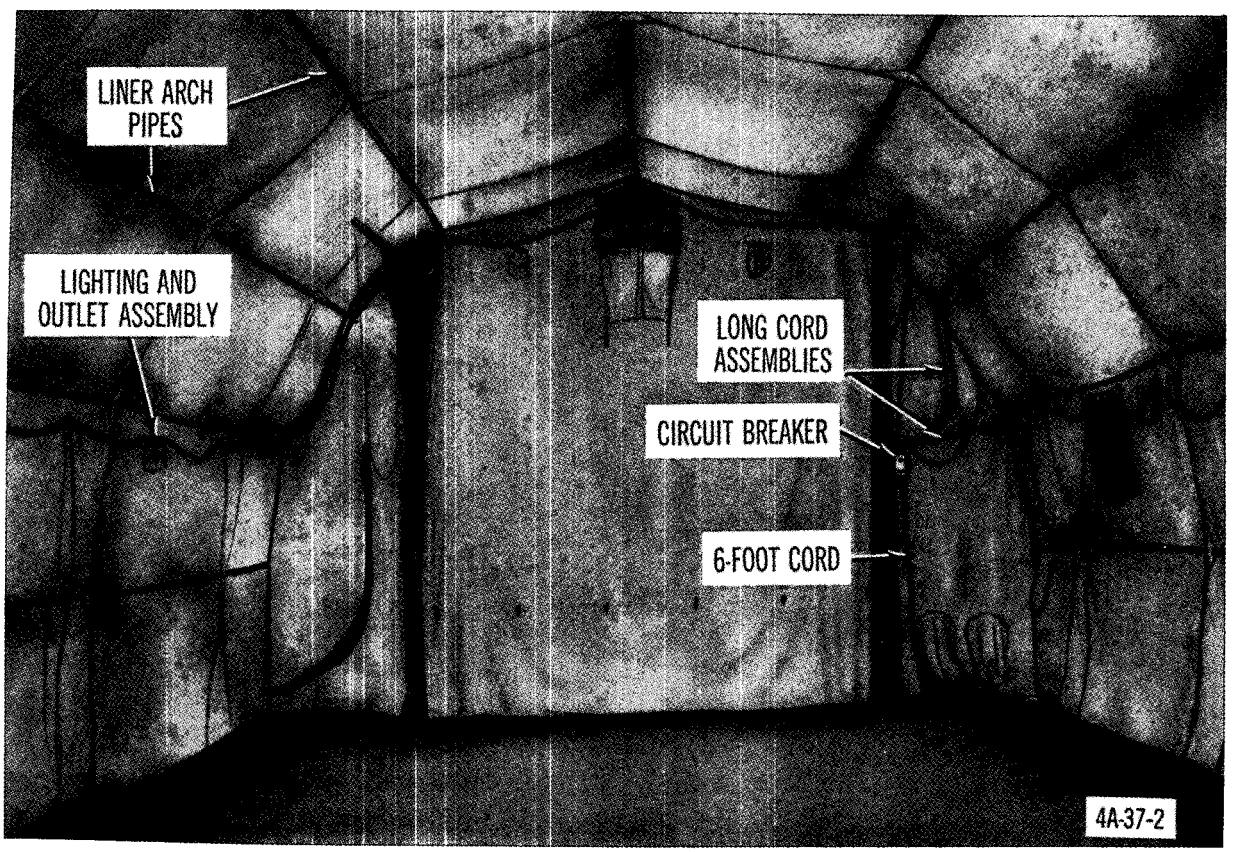


Figure 58. Installing wiring harness assembly in tent, frame-type, maintenance, medium light metal.

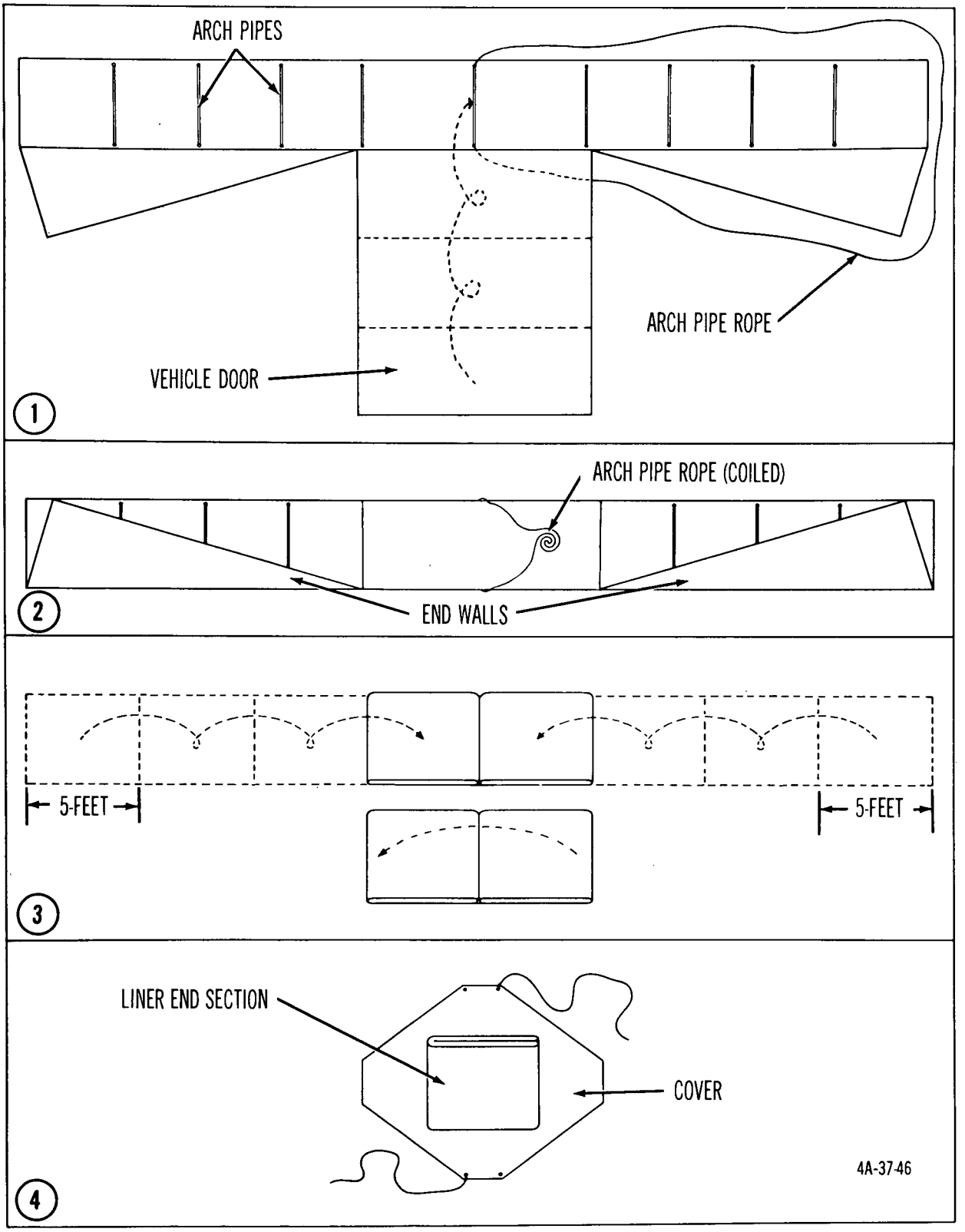


Figure 59. Folding and packing liner end section of tent, frame-type, maintenance, medium light metal.

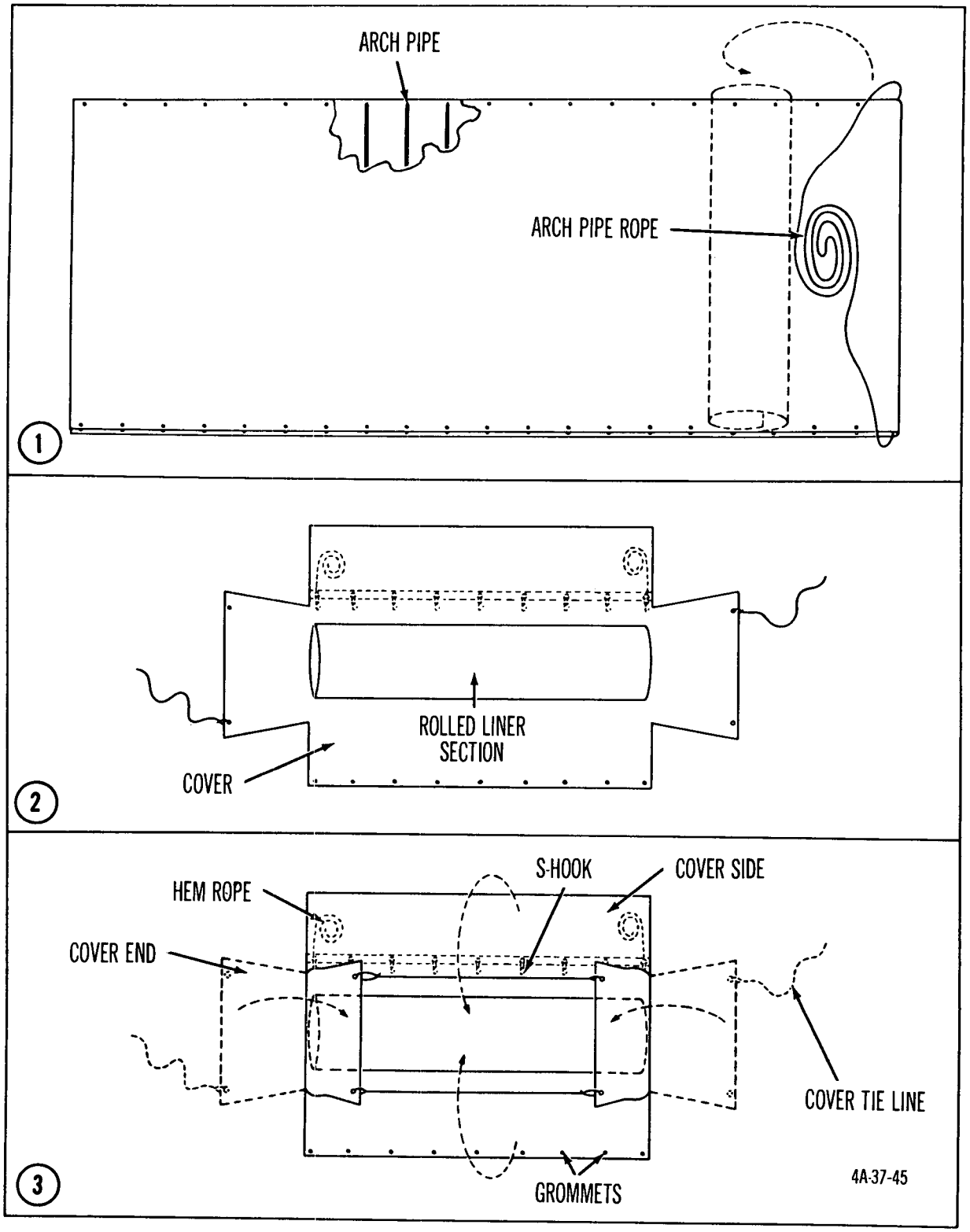


Figure 60. Rolling and packing liner intermediate section of tent, frame-type, maintenance, medium light metal.

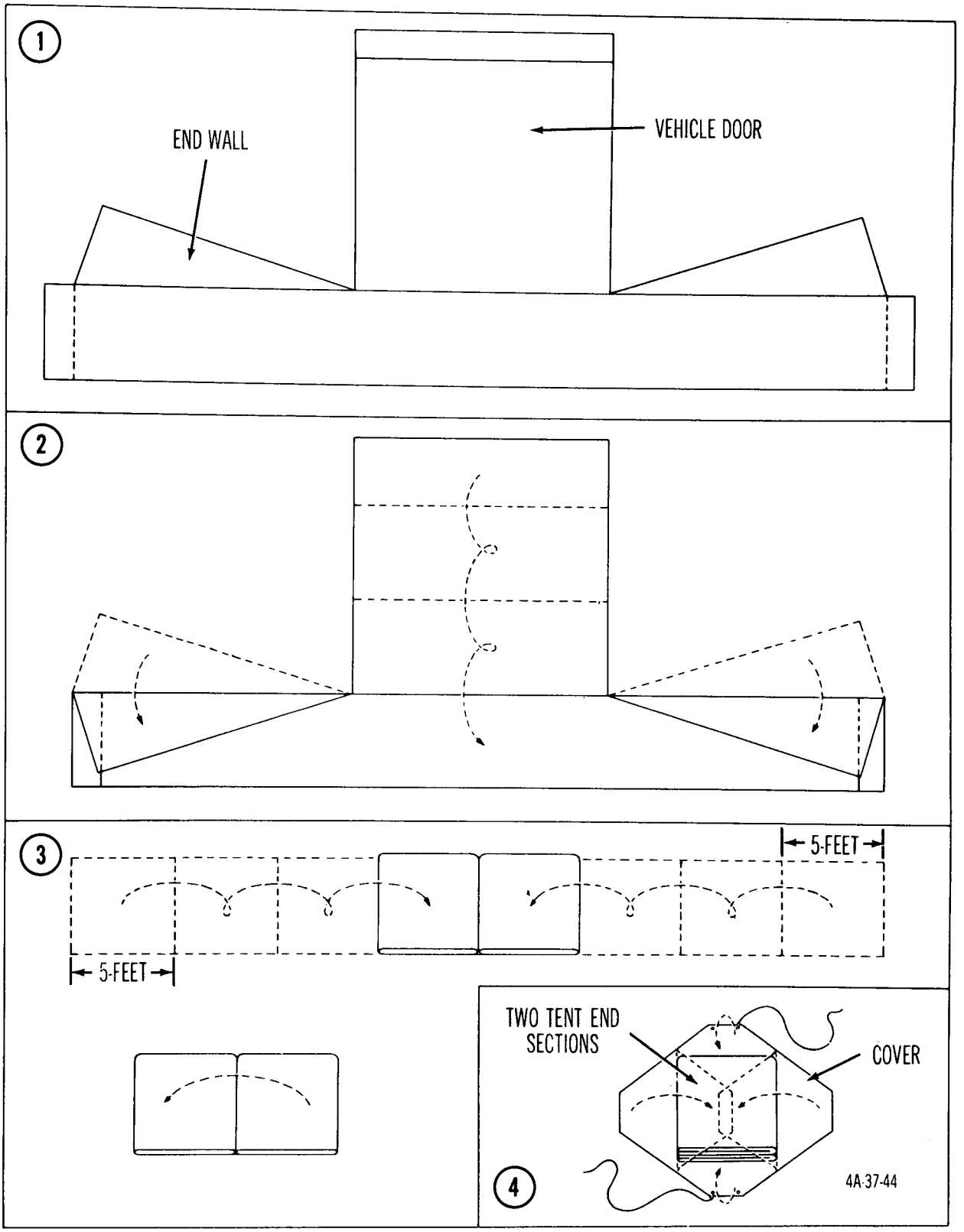


Figure 61. Folding and packing tent end sections of tent, frame-type, maintenance, medium light metal.

mets. Tighten roll with hem rope and secure rope with a knot (3).

(3) *Folding outer fabric end sections* (fig. 61).

(*a*) Lay out each tent end section, inside up (1), and fold vehicle door and end wall over end section (2).

(*b*) Fold sides of section toward center, making 5-foot folds (3). Fold one side of folded section over the other (3). Place end sections, one on top of the other, on cover (4). Close and secure cover (4).

(4) *Folding outer fabric intermediate sections* (fig. 62).

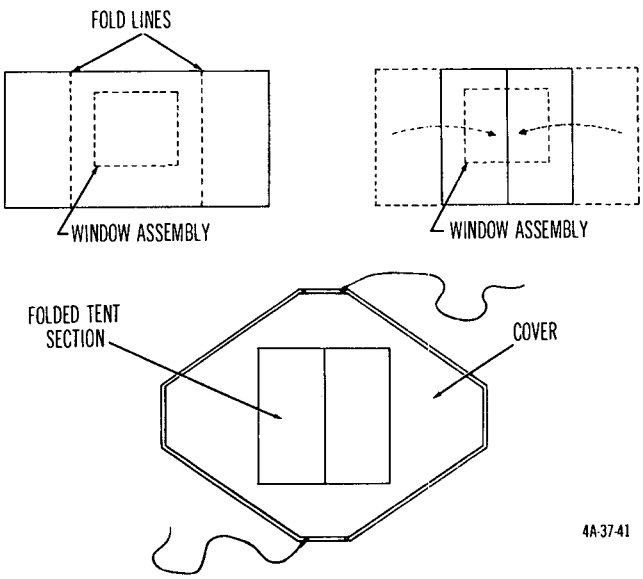


Figure 62. Folding and packing tent intermediate section of tent, frame-type, maintenance, medium light metal.

(*a*) Refer to *d*(6)(*d*) above, fold ends of folded section toward each other, and place folded section on its cover.

(*b*) Close and secure cover.

14. Tent, Frame-Type, Insulated, Sectional

a. Use. The tent, frame-type, insulated, sectional, fire- and mildew-resistant, OD, complete with frame and floor (fig. 63), is designed to be used as a general purpose tent, or as a personnel shelter in cold climates.

b. Description. The tent is rectangular shaped with an arched top. A door is provided at each end of the tent. A vestibule is also provided and may be attached to either end of the tent.

(1) *Tabulated data.*

Height: tent, 8 feet; vestibule, 6 feet 6 inches.

Length: tent, 16 feet; vestibule, 3 feet 10 inches.

Width: tent, 16 feet; vestibule 3 feet 1 inch.

Weight: tent, with one vestibule, 2,410 pounds.

Cube: 259.5 cubic feet.

Floorspace: tent, 256 square feet; vestibule, 11 square feet.

(2) *Material.* The outside fabric of the tent is made of 14.5-ounce cotton duck, OD in color. The inside fabric is made of 14.5-ounce cotton duck, light green in color. Fiberglass insulation, 1 inch thick, is sandwiched between the two layers of fabric. The fabric is issued

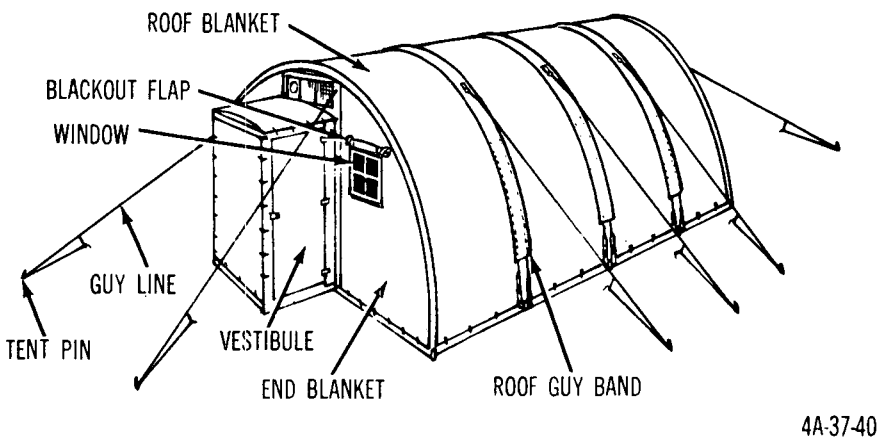


Figure 63. Tent, frame-type, insulated, sectional.

in blanket assemblies, two blanket end assemblies, and four blanket roof assemblies.

(3) *Doors.* The tent has two doors, one in each blanket end assembly of the tent. Each door is 6.5 feet high and 2 feet 9 inches wide. The doors are made of plywood with fiberglass insulation. Each door has a door latch.

(4) *Transoms.* Above each tent door is a transom consisting of a wire reinforced windowpane, a stovepipe opening, a locking strap, and blackout flap with tie tapes. The window is hinged at the bottom and may be opened to one of four positions and held in place by the locking strap. When the window is closed, the locking strap is dropped over the window and locked in place. The stovepipe opening is a sheet metal plate with a round disk that may be removed so that a stovepipe may protrude through the plate. The blackout flap is located on the inside of the transom window and, when in use, is secured by tying tie tapes at the bottom; when not in use, it is rolled up and tied at the top with tie tapes.

(5) *Windows.* Each tent end blanket contains two window assemblies each consisting of a wood frame, wire reinforced plastic windowpanes, a brass window screen, and a blackout flap with tie tapes. The bottom window sash may be raised and locked in position with a hook and eye. When the blackout flap is in use, it is secured at the bottom with tie tapes; when not in use, it is rolled up and tide at the top with tie tapes.

(6) *Heating.* The tent can be heated by one or two M–1941 tent stoves.

(7) *Ventilation.*

(*a*) Ventilation may be obtained by rolling up the window blackout flaps and opening the lower sash of the windows.

(*b*) Additional ventilation can be obtained by opening the transoms.

(*c*) When stoves are not being used, the stovepipe openings can be used as ventilators.

(*d*) The door can be opened for additional ventilation.

c. Pitching. Eight men can pitch the tent in approximately 49 minutes.

(1) *Assembling tent floor and tent frame.*

(*a*) Open packing cases with key provided on each case.

(*b*) Remove floor runners and place them on the pitching site (fig. 64).

(*c*) Place floor units (packing case tops and bottoms) on floor runners so that blanket fastening holes will be on the outside of the assembled floor, and hook floor units together (fig. 64).

(*d*) Unfold each arch and lock the hinged joints with the attached pins.

(*e*) Place assembled arches over each end of the floor and at each junction of floor sections. Slide arch clips over wingnut bolts and tighten wingnuts (fig. 65).

(*f*) Install roof purlins between arches by inserting purlin tongues into purlin slots on the arches (fig. 66).

(*g*) Drive tent pins through chain footstops located at the ends of each arch (fig. 65).

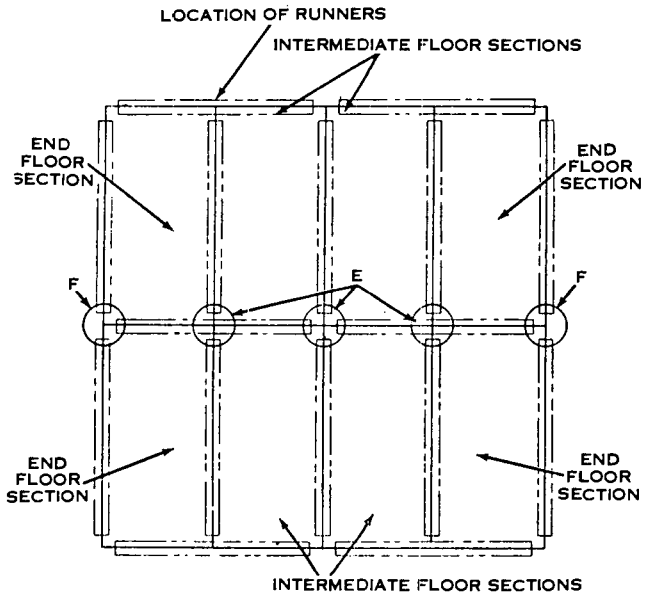
(2) *Attaching end blankets to tent frame.*

(*a*) Place fixed connectors at bottom of door frame in slots at end of tent floor.

(*b*) Slide adjustable door connectors at top of door frame over bolts at top of end arch, and tighten connector wingnuts (fig. 67).

(*c*) Pull blanket hem over end arch, and attach blanket fabric to end arch with buckle chapes (fig. 67).

(*d*) Pull blanket hem rope tight, and tie hem rope ends to collars located at ends of arch and facing sides of tent floor (fig. 68).



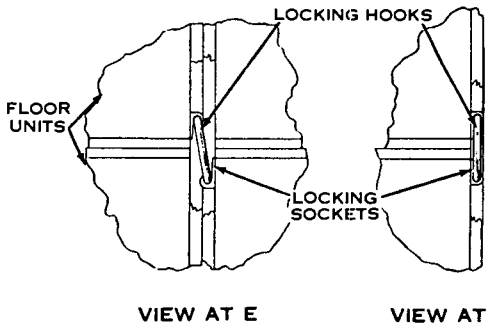


Figure 64. Layout and connections of floor for tent, frame-type, insulated, sectional.

(*e*) Fasten chape hooks at bottom edges of end blanket to blanket fastening holes in tent floor. Tighten hook chapes.

(*f*) Attach end purlins between end arch and door frame. Tie end blanket to purlins (fig. 67).

(*g*) Insert tent pins through chain footstops at bottom of door frames. Drive tent pins into the ground.

(3) *Attaching roof blankets and roof guy bands* (fig. 69).

(*a*) Place a roof blanket over tent frame between an end arch and an intermediate arch, and tie inside of blanket to top purlin of frame (1).

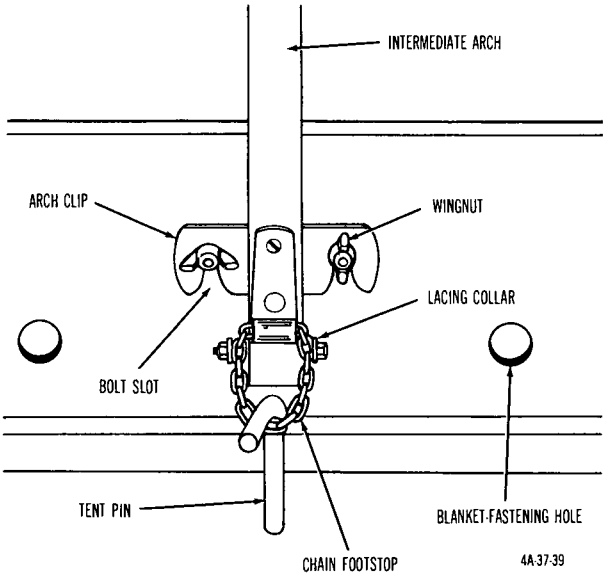


Figure 65. Attaching arches to floor of tent, frame-type, insulated, sectional.

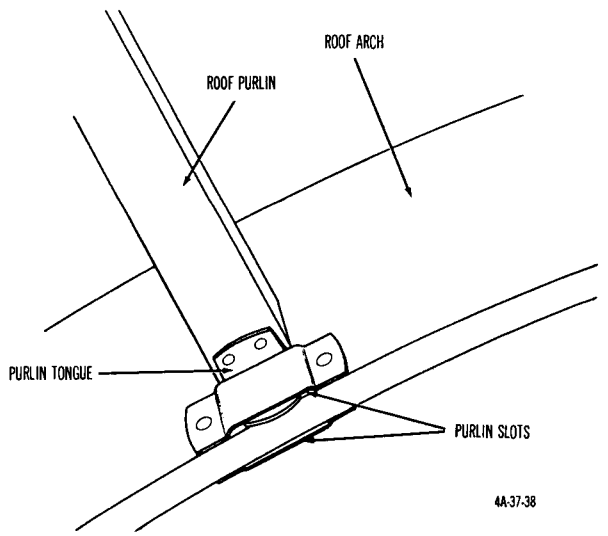


Figure 66. Installing roof purlins in tent frame-type, insulated, sectional.

(*b*) Fasten chape hooks at bottom edges of intermediate blanket to blanket fastening holes in tent floor (3).

(*c*) Place blanket hems over end and intermediate arches, pull hem ropes tight, and secure ends of hem ropes to collars located at ends of arches (2).

(*d*) Tighten hook chapes at bottom edges of intermediate blanket.

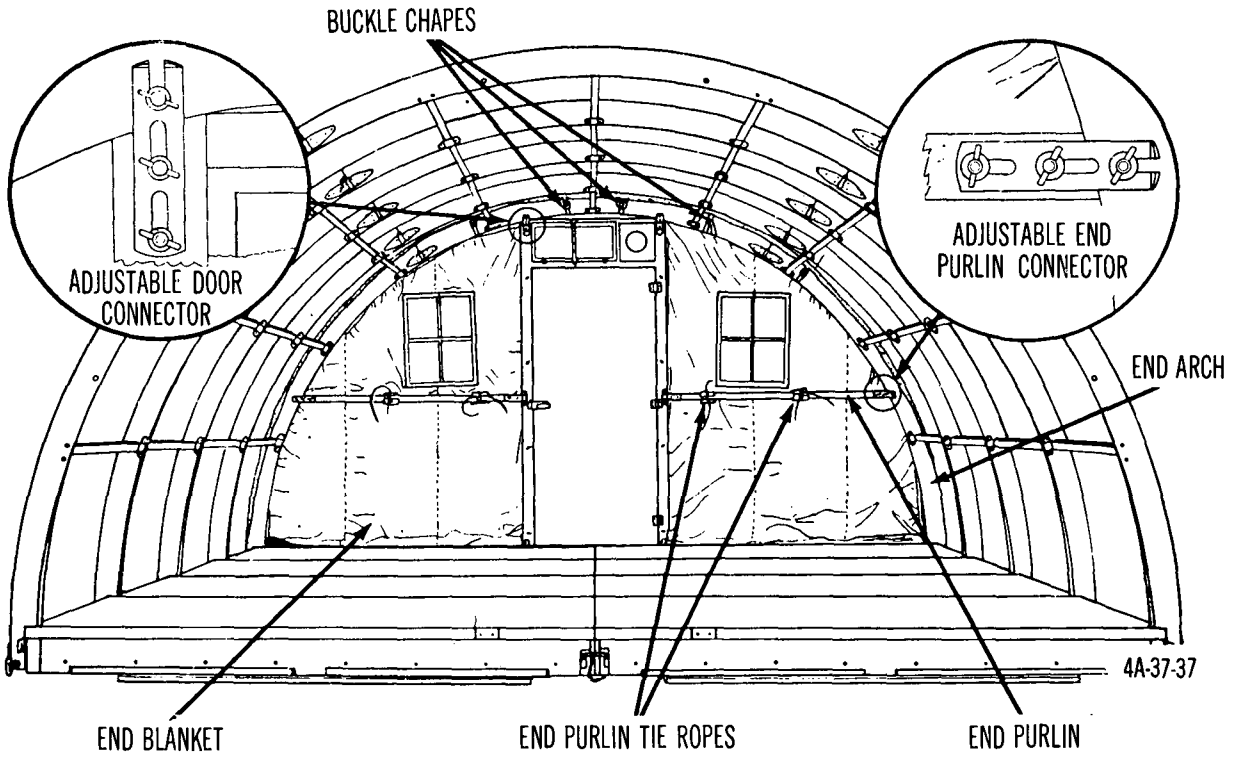


Figure 67. Attaching end blanket to frame of tent, frame-type, insulated, sectional (inside view).

(*e*) Attach remaining intermediate blankets as described in (*a*) through (*d*) above.

(*f*) Place roof guy bands over intermediate arches, insert chape hooks in nearest blanket fastening holes, and tighten hook chapes (3).

(4) *Securing tent to ground* (fig. 70).

(*a*) Drive 10 tent pins into ground as indicated.

(*b*) Fasten roof guy band guy lines to tent pins, and tighten guy lines by adjusting tent slips.

(*c*) Attach end guy-line snap fasteners to eyebolts on door frame. Attach other end of guy lines to tent pins, and tighten guy lines by adjusting tent slips.

(5) *Attaching electrical outlet and switch assembly* (fig. 71).

(*a*) Attach switch bracket to bolt in doorframe above latch keeper, and tighten wingnut.

(*b*) Attach cord clip to upper bolt at left of transom.

(*c*) Extend cord from transom to roof, and attach cord and light sockets at desired locations with cord and outlet hangers.

(*d*) Attach switch assembly to suitable power source.

(6) *Attaching vestibule* (fig. 72).

(*a*) Place vestibule floor section on the ground and fit it beneath the doorsill of the tent so that blanket fastening holes will face away from the tent (1).

(*b*) Stand vestibule side panel and door panel on vestibule floor so that side panel is to the left and door panel is to the right when facing the end of the tent. Loosen retainer strips on sides of tent doorframe, slip panel angle iron strips behind retainer strips and tighten retainer strip wingnuts.

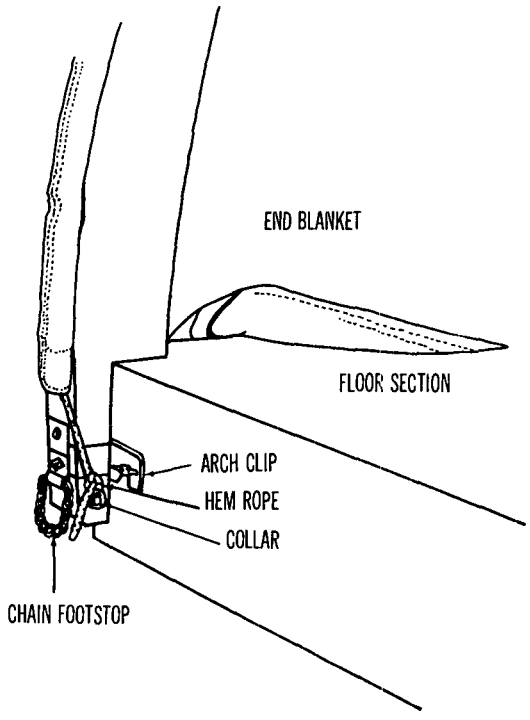


Figure 68. End blanket tied to collar (tent frame type, insulated, sectional).

(*c*) Install vestibule end purlin between vestibule panels by inserting purlin tongues into purlin slots on vestibule panels (1).

(*d*) Install vestibule tie angle between vestibule panels by sliding tie angle bolt slots over bolts at bottom of panels. Tighten wingnuts to hold tie angle in place (1).

(*e*) Install vestibule end cover retainer by slipping slots in retainer gussets (2) over bolts in side panel gusset connector brackets (1). Tighten wingnuts to hold end cover retainer in place.

(*f*) Install vestibule top purlin by inserting purlin tongues into purlin slots in middle of shelter door lintel and end cover retainer (2).

(*g*) Fasten chape hooks of vestibule end cover in blanket fastening holes in vestibule panels and floor (1). Tighten hook chapes.

(*h*) Place vestibule top cover over vestibule top purlin so that hems overlap front and rear edges of vestibule, tie ends of hem ropes to line cleats located on side panels (1), insert chape hooks in blanket fastening holes on side panels (1), and tighten hook chapes.

d. Striking.

(1) *Vestibule.*

(*a*) Remove vestibule top cover.

(*b*) Remove end cover from vestibule frame.

(*c*) Remove top purlin from end cover retainer and door lintel.

(*d*) Remove end purlin from vestibule panels.

(*e*) Loosen wingnuts and remove end cover retainer from bolts in panel gusset connector brackets.

(*f*) Remove tie angle from vestibule floor.

(*g*) Loosen retainer strip wingnuts and remove vestibule side and door panels.

(*h*) Move vestibule floor away from the tent.

(2) *Removing electrical outlet and switch assembly.*

(*a*) Disconnect switch assembly from power source.

(*b*) Unhook cord and outlet hangers from purlins, loosen wingnut and remove cord clip from end arch, and loosen wingnut and remove switch bracket from doorframe.

(3) *Removing end and roof blankets.*

(*a*) Loosen guy lines and remove lines from tent pins. Remove end guy lines from eyebolts on doorframes. Remove unused tent pins.

(*b*) Loosen guy band hook chapes, remove chape hooks from tent floor, and remove guy bands.

(*c*) Loosen roof blanket hook chapes, untie and remove roof blanket hem ropes from collars, remove chape hooks from tent floor, and remove roof blankets from tent frame.

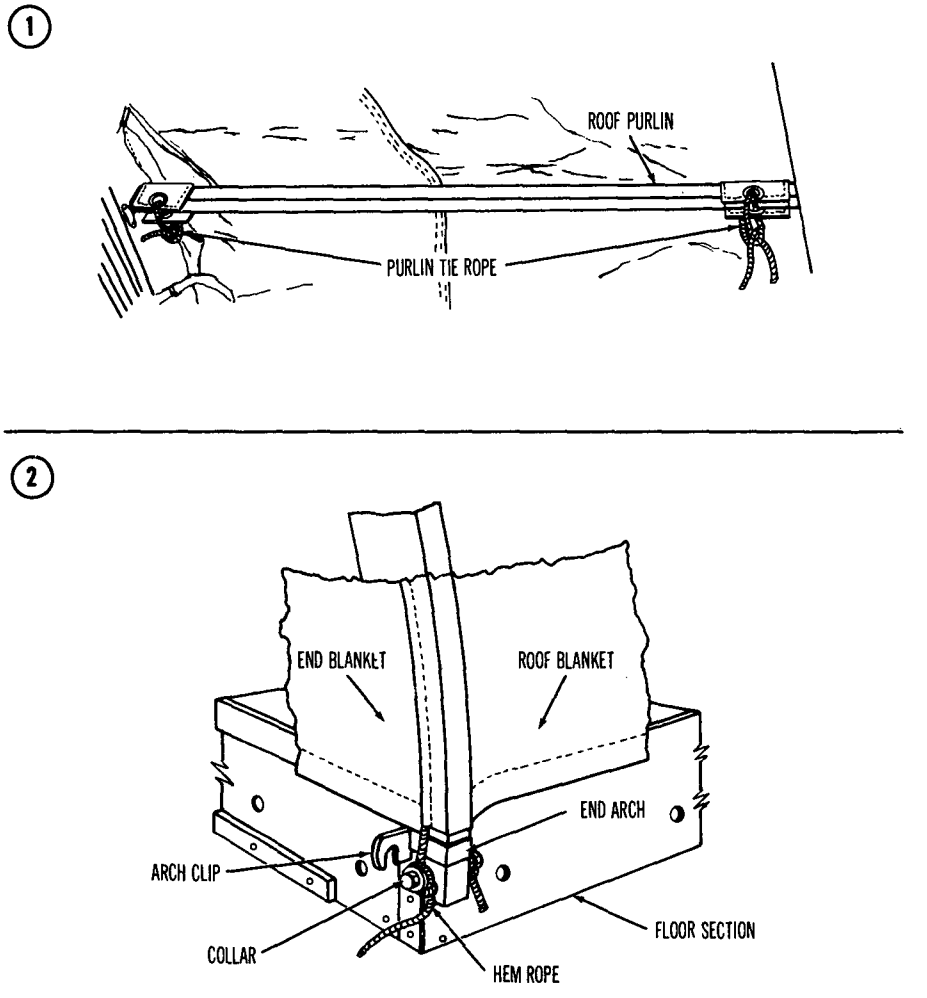


Figure 69. Attaching roof blankets and roof guy bands to frame of tent, frame-type, insulated, sectional.

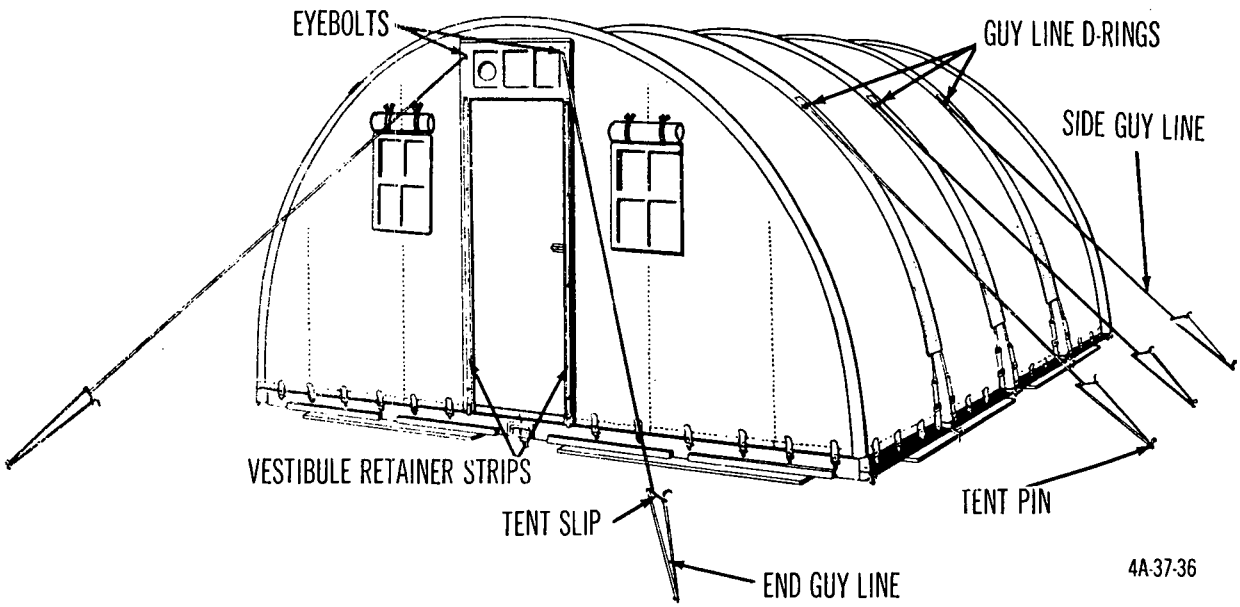


Figure 70. Securing tent, frame-type, insulated, sectional to the ground.

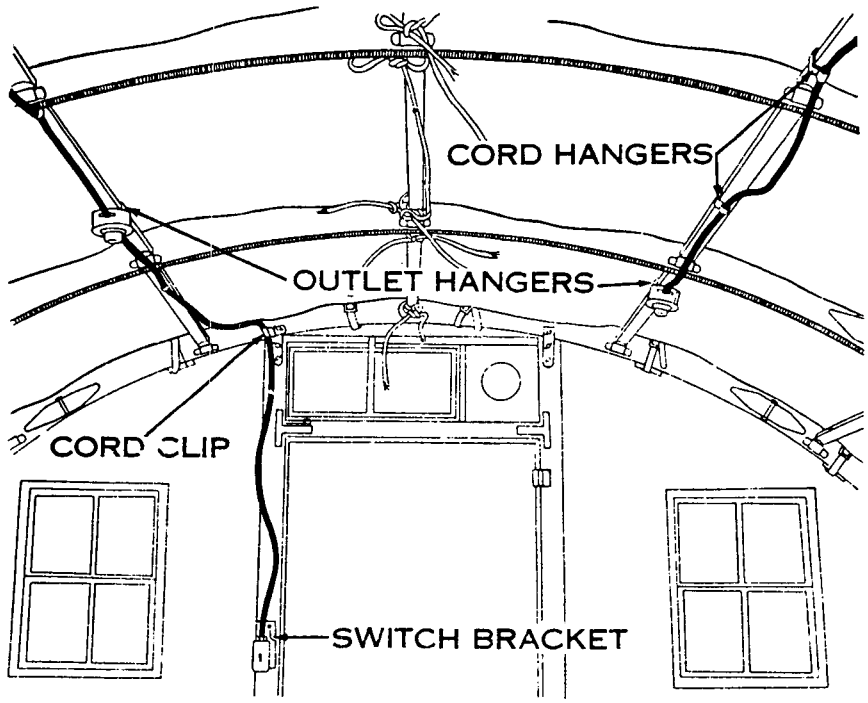


Figure 71. Attaching electrical outlet and switch assembly to inside of tent, frame-type, insulated, sectional.

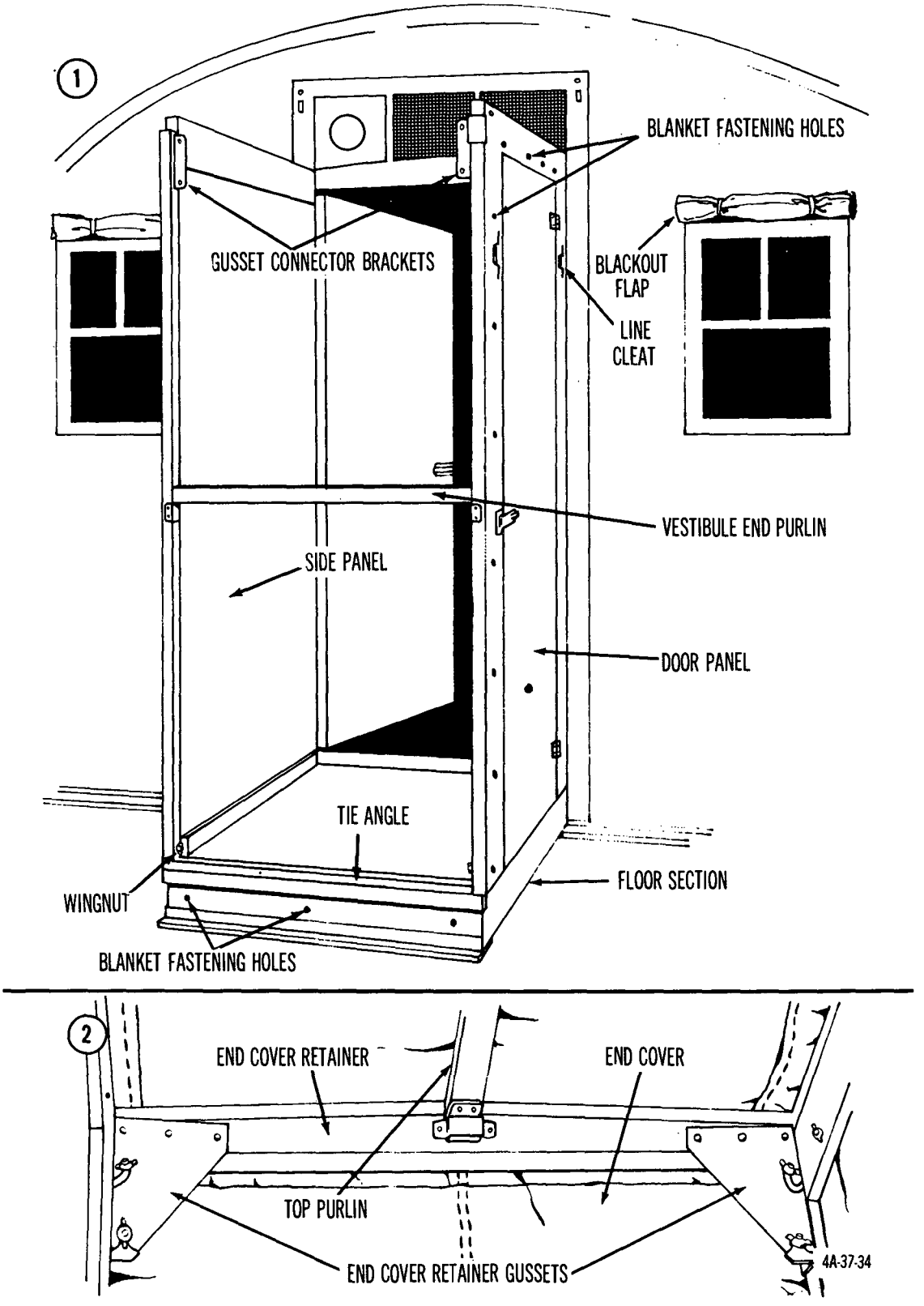


Figure 72. Attaching vestibule to tent frame-type, insulated, sectional.

(*d*) Remove end blanket hem ropes from collars, loosen hook chapes, and remove chape hooks from tent floor.

(*e*) Remove tent pins from chain footstops at bottom of doorframes.

(*f*) Untie end blankets from end purlins, and remove purlins from end arches and doorframes.

(*g*) Unbuckle the buckle chapes from the end arches; loosen wingnuts, and remove the adjustable door connectors at top of doorframes from bolts on end arches.

(*h*) Lift end blanket assemblies, and remove fixed connectors at bottom of doorframes from slots in tent floor. Remove blanket assemblies from tent.

(4) *Disassembling tent frame and tent floor.*

(*a*) Remove tent pins from chain footstops at ends of each arch.

(*b*) Remove purlins from arches.

(*c*) Loosen wingnuts from arch clips, and remove arches from tent floor.

(*d*) Remove pins from hinged joints on arches, and fold all arches.

(*e*) Separate floor units by removing the floor locking hooks.

e. Packing and Crating Tent.

(1) Use the floor unit marked "end section complete" as a crate bottom. Fold and place an end blanket assembly in the crate bottom with the window assembly facing up. Place the two end purlins and four tent pins on top of the end blanket. Place an unmarked floor unit on top of the crate bottom, and lock the two floor units together with the locking tool. Pack and crate the other end blanket assembly in the same manner.

(2) Use floor unit marked "intermediate section" as a crate bottom. Fold and place two roof blankets in the crate bottom. Place 8 tent pins, 18 arch purlins, 2 guy band assemblies, and 8 floor runners on top of the roof blankets. Place an unmarked floor unit on top of the crate bottom, and lock the two floor units together with the locking tool. Pack and crate the other two roof blankets in the same manner.

(3) Place the vestibule door panel on top of the side panel. Place the vestibule end cover and top cover on the door panel. Place the tie angle, electrical outlet and switch assembly, end purlin, top purlin, and end cover retainer on the top cover. Place vestibule floor over the end cover, and band vestibule components together.

(4) Band each folded arch at the ends and in the middle to prevent it from unfolding during transit.

Section II. SPECIAL PURPOSE TENTS

15. Tent, Maintenance, Shelter

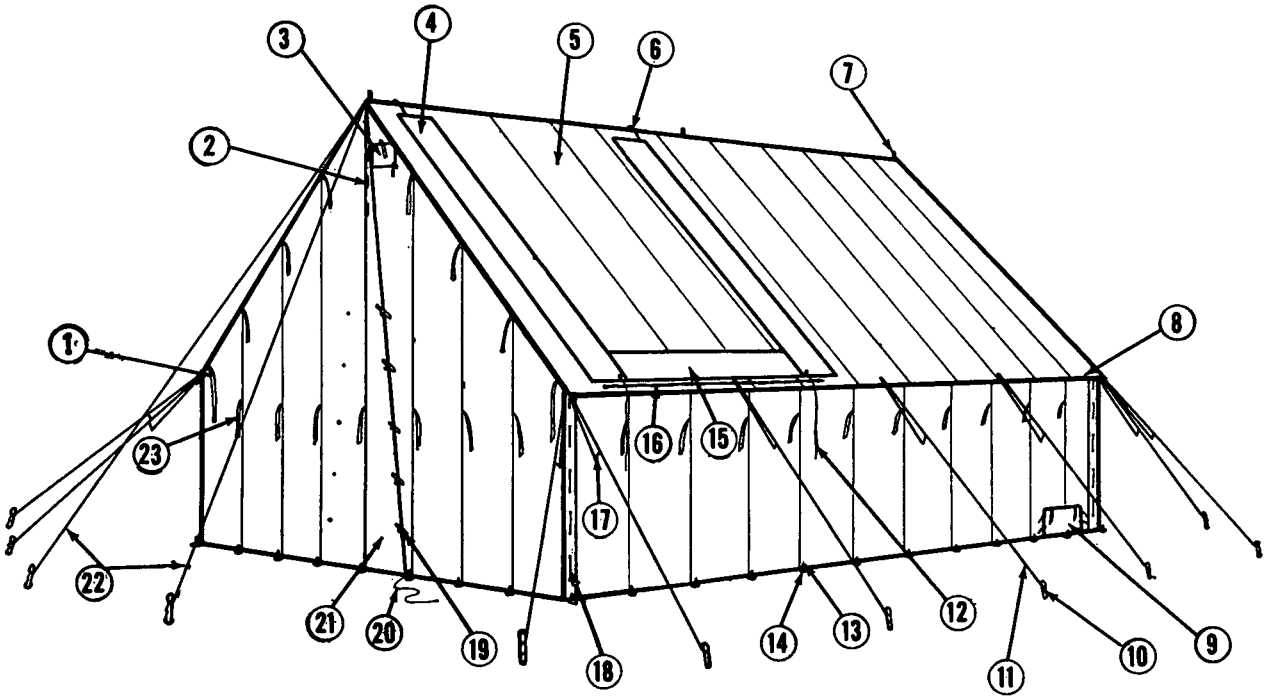
a. Use. The tent, maintenance, shelter, FWWMR, OD, complete with frame and pins (fig. 73), is designed to furnish shelter for tank and truck maintenance crews and their equipment.

b. Description. The tent is an A-shaped, rectangular, square-end tent, and is erected over a box steel frame.

(1) *Tabulated data.*

Height: 13 feet $11\frac{7}{16}$ inches at the ridge; sidewall height, 5 feet $8\frac{5}{8}$ inches.
Length: 26 feet $9\frac{1}{2}$ inches.
Width: 18 feet $2\frac{1}{4}$ inches.
Weight: tent, 500 pounds; frame, 755 pounds.
Cube: 84 cubic feet.
Floorspace: 486.8 square feet.

(2) *Materials.* The top, sidewalls, and all reinforcements are made of 12.29-ounce duck. The sod cloth, which is $29\frac{1}{2}$ inches wide, is made of 9.85-



1 40-inch wall line
2 Door lacing line
3 Ventilator
4 Water flap
5 Roof opening
6 Upper draw line
7 Tent frame
8 Eave
9 Heater duct flap
10 24-inch wood tent pin
11 Eave line
12 Lower draw line
13 16-inch wood tent pin
14 Footstop
15 Roof opening extension flap
16 Becket lacing
17 Tent slip
18 Side wall corner lacing line
19 Door fastener
20 Door flap line
21 Door flap
22 Guy line
23 30-inch wall line

Figure 73. Tent, maintenance, shelter.

ounce duck. There are six ground cloths, measuring 4 by 12 feet each, provided with each tent to form a floor. The ground cloths are made of No. 6 duck.

(3) *Roof opening.* A section of the roof of the tent can be lowered by slide fasteners operated by draw lines to give an opening approximately 10 by 10 feet through which heavy equipment can be handled by a crane outside the tent.

(4) *Ventilation.* The tent is equipped with two canvas ventilators, one at each end of the tent near the ridge.

(5) *Heating.* The tent can be heated by an external gasoline tent heater. Four heater duct sleeves are provided. Two duct sleeves are located at the rear bottom corner of each of the two sides of the tent. When the duct sleeves are not in use, they can be covered by canvas heater duct flaps.

(6) *Cover.* The tent is provided with a cover for use when it is in storage or is being transported.

c. Pitching. The tent, including the steel frame, can be pitched by 10 men in approximately 75 minutes.

(1) *Attaching truss braces to truss assemblies* (1, fig. 74). Lay out the three truss and wall post assemblies flat on the ground, with wall posts bent inward. Attach a truss brace to the support brackets on sides of each truss. At this point, each truss and wall post assembly will have an A-shaped appearance.

(2) *Attaching ridge assembly to truss assemblies* (2, fig. 74). Extend ridge assembly, opened out, over top of truss

and wall post assemblies. Raise trusses at a slight angle and attach to ridge assembly by placing spindles of truss and wall post assemblies through holes in ridge assembly.

(3) *Attaching tent to top of tent frame* (3, fig. 74). Spread tent over top of frame, with truss and wall post assemblies of frame at an angle. Place spindles at top of frame through grommets in tent ridge. Attach guy lines to spindles at front and rear ridge of tent.

(4) *Attaching ridge knee braces* (4, fig. 74). Push frame into an upright position, with wall posts still bent inward. At the same time, place bolts in center of each truss brace into hole at end of each ridge knee brace.

(5) *Securing roof opening to tent frame* (5, fig. 74). Lace retainers of roof opening around trusses and ridge of frame. Lace bottom of roof opening flap to body of tent roof.

(6) *Rolling and tying tent walls and attaching draw lines to slide fasteners* (6, fig. 74).

(*a*) Roll up and tie side and front walls of tent.

(*b*) Attach lower draw lines to roof opening slide fasteners.

(*c*) Attach upper draw lines to roof opening slide fasteners. Place upper draw lines so that they go over tent ridge and loose ends fall on other side of tent.

(*d*) Close upper portion of door openings by lacing a door opening lacing line through grommets on sides of each door opening.

(7) *Raising and securing tent frame* (7, fig. 74).

(*a*) With two men at each of the three wall posts, raise one side of tent frame, making sure bolt on each truss assembly is securely inserted in slot of hinge plate on wall post. Then raise other side and lock bolts to hinge plates.

(*b*) Attach eave struts into position by fastening hangers at ends of eave struts around hanger brackets of truss and wall post assemblies.

(*c*) Fasten side knee braces of eave struts to wall posts of truss and wall post assemblies by placing bolt on angle clip of each wall post through hole at end of each side knee brace and tightening nut.

(8) *Lacing roof opening, securing water flaps, and placing ground cloths* (8, fig. 74).

(*a*) On the inside of tent, lace bottom horizontal retainer around eave strut.

(*b*) On the outside of tent, chain-lace beckets at bottom of roof opening extension flap through grommets on eave of tent.

(*c*) On the outside of tent, close water flaps and secure them by tying water flap line at bottom of each water flap through a becket.

(*d*) Spread ground cloths, three wide and two deep.

(9) *Securing tent walls and tent wall corners* (9, fig. 74).

(*a*) Untie and roll down side and front walls of tent.

(*b*) Close corners of tent by lacing a sidewall lacing line through grommets on each side of wall corners.

(*c*) Drive 16-inch pins and attach footstops.

(10) *Securing eave lines and guy lines* (10, fig. 74). Stake out eave and guy lines with 24-inch pins. Adjust and tighten lines.

d. Striking.

(1) Unfasten all eave and guy lines and remove all 24-inch pins.

(2) Unfasten footstops and remove all 16-inch pins.

(3) Unlace sidewall corners of tent.

(4) Unlace bottom horizontal retainer of tent from eave strut of frame.

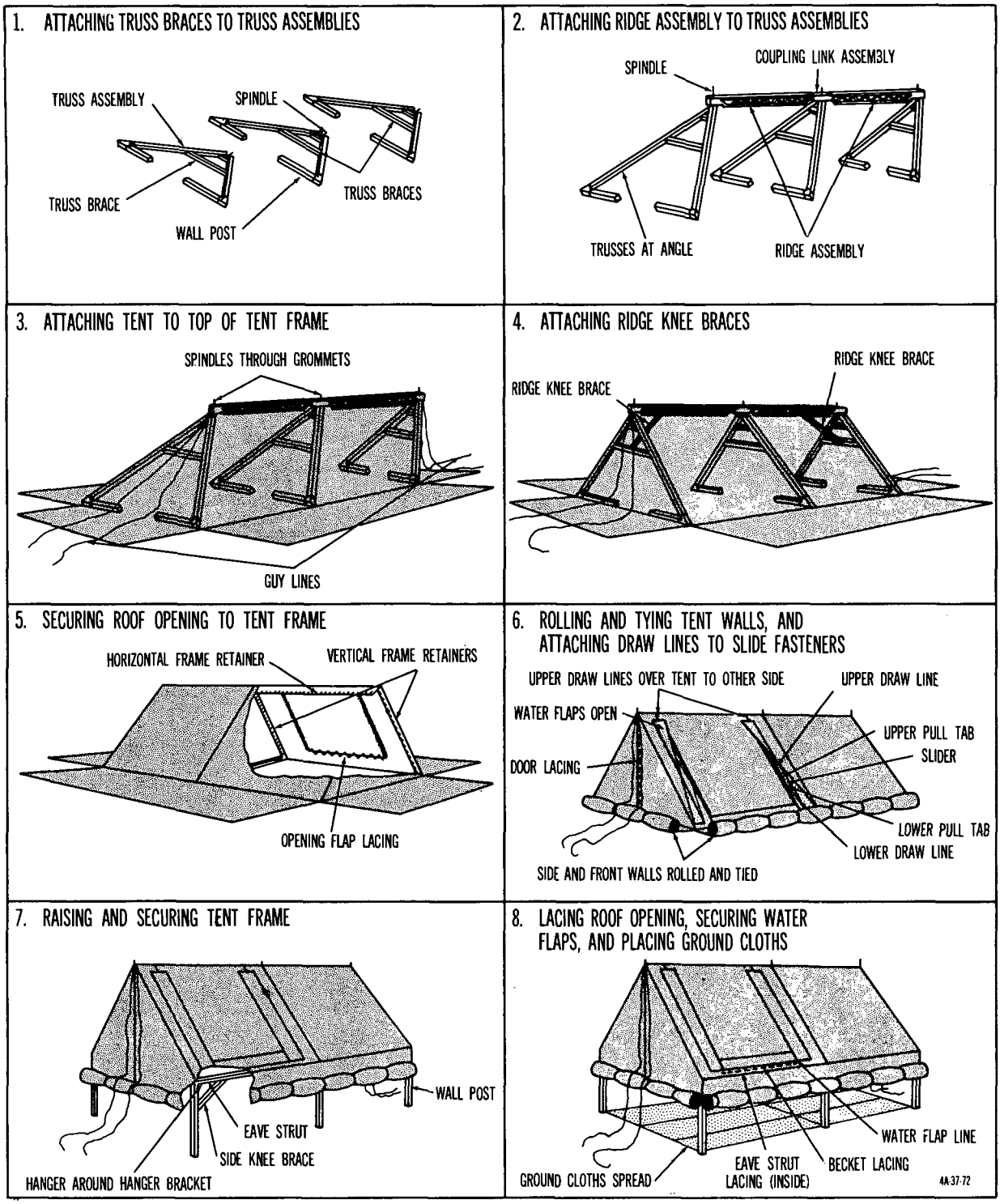


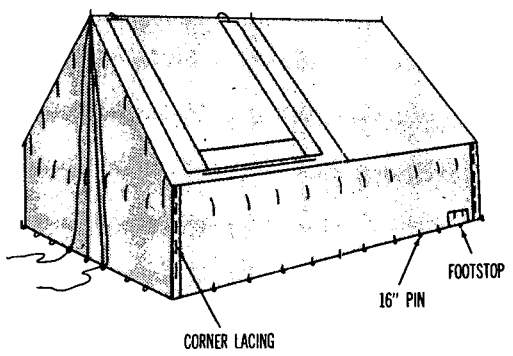
Figure 74. Steps in pitching tent, maintenance, shelter.

(5) Roll up and tie front and sidewalls of tent.

(6) Remove eave struts and side knee braces.

(7) With one man at each of the three wall posts, lower one side of tent frame by bending wall posts inward; and then lower other side.

9. SECURING TENT WALLS AND TENT WALL CORNERS



10. SECURING EAVE LINES AND GUY LINES

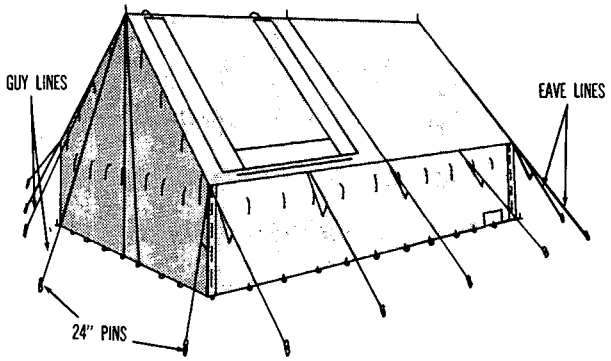


Figure 74—Continued.

(8) Untie front and sidewalls of tent.

(9) Untie lace lines of tent and remove all lashing from around the various sections of frame structure.

(10) Open front and rear doors of tent and slide canvas off ridge of tent frame. Carry canvas completely away from frame.

(11) Separate frame by reversing procedures used to erect it.

e. Folding and Packing.

(1) *Folding tent* (fig. 75).

(*a*) Fold tent at ridge, with sides and two parts of front and rear ends together. Roll guy lines up and tie. Coil eave lines toward center (1).

(*b*) Place ground cloths on tent just above eave, staggering them to use space to the best advantage. Turn sod cloth in toward eave (2).

(*c*) Fold front and rear ends over toward center (3).

(*d*) Fold ridge at deck to eave (4).

(*e*) Fold deck over sidewalls, and then in half. Coil eave lines in toward center (5).

(*f*) Fold ends toward center, end over end, and place in cover (6). Close cover, folding long flap first, then short flap. Tie cover with two tie lines.

(2) *Packing frame* (fig. 76). Pack sections of frame in three crates as follows:

(*a*) *Crate 1.*
1 ridge assembly
2 eave strut assemblies
3 truss braces

(*b*) *Crate 2.*
1 truss and wall post assembly
2 eave strut assemblies

(*c*) *Crate 3.*
2 truss and wall post assemblies

16. Tent, Frame-Type, Little John Conditioning System

a. Use. The tent, frame-type, Little John conditioning system, FWWMR, OD (fig. 77), is used primarily to condition Little John rockets to a specific temperature range prior to launch. The tent is also used to provide a protected area for servicing and maintaining rocket motors by operating crews.

b. Description. The tent is a component of the Little John conditioning system. It consists of an outer fabric, or skin, with attached ridge and eave guy lines and footstops, a sectionalized liner, and a sectionalized aluminum frame assembly. A ground paulin serves as both a

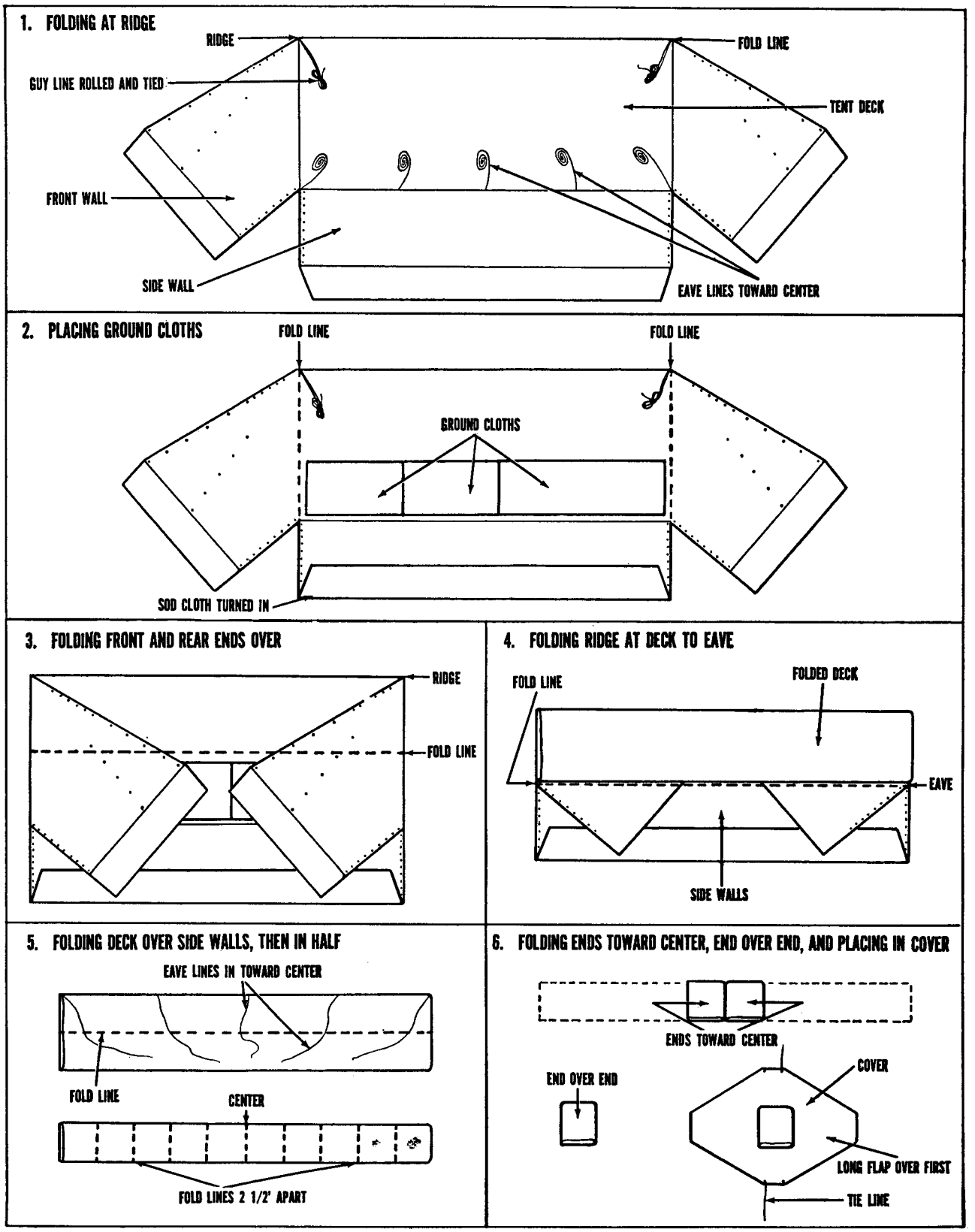


Figure 75. Steps in folding tent, maintenance, shelter.

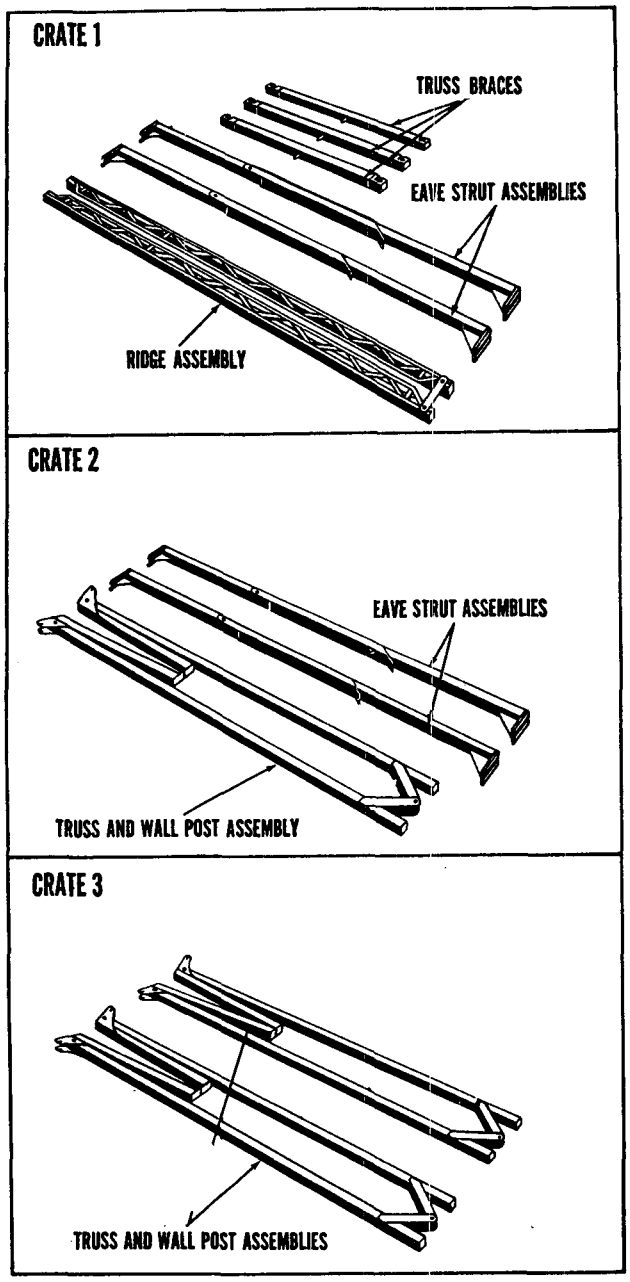


Figure 76. Packing frame of tent, maintenance shelter.

floor and heat sealer for the tent. The tent is heated by a 150,000-B.t.u. portable heater.

(1) *Tabulated data.*
Height: 8 feet 1¼ inches at the ridge.
Length: 24 feet 2½ inches.
Width: 12 feet.
Weight: frame, 276 pounds; tent liner and ground cloth, 174 pounds; tent outer fabric, 107 pounds; tent pins, 51 pounds; heater and gasoline engine, 345¼ pounds.
Cube: 64 cubic feet.
Floorspace: 288 square feet.

(2) *Material.* The outer fabric of the tent is made of 8.5-ounce olive green wind-resistant sateen cloth, FWWMR treated. The outer fabric is issued in one piece and is designed to form two end sections and one center section.

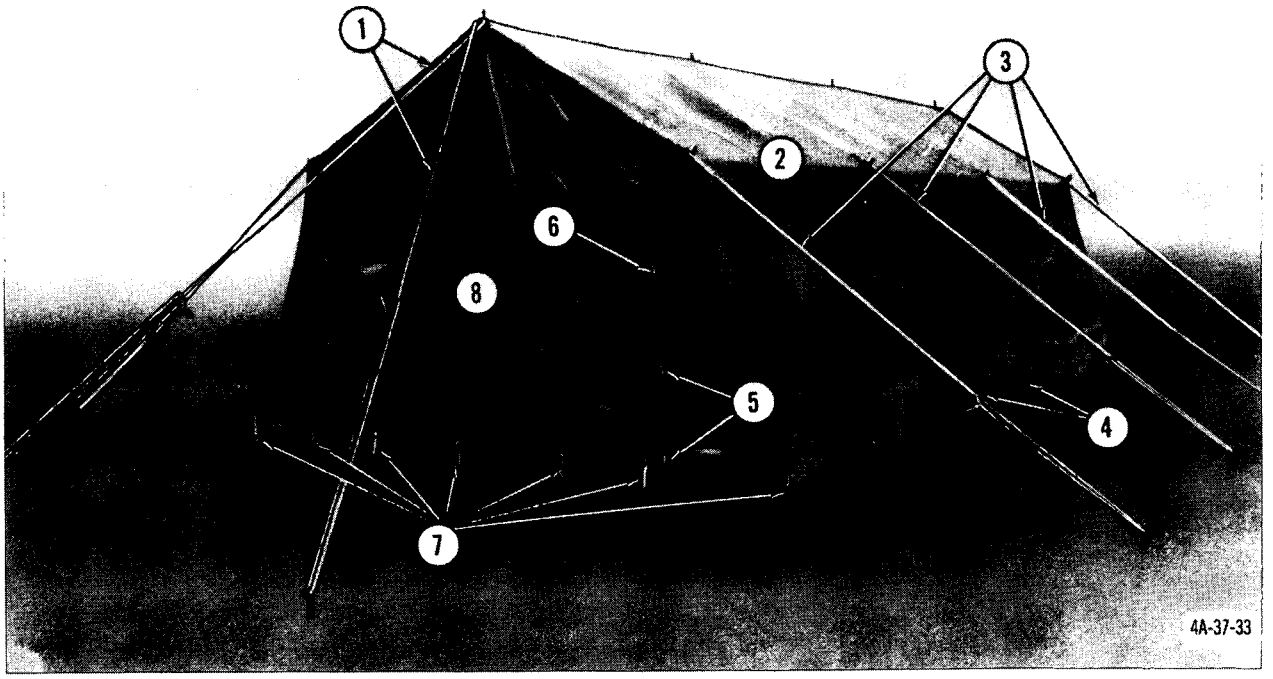
(3) *Doors.* The tent has a vehicle door at each end. The doors, when closed, are secured by slide fasteners, wood toggles and toggle loops, and footstops attached to tent pins. When open, the doors are rolled up and secured by tie tapes.

(4) *Heating.* The tent is heated by a 150,000-B.t.u. gasoline burning, skid-mounted, portable unit. The unit consists of a two-cylinder Military Standard gasoline engine, AC (alternating current) generator, heater circulating fan assembly, heater blower, heat exchanger, fuel system, and the controls and instruments necessary for normal operation.

(5) *Liner.* The sectionalized liner is made of insulated fiberglass sewn between two layers of 5.2-ounce natural color oxford cotton material. It consists of two end sections and an intermediate section. Each liner end section contains a vehicle door and heater duct sleeves that conform with those in the tent outer fabric. Liner sections are joined with metal snap fasteners. The liner is secured to the tent frame with tie tapes, tielines, and metal arch hooks.

(6) *Ground paulin.* The ground paulin is made of 14.5-ounce olive green, vinyl coated cotton duck material. The paulin is secured to the tent frame with tielines.

(7) *Covers.* The tent is provided with four tent covers for the outer fabric, tent liner, and ground paulin. A fabric frame cover reinforced with plywood



1 Ridge guy lines
2 Tent outer fabric, or skin
3 Eave guy lines
4 Heater duct sleeves
5 Toggle loops
6 Wood toggles
7 Footstops
8 Vehicle door

Figure 77. Tent, frame-type, lightweight, insulated, Little John conditioning system.

is provided for the sectionalized tent frame.

c. Ground Plan. Before pitching the tent, study the ground plan carefully (fig. 78).

d. Pitching. The tent and its allied equipment can be pitched by four men in approximately 15 minutes.

(1) *Assembling frame components* (fig. 79).

(*a*) Lay out all frame components in area selected for erection of the tent.

(*b*) Unbuckle arch binding straps and open all arch assemblies. Raise center joint of each arch assembly and lock roof segments in position with quick-release pin and chain assemblies.

(*c*) Install an arch header assembly on each arch assembly just above the eave joints with the quick-release pin and chain assemblies.

(*d*) Raise peaks of two arch assemblies and insert end studs of a purlin assembly in arch key lock slots near peak of arches. Turn purlin approximately one-fourth of a turn and insert studs of captive diagonal braces into slots of arch, assemblies. Turn shackles at ends of braces, one-fourth of a turn to the right, and press down or up on shackles to lock them in place.

(*e*) Install purlin assemblies at eaves and bases of arch assemblies as described in (*d*) above.

(*f*) Install remaining purlin assemblies on remaining arches as described in (*d*) and (*e*) above.

(2) *Installing liner sections and tent outer fabric on frame assembly* (fig. 80).

(*a*) Place covered liner sections under frame in their respective positions. Open covers (1).

(*b*) Clip liner section arch hooks to roof segments of arch assemblies.

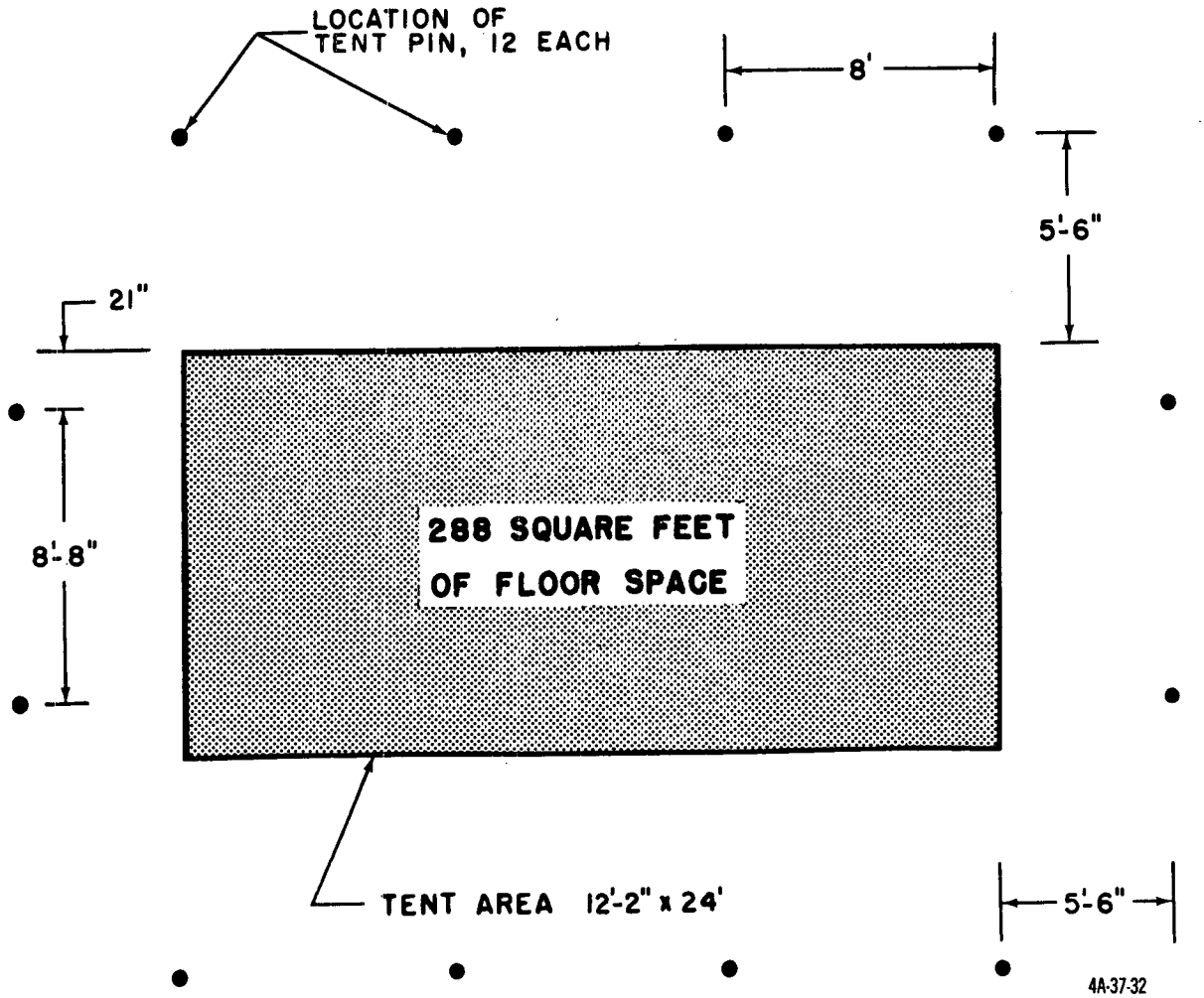


Figure 78. Ground plan for tent, frame-type, lightweight, insulated, Little John conditioning system.

Loop each liner section ridge tie lines over ridge purlin, reeve free ends of lines through liner section loop eyes, and tie the lines securely with two half hitches around the purlin assemblies. Attach liner section eave tie lines to eave purlins with two half hitches (2).

(*c*) Place folded outer fabric on ridge of frame assembly. Place end ridge grommet of outer fabric on end arch assembly ridge post. Unroll outer fabric down ridge of frame, placing outer fabric ridge grommets on ridge posts of frame assembly (3).

(*d*) Raise both sides of frame at eave joints and lock joints in place with quick-release pin and chain assemblies (4).

(*e*) Roll tent outer fabric down sides of frame to tent eaves, install and tighten anchor plates to eave posts of frame (5), place eave grommets over eave posts (5), pull sides of outer fabric to ground level, and tuck sod cloths under purlin assemblies at base of frame.

(*f*) Loop ridge guy lines over end ridge posts of frame assembly.

(*g*) Wrap outer fabric bottom attaching flaps over bottom purlins, and

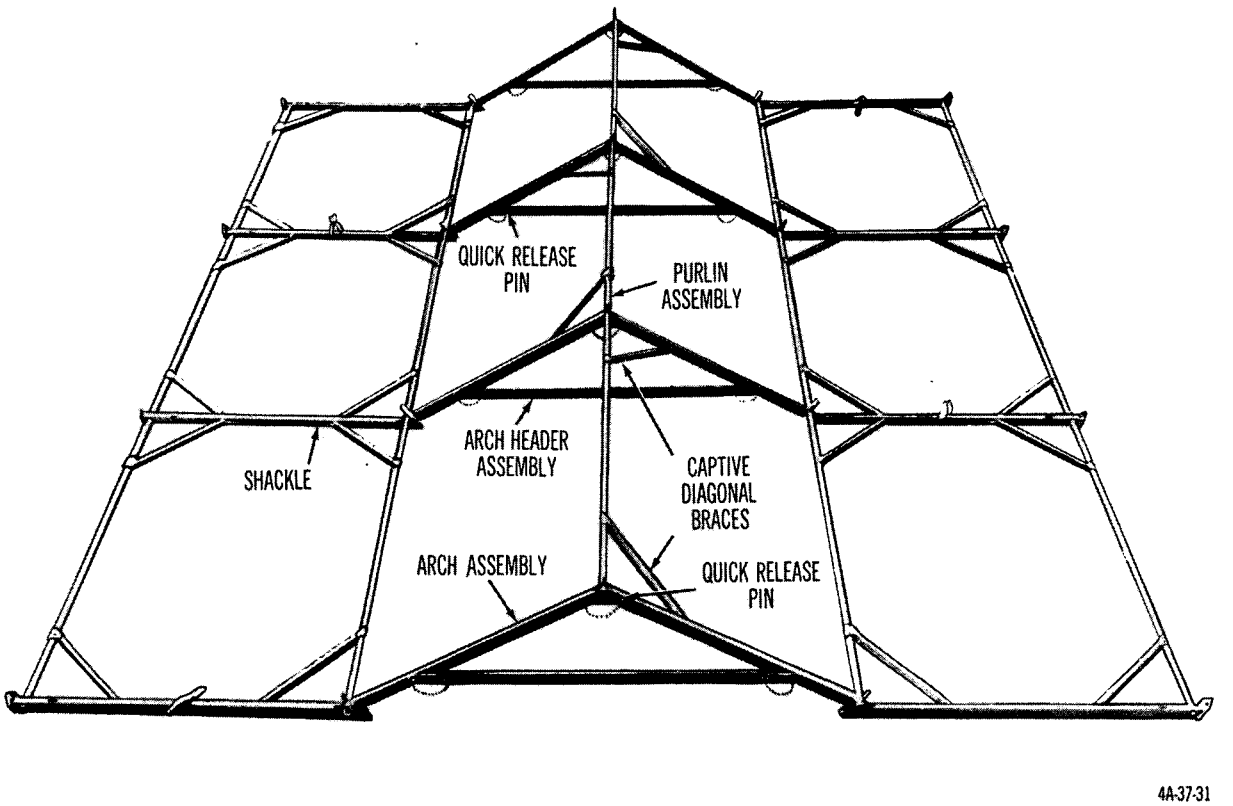


Figure 79. Assembling frame components of tent, frame-type, lightweight, Little John conditioning system.

loop and secure lines to S-hooks attached to upper side flaps (6).

(*h*) Clip remaining liner arch hooks to frame assembly. Tie liner assembly tapes to tapes at bottom edge of tent outer fabric. Fasten all snap fasteners where sectionalized liner joins together on interior of tent.

(*i*) Spread ground paulin on floor of tent and tie paulin lines to bottoms of arch assemblies. Turn paulin edges up so that they are flush against liner sections to provide a heat seal for the tent.

(*j*) Anchor arches to the ground with steel tent pins, and drive pins through footstops at bottom edges tent end sections.

(*k*) Drive guy-line pins into ground according to ground plan. Secure ridge and eave guy lines to pins.

e. Striking.

(1) *Removing tent outer fabric and liner sections from frame assembly.*

(*a*) Untie and remove ground paulin lines from arch assemblies.

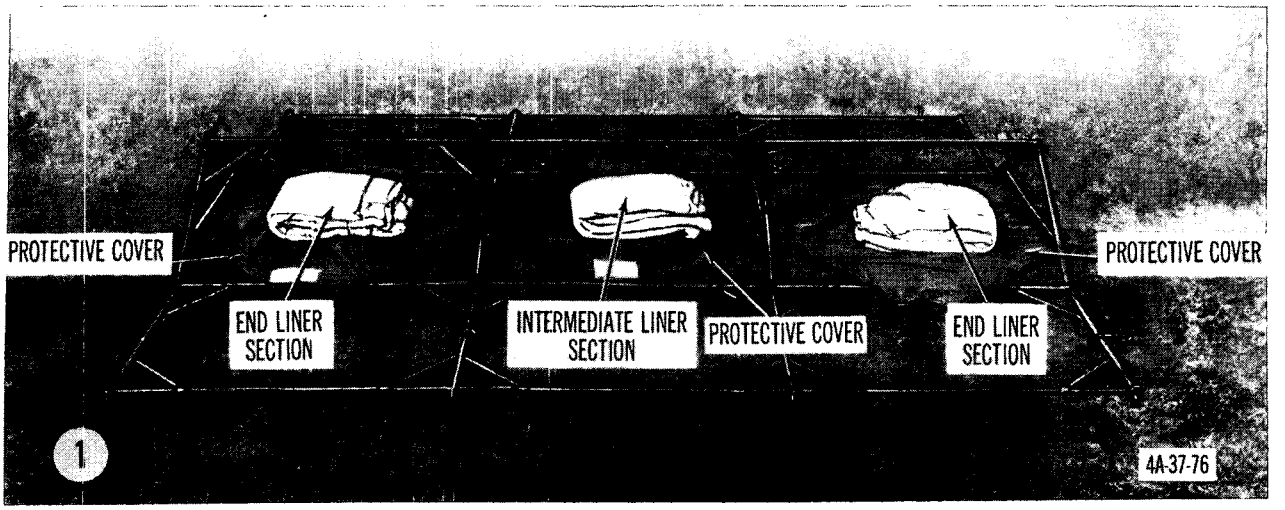
(*b*) Untie bottom of liner sections from bottom of tent outer fabric.

(*c*) Untie and remove outer fabric bottom attaching flaps from upper side flaps.

(*d*) Unfasten liner assembly joints and remove arch hooks from segments of frame.

(*e*) Remove footstops from steel pins, and remove footstop pins and pins securing arch assemblies to the ground. Remove guy lines from guy-line pins, and remove guy-line pins.

(*f*) Raise sides of tent outer fabric over eave purlin assemblies and remove



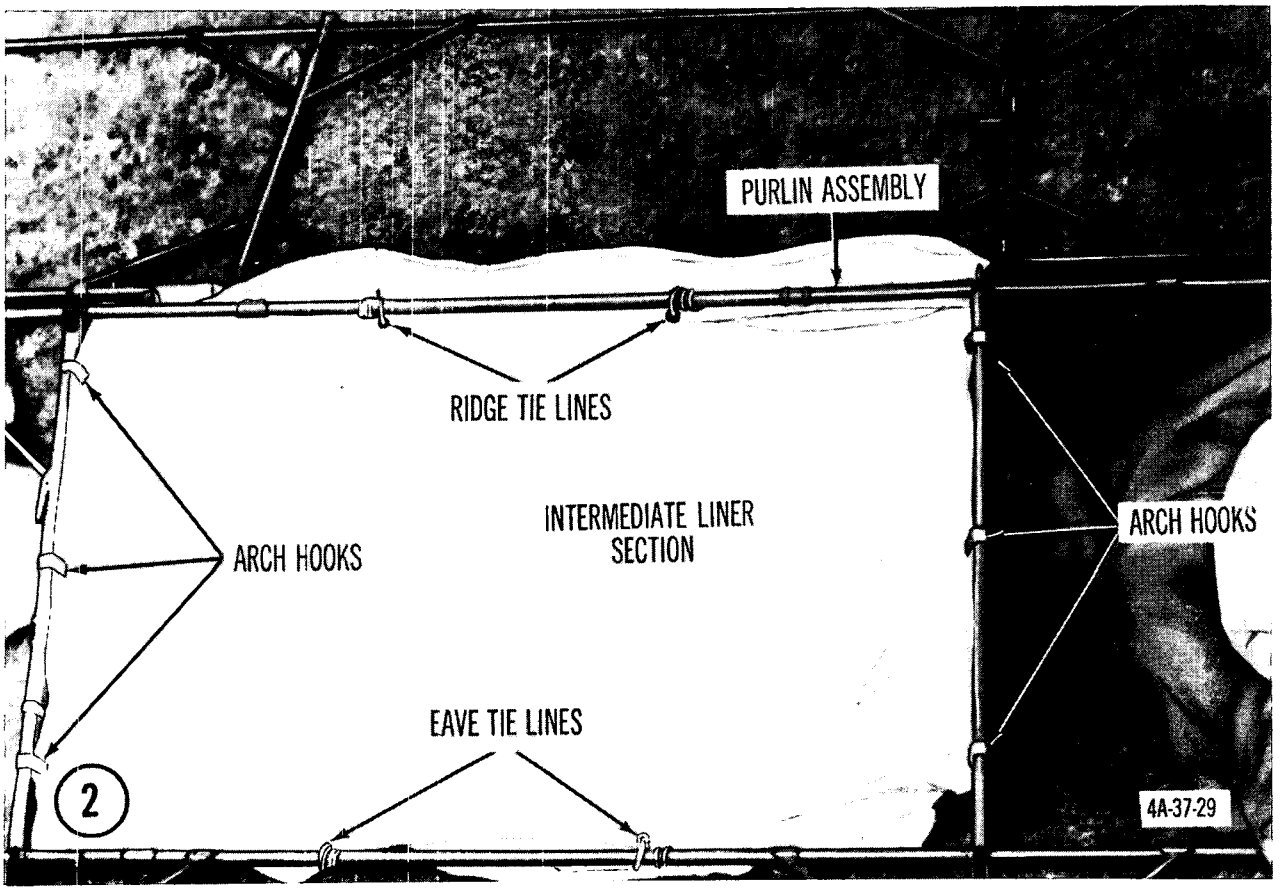
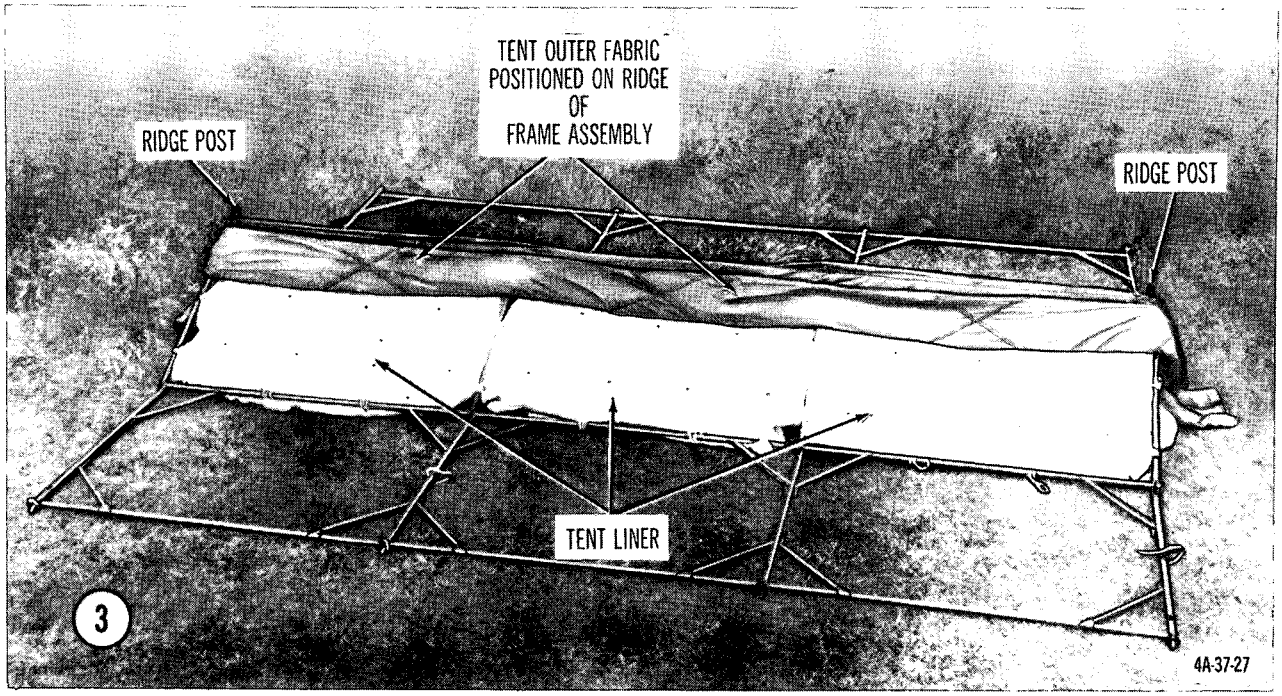


Figure 80. Installing liner sections and tent outer fabric on frame of tent, frame-type, lightweight, insulated, Little John conditioning system.



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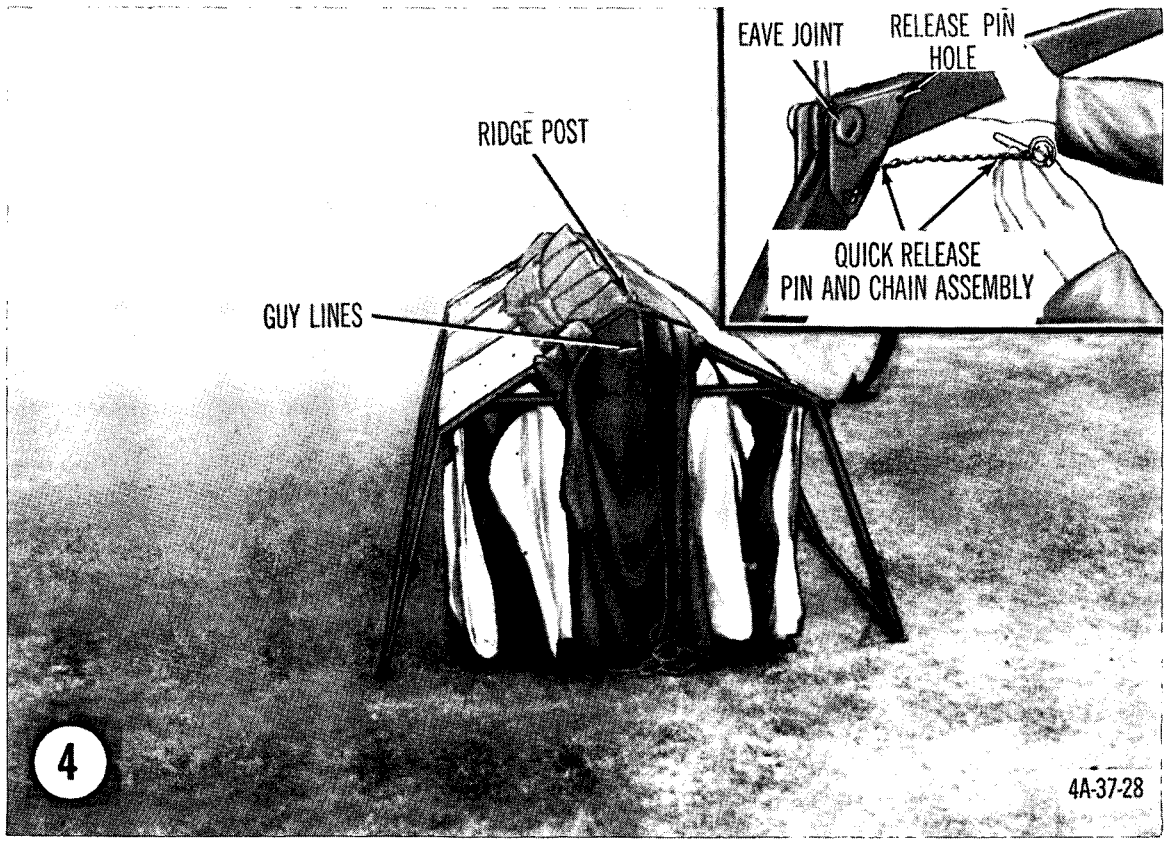

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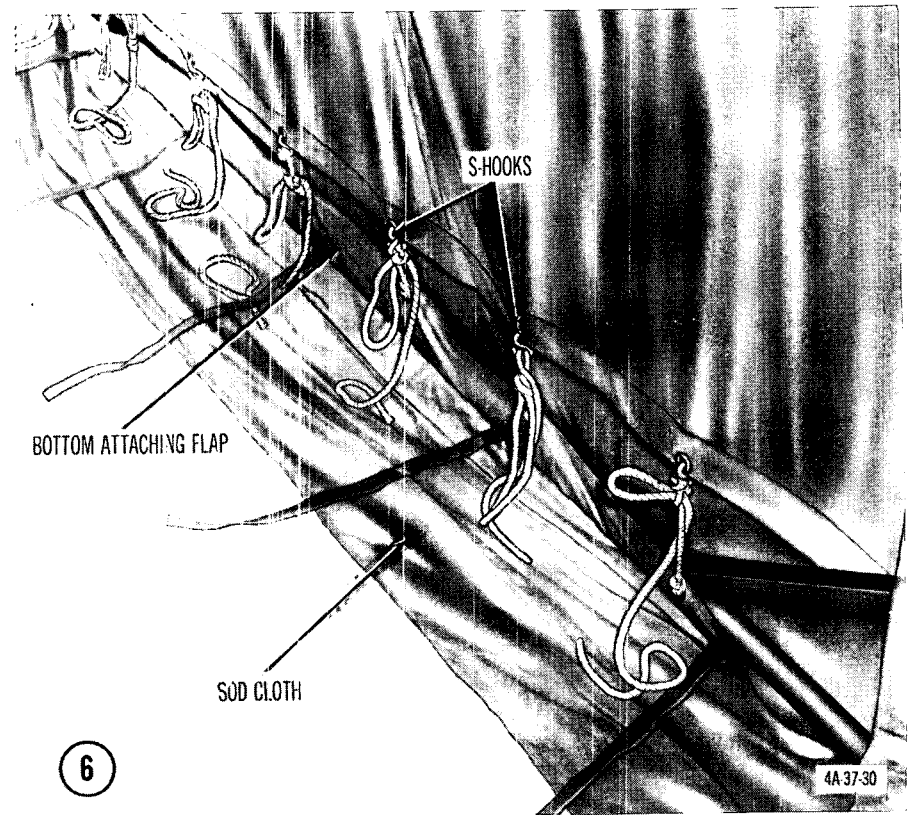


Figure 80—Continued.

tent grommets and anchor plates from eave posts of frame.

(*g*) Untie and remove tie lines of liner end and intermediate sections from eave purlins.

(*h*) Remove pin and chain assemblies from eave joints on one side of frame, and lower side of frame to the ground. Lower other side of frame in the same manner.

(*i*) Place tent guy lines on tent roof, fold vehicle doors on roof of outer fabric, and fold bottom edge of each side of tent to eave purlins and to tent ridge so that each side overlaps tent ridge by approximately 15 inches (1, fig. 81).

(*j*) Lift grommet at one end of tent off ridge post, and fold outer fabric down ridge of frame. Place folded outer fabric on cover, and close and secure tent cover (2, fig. 81).

(*k*) Untie ridge tielines securing liner sections to ridge purlins.

(2) *Disassembling sectionalized frame.*

(*a*) Remove purlin assemblies attached at ridge, eaves, and base of frame assembly.

(*b*) Remove arch header assemblies

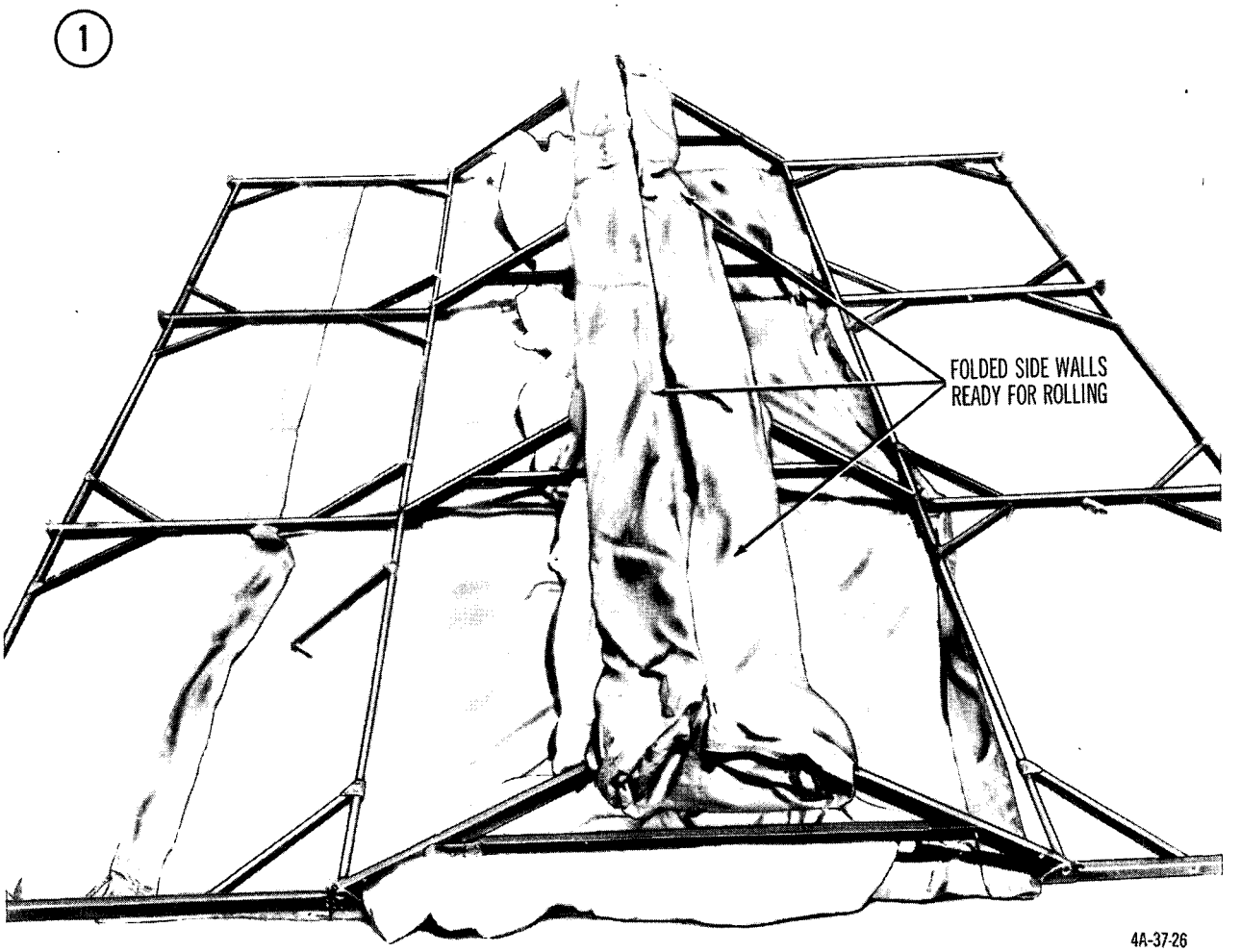


Figure 81. Folding outer fabric of tent frame-type, lightweight, insulated, Little John conditioning system.

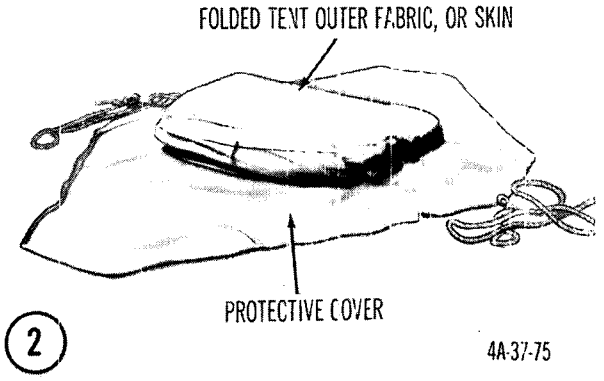


Figure 81—Continued.

from arches, and remove pin and chain assemblies at peak of arches.

f. Folding and Packing.

(1) *Packing sectionalized frame* (fig. 82).

(*a*) Fold arch assemblies, and secure each with attached binding strap and buckle.

(*b*) Stow all components of the frame and all steel tent pins in the frame cover. Close and secure frame cover with cover straps and buckles.

(2) *Folding sectionalized liner assembly and ground paulin* (fig. 83).

(*a*) Lay out end section of liner, inside up, and fold vehicle door back on roof section (1).

(*b*) Fold sides to center of roof section, and then fold one side over the other to form a bundle approximately 30 inches in width and 8 feet in length (2).

(*c*) Fold folded liner section in thirds lengthwise, and place folded liner section on cover marked "END LINER" (3). Fold cover ends over liner section and secure with tie lines.

(*d*) Fold and pack other liner end section as described in (*a*) through (*c*) above.

(*e*) Fold intermediate liner section as described in (*b*) and (*c*) above.

(*f*) Place folded intermediate liner section on its cover, fold ground paulin to size of folded intermediate liner section, and place folded paulin on top of folded intermediate liner section. Fold protective cover over bundle and tie securely.

17. Tent, Frame-Type, Balloon Inflation, M–1957

a. Use. The tent, frame-type, balloon inflation, M–1957, FWWMR, OD, complete with frame and pins (5, fig. 85), is used to provide shelter during the inflation and preparation for launching of meteorological balloons in moderately high winds.

b. Description. The tent is rectangular shaped with an arched top. It is designed so that all closures, openings, and points of ground contact will neither dissipate heat nor reveal light. The tent is suspended beneath a laminated wood frame by webbing straps with buckles. The frame consists of 3 sectional arches, 20 aluminum purlins, and 4 end braces. Each sectional arch consists of two lower arch segments (straight) and two upper arch segments (curved), which are hinged together for assembly of the arches.

(1) *Tabulated data.*
Height: 12 feet 10 inches.
Length: 15 feet 1⅞ inches.
Width: 14 feet.
Weight: tent, 225 pounds, frame, 550 pounds; container, 155 pounds.
Cube: 56.5 cubic feet.
Floorspace: 210 square feet.

(2) *Materials.* The tent is made of 9.85-ounce cotton duck, FWWMR.

(3) *Doors.* The tent has a door at each end which opens to its full height by means of a slide fastener in the center, operated by ropes. Ropes threaded through D-rings sewn to reinforced webbing on each side of the door are attached to the slide fastener so that the door is draped back to open the entire end of the tent and allow exit of the inflated balloon.

(4) *Windows.* Two flexible vinyl plastic windows with plastic insect

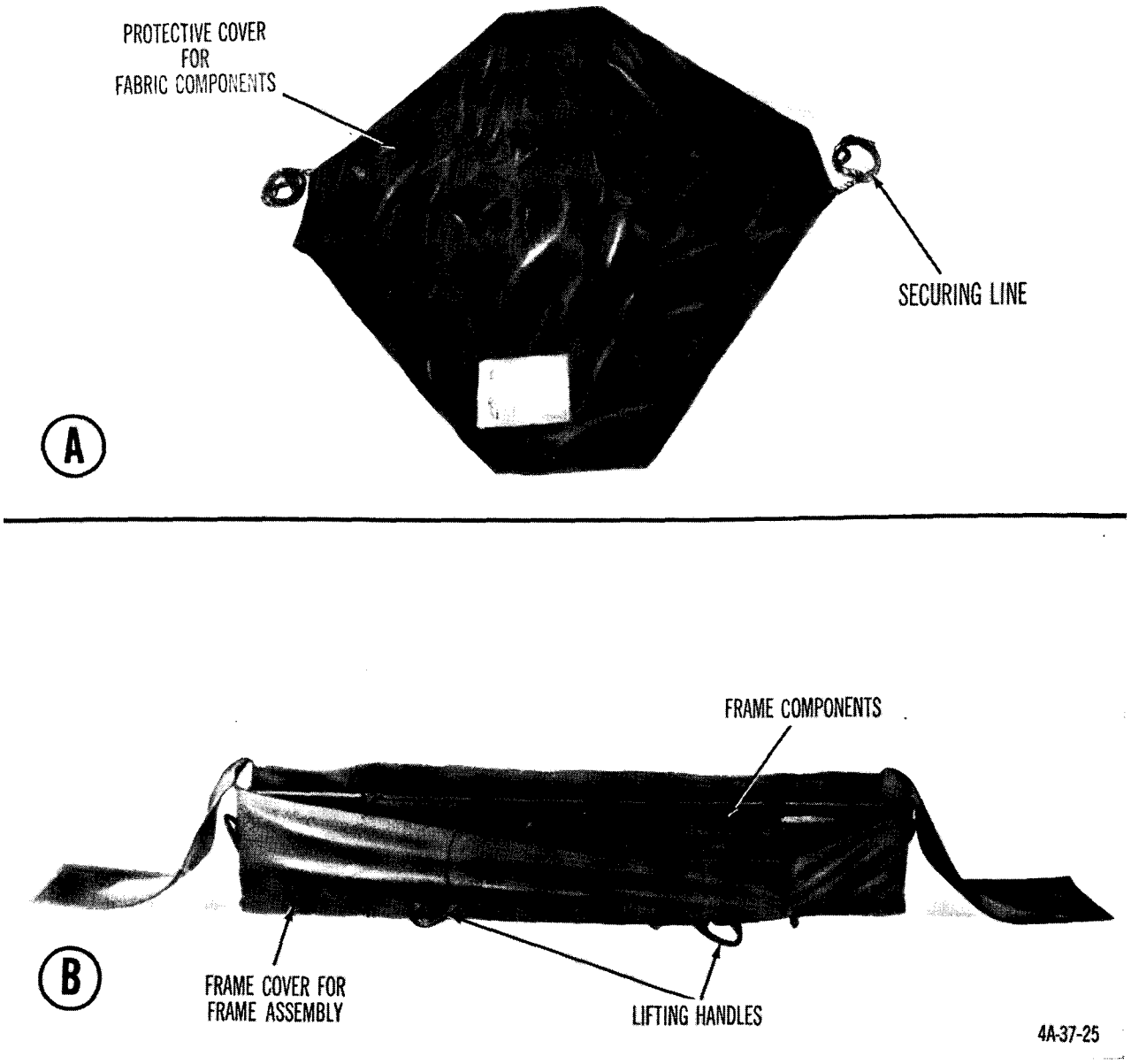


Figure 82. Packing frame of tent, frame-type, lightweight, insulated, Little John conditioning system.

screens and blackout flaps, are located on each side of the tent.

(5) *Ventilation.* The tent has a ventilator on the front end near the top. A ventilator hood with hood line is attached on the outside of the tent.

(6) *Heating.* The tent can be heated by an external gasoline tent heater. A heater duct is located at the lower left front corner of the tent.

(7) *Cover.* The tent is provided with a cover for use when it is in storage or is being transported. The cover is made of 9.85-ounce cotton duck and has an identification label and label of erection instructions sewn on the inside.

c. Accessories. The following are used with the balloon inflation tent:

(1) *Pins.*

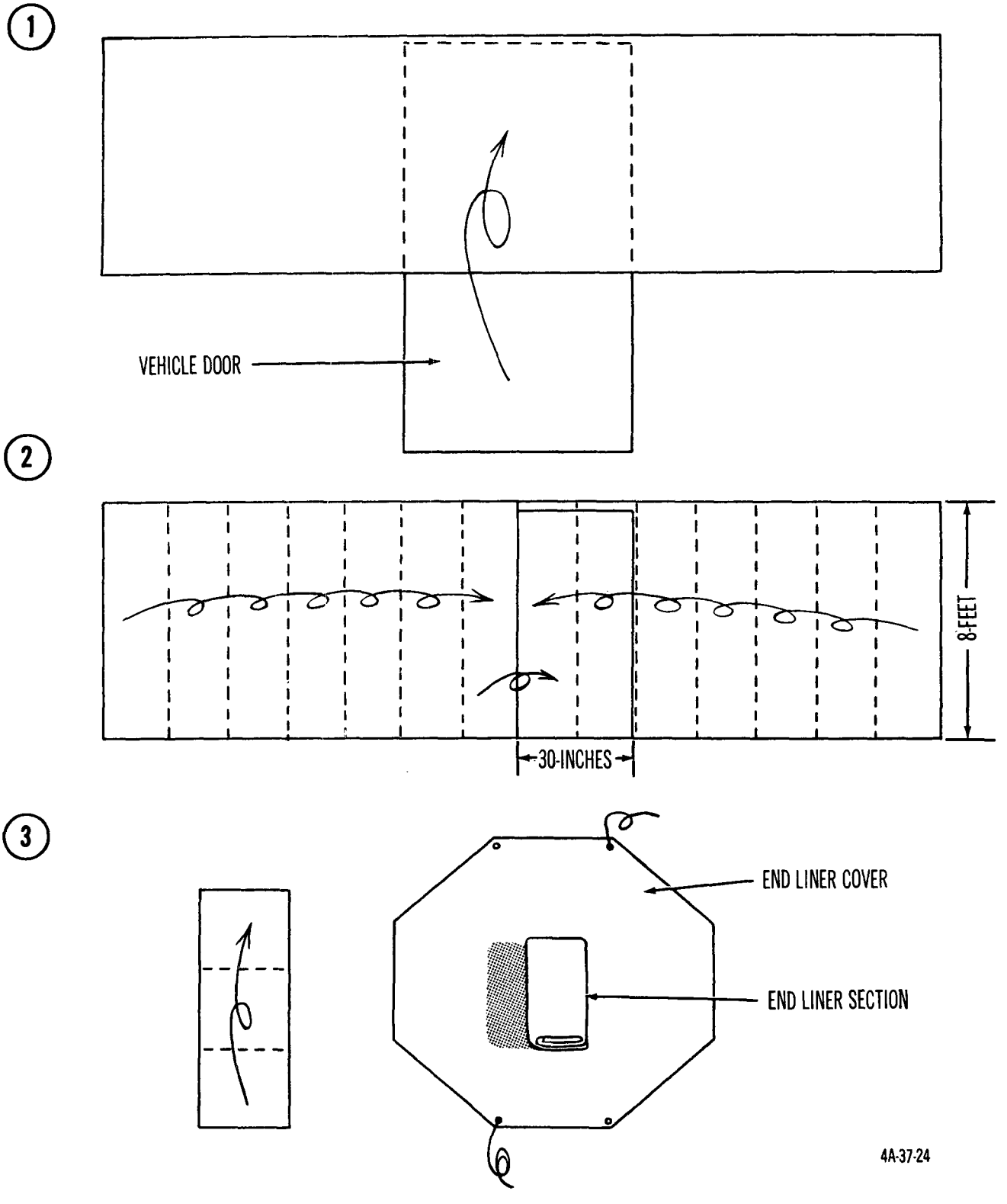


Figure 83. Steps in folding liner assembly and ground paulin of tent frame-type, lightweight, insulated, Little John conditioning system.

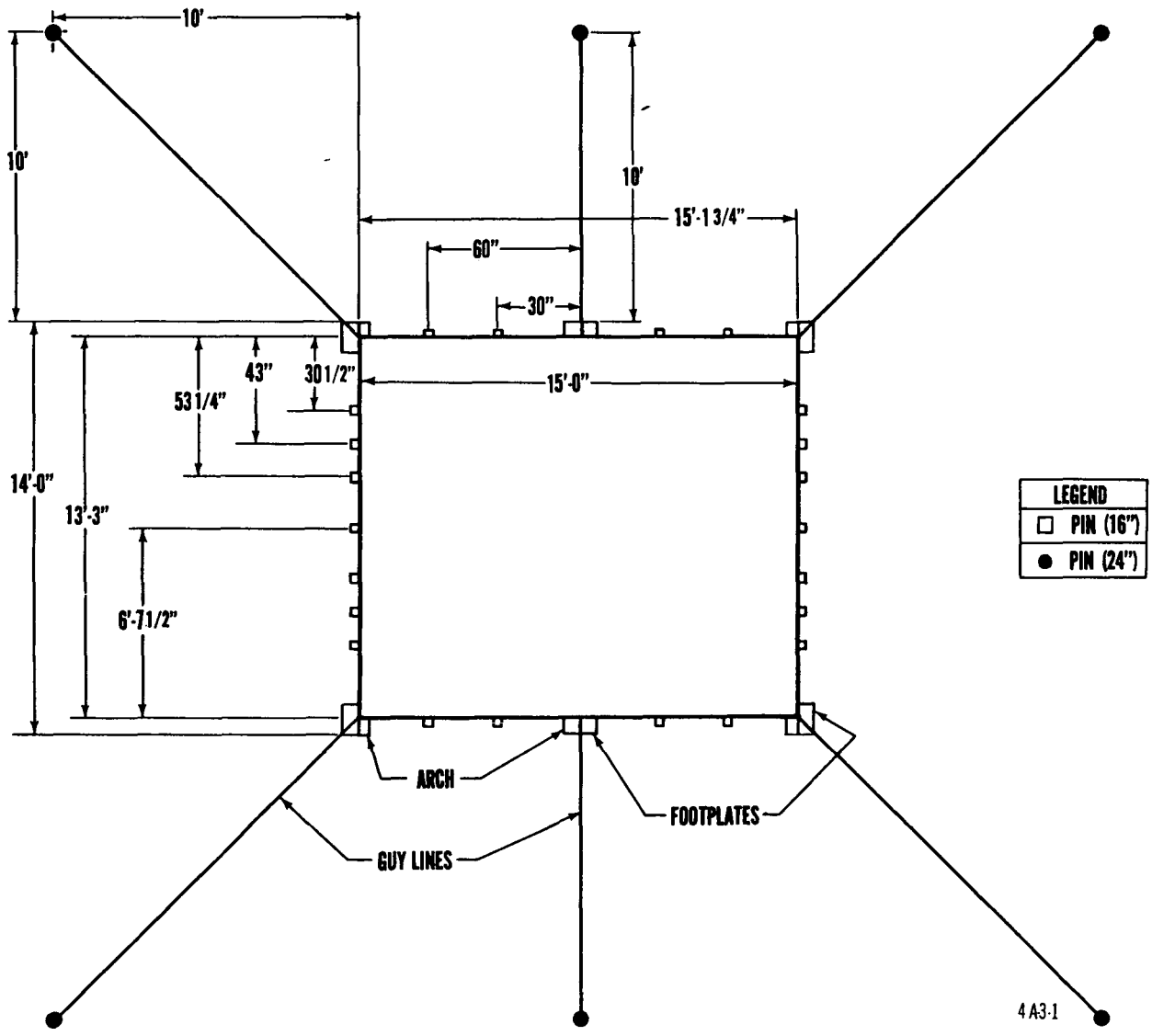


Figure 84. Ground plan of tent, frame-type, balloon inflation, M-1957.

(*a*) Twenty-two 16-inch wood.

(*b*) Six 24-inch wood.

(*c*) Twelve 12-inch steel.

(2) *Lines.*

(*a*) Twenty ¼-inch diameter (footstops).

(*b*) Two 13-foot, sewed one end, $^{5}/_{16}$-inch diameter, one end with eye.

(*c*) Six 15-foot, sewed one end, ⅜-inch diameter, one end with eye.

(*d*) Four 24-foot, unfinished, ⅛-inch diameter.

d. Ground plan. Before pitching the tent, study the ground plan carefully (fig. 84).

e. Pitching. The tent can be pitched by four men in approximately 30 minutes. A label of erection instructions is sewn on the inside rear of the tent.

(1) *Preliminary procedure* (1, and 2, fig. 85).

(*a*) Assemble the three arches and place in the position shown in 1, figure 85.

(*b*) Spread the tent, with the doors securely fastened, in the rear arch.

(*c*) Fasten the tent to the rear arch as far down as the fifth strap before attaching the center arch.

(*d*) Follow the same procedure to fasten the middle of the tent to the center and front arch. Keep the arches even as shown in 2, figure 85.

(2) *Hoisting procedure* (3, fig. 85).

(*a*) Take four of the 15-foot guy lines and hook together to form two hoisting lines.

(*b*) Attach a hoisting line to each end arch at the top and the center.

(*c*) Attach the ventilator hook line to the ventilator hood.

(*d*) Drive a 24-inch pin approximately 14 feet out from, and on the center of, each end.

(*e*) Attach a hoisting line to each pin.

(*f*) Use the hoisting line to pull the front arch up and over until the center arch is in an upright position.

(*g*) Tie off the hoisting lines at both ends to hold in position.

(3) *Raising ends of tent* (4, fig. 85).

(*a*) Adjust the hoisting lines to allow the arches to swing up and out.

(*b*) Lift the end arches and walk out until they are upright.

(4) *Installing purlins* (5, fig. 85).

(*a*) Install the purlins by beginning at the bottom of the frame and working upward.

(*b*) After purlins are installed, fasten all purlin securing straps.

(5) *Securing tent to ground* (5, fig. 85).

(*a*) Lift arches and place footplates in position.

(*b*) Drive 24-inch guy-line pins according to the ground plan.

(*c*) Detach hoisting lines.

(*d*) Hook guy lines to D-rings on the frame, and tie to the 24-inch pins.

(*e*) Insert center footstop pin at each end, and drive remaining footstop pins according to the ground plan.

(*f*) Attach footstops to pins.

(*g*) Aline arches according to the ground plan, and then drive 12-inch pins through the holes in the footplates.

f. Striking.

(1) Make sure doors are securely fastened.

(2) Detach footstops from pins, and then remove footstop pins and footplate pins.

(3) Unfasten all purlin securing straps.

(4) Unfasten arch securing straps and let the tent drop to the ground.

(5) Remove ventilator hood line and move the tent from the framework by lifting. Do not drag the tent.

(6) Remove all guy lines and pins.

(7) Start at the top and remove all purlins between the center and front arches, and then lower the front arch to a horizontal position.

(8) Repeat the above procedure for purlins between the center and rear arches, and then lower the arches to a horizontal position.

(9) Disassemble the arches.

g. Folding and Packing.

(1) *Folding tent.*

(*a*) Lay the tent out flat.

(*b*) Fold the tent accordion style so that the middle section rests between the two end sections.

(*c*) Fold the tent further to form a bundle approximately 3 feet long, 2½ feet wide, and 1 foot high.

(*d*) Exercise care during all folding operations so that the hardware, guy lines, windows, and slide fasteners are well protected within the folds and all air is expelled.

(*e*) Place bundled tent into canvas cover and close the cover by securing it with straps and loops.

(2) *Packing arches and purlins.*

(*a*) Fold the three arches to their smallest dimension.

(*b*) Wire the components of each arch together with strong wire.

(*c*) Bundle the purlins together and wire securely at three points.

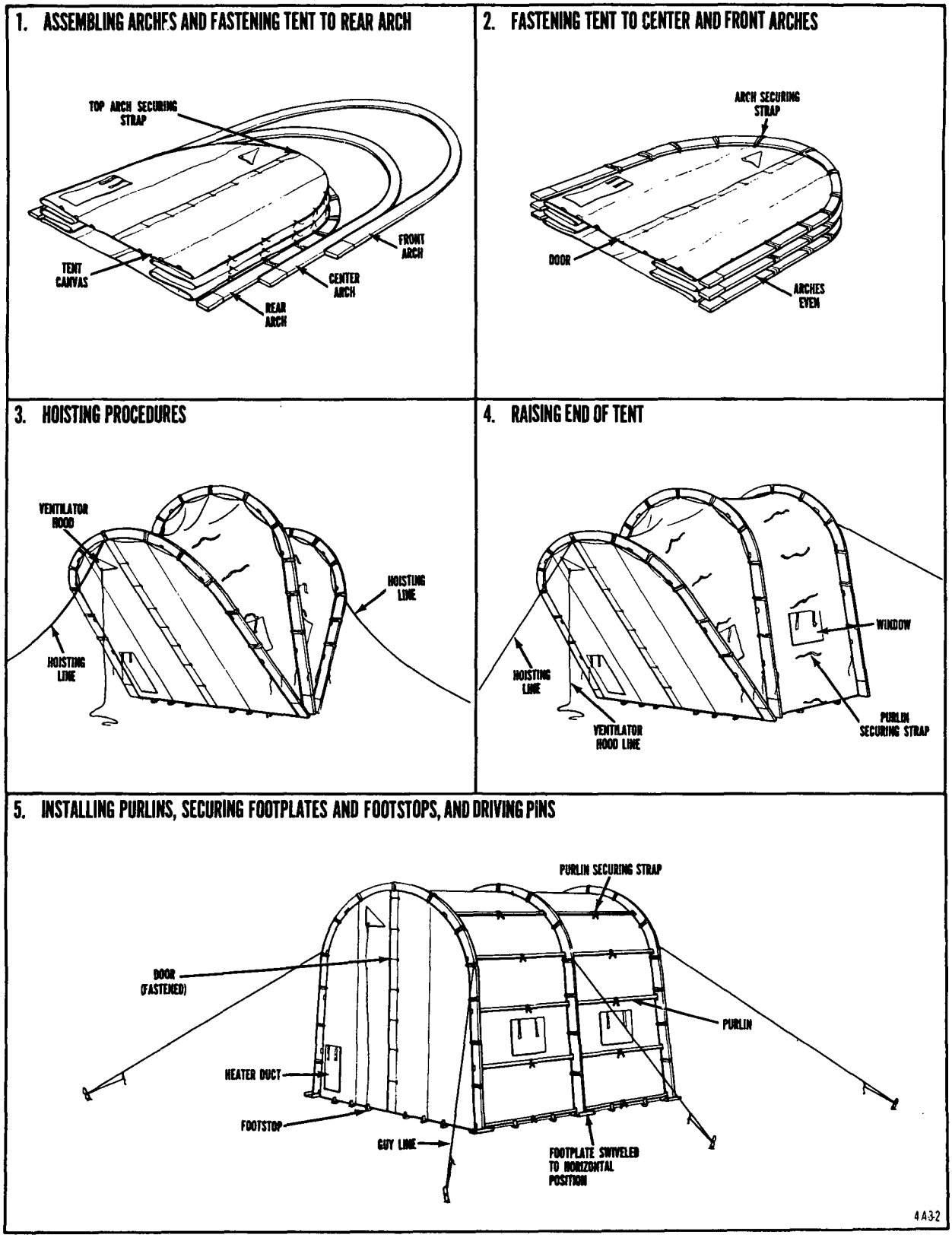
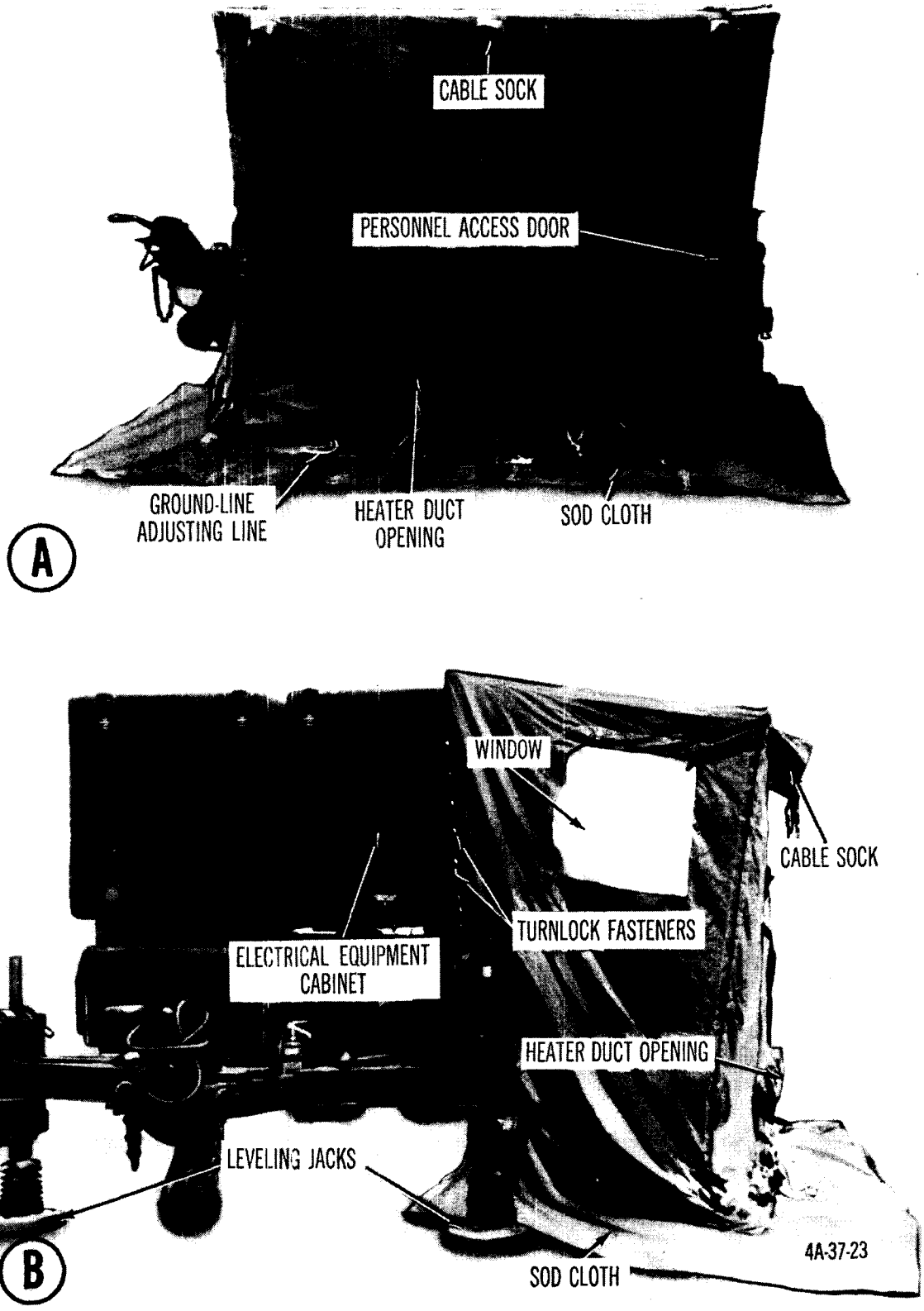


Figure 85. Steps in pitching tent, frame-type, balloon inflation, M-1957.



A. Rear view B. Side view

Figure 86. Tent, maintenance, missile test shop, Hawk Missile System.

18. Tent, Maintenance, Missile Test Shop, Hawk Missile System

a. Use. The tent, maintenance, missile test shop (fig. 86), is designed to provide environmental protection to personnel during operations and maintenance of radar equipment related to the Hawk Missile System.

b. Description. The tent is supported by a lightweight aluminum tubular frame, which is attached to the trailer containing the electronic equipment. The tent is provided with two windows, a personnel access door, and two heater duct sleeves. Each side of the tent is designed for vertical adjustment to suit existing ground conditions.

(1) *Tabulated data.*
Height: front height, 5 feet; rear height, 8 feet 7 inches.
Length: 6 feet.
Width: 8 feet 10 inches.
Weight: 50 pounds.
Cube: 3 cubic feet.
Floorspace: 40 square feet.

(2) *Material.* The tent fabric is made of 9-ounce olive green wind-resistant cotton sateen cloth, FWWMR treated.

(3) *Door.* The personnel access door is a curved slide fastener located at the right rear of the tent.

(4) *Windows.* A window assembly is located on each side of the tent.

(5) *Heating.* The tent is heated by an external heater. Heater duct sleeves are located in the rear of the tent to accommodate the heater ducts.

(6) *Cable socks.* Cable socks are provided at the top rear of the tent to accommodate the necessary electrical cables for the equipment.

(7) *Cover.* A cover is provided for the tent and frame.

c. Pitching. Level the test shop trailer, remove the necessary cables from the electrical equipment cabinet, and close the cabinet cover before pitching the tent.

(1) *Attaching frame to missile test shop cabinet* (fig. 87).

(*a*) Insert tent inner top support in sleeve of tent, and bolt inner top support to the top of the electrical equipment cabinet.

(*b*) Fold the tent on top of the electrical equipment cabinet, and insert the end top supports into the inner top support elbows.

(*c*) Insert the free ends of the end top supports into the elbows of the outer top support.

(*d*) Insert the diagonal end supports into the support brackets on the trailer, and insert the opposite ends of the diagonal end supports into the outer support tee couplings.

(*e*) Tighten all screws in the tent frame.

(2) *Attaching tent to frame.*

(*a*) Place the tent over the frame, and secure it to the frame with the tie-down straps located on the inside of the tent.

(*b*) Attach the walls of the tent to the turnlock fasteners on the electrical equipment cabinet and trailer.

(3) *Securing tent to the ground.*

(*a*) Drive footstop tent pins into the ground directly under the frame outer supports and the front of the electrical equipment cabinet.

(*b*) Secure tent footstops to footstop pins and adjust the ground-line adjusting lines (A, fig. 86) for existing ground conditions.

(*c*) Pull sod cloth away from the tent, and weight the cloth down with rocks, dirt, snow, or other available material.

(*d*) Reinstall necessary cables through the tent cable socks (A, fig. 86). Tighten cable sock drawstrings around cables.

d. Striking.

(1) Remove footstops from footstop pins, and remove all tent pins.

(2) Release the turnlock fasteners, and remove the walls of the tent from the electrical equipment cabinet and trailer.

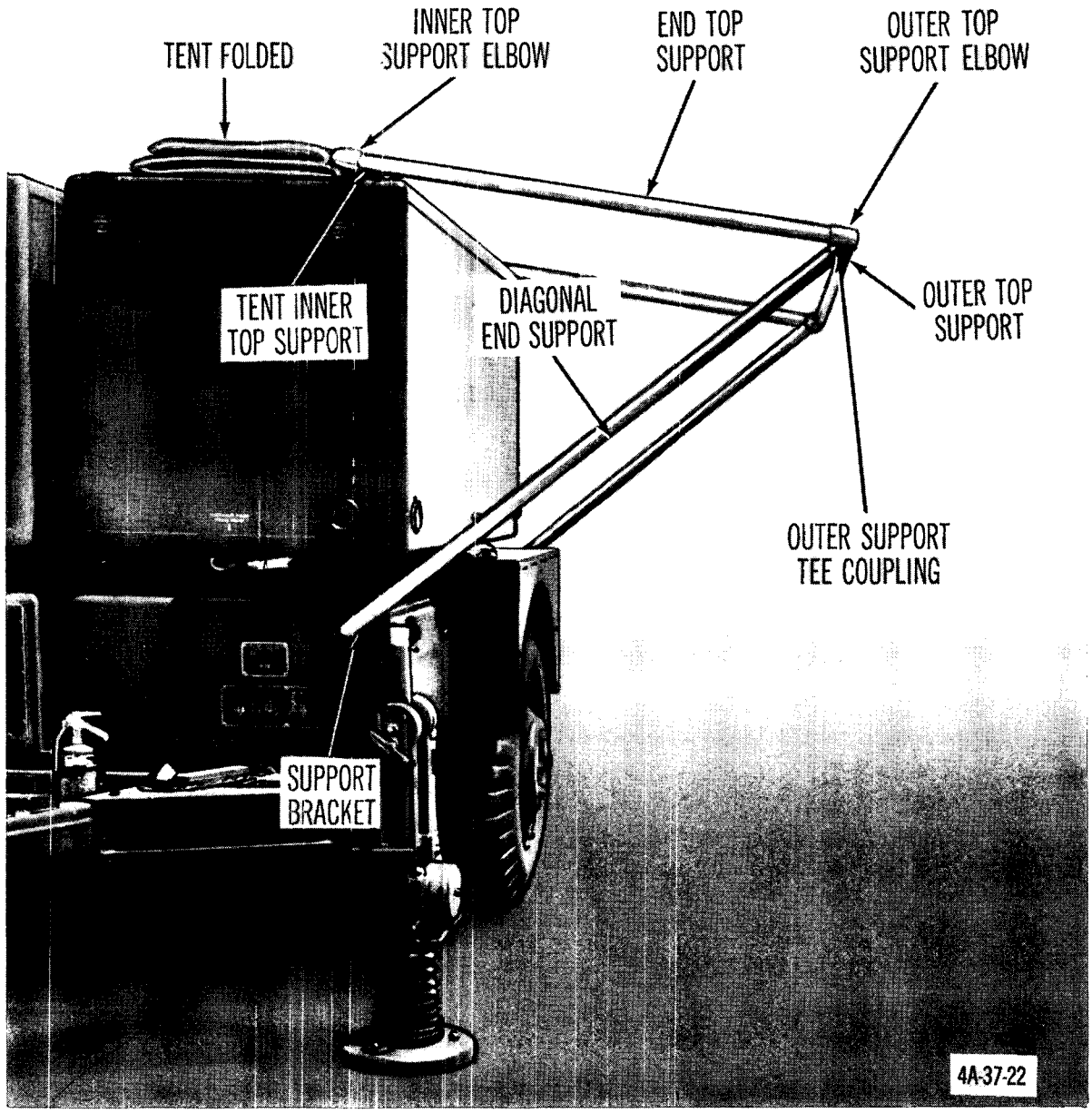


Figure 87. Attaching frame of tent, maintenance, missile test shop, to missile test shop cabinet.

(3) Remove the tent from the frame, and fold the tent on top of the electrical equipment cabinet.

(4) Remove end top supports from the inner and outer top support elbows.

(5) Remove outer top support from diagonal end supports.

(6) Remove diagonal end supports from the support brackets on the trailer.

(7) Remove the tent inner top support from the top of the electrical equipment cabinet.

e. Folding (fig. 88).

(1) Close personnel access door and lay tent out flat, inside up.

(2) Fold tent sides onto the tent, and roll tent toward inner top support. Insert

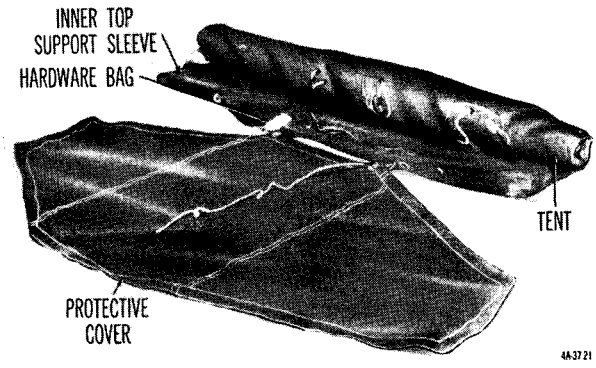


Figure 88. Folding tent, maintenance, missile test shop.

a section of the frame with each roll. Insert the hardware bag before the last roll of the tent.

(3) Place rolled tent on cover, and secure cover with the provided ropes.

19. Tent, Pulse Acquisition Radar, Front, Hawk Missile System

a. Use. The tent, pulse acquisition radar, front (fig. 89), is designed to provide environmental protection to personnel during operations and maintenance of radar equipment related to the Hawk Missile system.

b. Description. The tent is supported by a lightweight aluminum tubular frame, which is attached to the trailer containing the electronic equipment. The tent is provided with two windows, a personnel access door, and two heater duct sleeves. Adjusting lines are provided on all sides of the tent to adjust the tent to suit ground conditions.

(1) *Tabulated data.*
Height: front height, 6 feet 3 inches; rear height, 7 feet 8 inches.
Length: 6 feet 8 inches.
Width: 8 feet.
Weight: 50 pounds.
Cube: 4 cubic feet.
Floorspace: 40 square feet.

(2) *Material.* The tent fabric is made of 9-ounce olive green wind-resistant cotton sateen cloth, FWWMR treated.

(3) *Door.* The personnel access door is a curved slide fastener located on one side of the tent.

(4) *Windows.* A window assembly is located on each side of the tent.

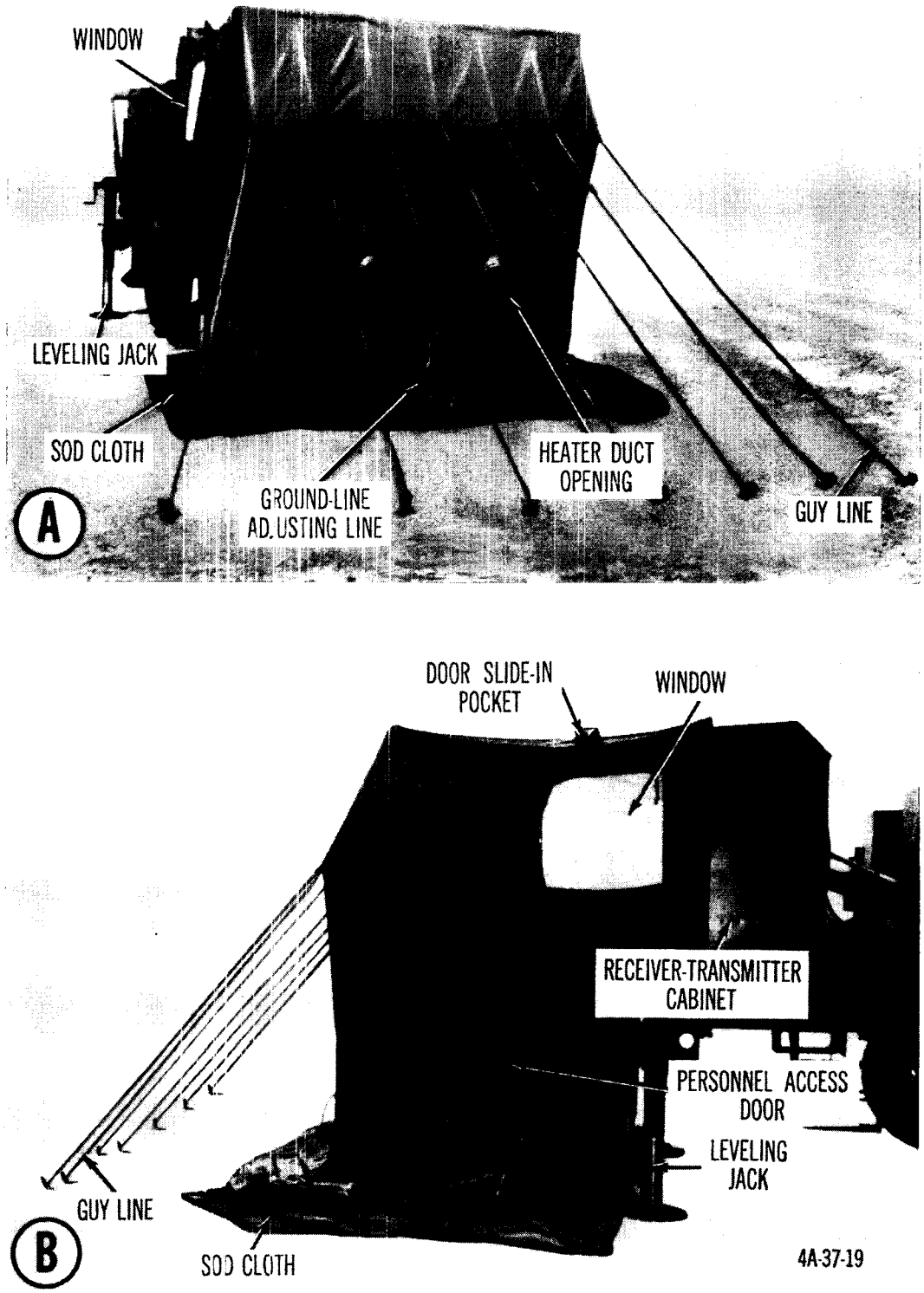
(5) *Heating.* The tent is heated by an external heater. Heater duct sleeves are located in the rear of the tent to accommodate the heater ducts.

(6) *Cover.* A cover is provided for the tent and frame.

c. Pitching. Before pitching the tent, level the radar trailer.

(1) *Attaching frame and tent to the radar and radar trailer* (fig. 90).
(*a*) Bolt tent inner top support to the top of the receiver-transmitter cabinet.
(*b*) Attach the outer top support to the inside of the tent, using the tie-down tabs provided.
(*c*) Insert the lunette support into the outer support tee coupling.
(*d*) Hold the lunette support in a vertical position, and insert the spindle of each diagonal side support through the tent grommets and into the hole at the front of each U-channel of the trailer.
(*e*) Insert the free ends of the diagonal side supports into the elbows of the outer top support.
(*f*) Insert the free end of the lunette support into the lunette of the trailer until the stop pin rests on the lunette.
(*g*) Tighten all screws in the tent frame.
(*h*) Attach the short wall to the pallet, using the snap fasteners, and around each trailer drawbar, using the slide fasteners.
(*i*) Tighten tie tape drawstrings to openings in the leveling jacks.
(*j*) Attach the tent sidewalls to the receiver-transmitter cabinet turn-lock fasteners.

(2) *Securing tent to the ground.*
(*a*) Drive footstop tent pins into the ground directly under the frame outer supports and the front of the receiver-transmitter cabinet, and secure tent footstops to footstop pins.



A. Rear view B. Side view

Figure 89. Tent, pulse acquisition radar, front, Hawk Missile system.

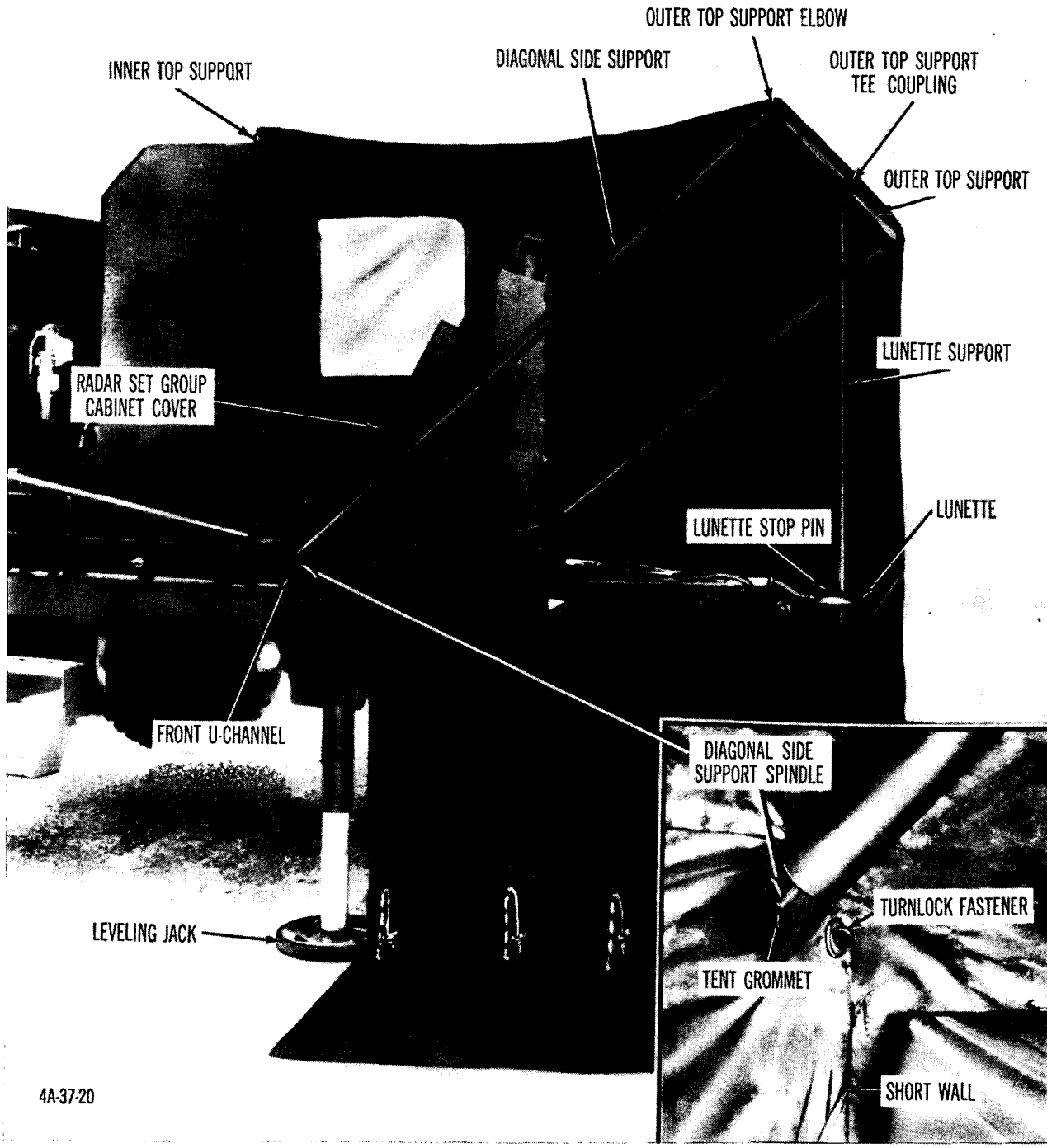


Figure 90. Pitching tent, pulse acquisition radar, front, Hawk Missile system.

(*b*) Drive guy-line tent pins into the ground, and attach and tighten guy lines to pins (fig. 89).

(*c*) Pull sod cloth away from the tent, and weight the cloth down with rocks, dirt, snow, or other available material (fig. 89).

(*d*) When the receiver-transmitter doors are opened, the door slide-in pockets, located above each tent window,

receive the door slide ends (B, fig. 89).

d. Striking. Before striking the tent, make sure the receiver-transmitter door is closed.

(1) Remove footstops and guy lines from tent pins, and remove all tent pins from the ground.

(2) Release sidewall slide fasteners from around trailer drawbars.

(3) Untie and remove tie tape drawstrings from openings in leveling jacks.

(4) Remove tent sidewalls from radar cabinet turnlock fasteners.

(5) Remove lunette support from trailer lunette and from outer top support.

(6) Remove diagonal side supports from trailer U-channels and from outer top support.

(7) Unfasten tent tiedown tabs, and remove top outer support from the tent.

(8) Remove tent inner top support from the top of the radar set group cabinet, and remove the tent from the radar.

e. Folding (fig. 88).

(1) Close all slide fasteners and lay tent out flat, inside up.

(2) Fold tent sides onto the tent, and roll tent toward inner top support. Insert a section of the frame with each roll. Insert the hardware bag before the last roll of the tent.

(3) Place rolled tent on cover and secure cover with the provided ropes.

20. Tent, Pulse Acquisition Radar, Aft, Hawk Missile System

a. Use. The tent, pulse acquisition radar, aft (fig. 91), is designed to provide environmental protection to personnel during operations and maintenance of radar equipment related to the Hawk Missile system.

b. Description. The tent is supported by a lightweight aluminum tubular frame, which is attached to the trailer containing the electronic equipment. The tent is provided with two windows, a personnel access door, and two heater duct sleeves. Adjusting lines are provided on all sides of the tent to adjust the tent to suit ground conditions.

(1) *Tabulated data.*
Height: front height, 5 feet; rear height, 8 feet 7 inches.
Length: 4 feet.
Width: 8 feet.
Weight: 40 pounds.
Cube: 3.5 cubic feet.
Floorspace: 26 square feet.

(2) *Material.* The tent fabric is made of 9-ounce olive green wind-resistant cotton sateen cloth, FWWMR treated.

(3) *Door.* The personnel access door is a curved slide fastener located at the rear of the tent.

(4) *Windows.* A window assembly is located on each side of the tent.

(5) *Heating.* The tent is heated by an external heater. Heater duct sleeves are located in the rear of the tent to accommodate the heater ducts.

(6) *Cover.* A cover is provided for the tent and frame.

c. Pitching. Before pitching the tent, level the radar trailer.

(1) *Attaching frame and tent to the radar and radar trailer.*

(*a*) Bolt tent inner top support to the top of the radar set group cabinet.

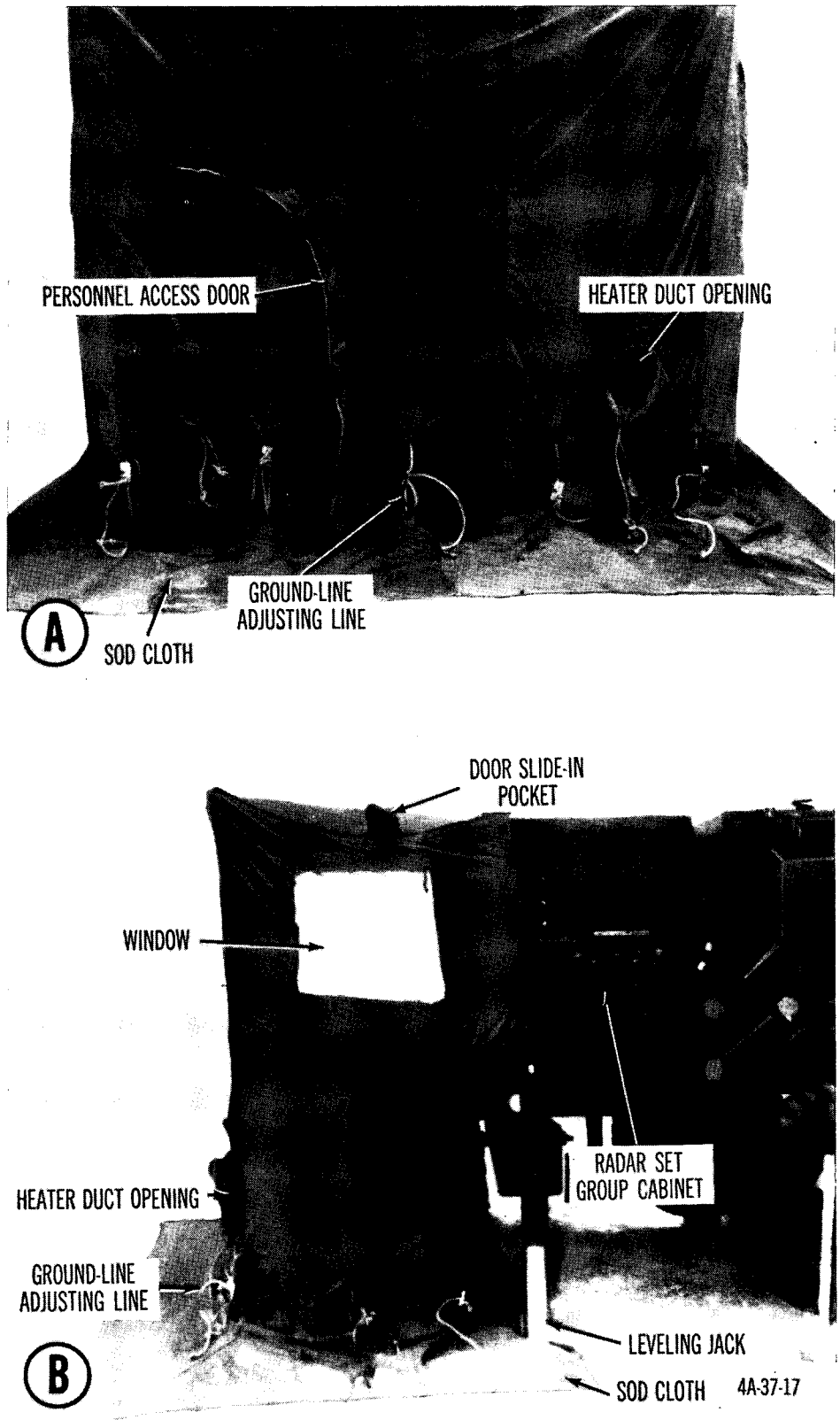
(*b*) Attach the outer top support to the inside of the tent, using the tiedown tabs provided.

(*c*) Insert the diagonal side supports into the outer top support elbows and tighten the elbow screws.

(*d*) Insert the spindle end of each diagonal side support through the tent grommets and into the hole on each end of the rear U-channels of the pallet.

(*e*) Attach tent short wall to the pallet turnlock fasteners.

(*f*) Attach the tent sidewalls to the radar set group cabinet turnlock fasteners.



A. Rear view B. Side view

Figure 91. Tent, pulse acquisition radar, aft, Hawk Missile system.

(2) *Securing tent to the ground.*

(*a*) Drive footstop tent pins into the ground directly under the frame outer supports and the front of the radar set group cabinet, and secure tent footstops to footstop pins.

(*b*) Pull sod cloth away from the tent, and weight the cloth down with rocks, dirt, snow, or other available material.

(*c*) When the radar set group doors are opened, the door slide-in pockets, located above each tent window, receive the door slide ends.

d. Striking. Before striking the tent, make sure the radar set group cabinet is closed.

(1) Remove footstops from footstop pins, and remove the pins from the ground.

(2) Remove tent short wall and tent sidewalls from turnlock fasteners.

(3) Remove diagonal side supports from U-channels of the pallet and from the tent outer top support.

(4) Unfasten tent tiedown tabs, and remove the top outer support from the tent.

(5) Remove the tent inner top support from the top of the radar set group cabinet, and remove the tent from the radar.

e. Folding (fig. 88).

(1) Close personnel access door and lay tent out flat, inside up.

(2) Fold tent sides onto the tent, and roll tent toward inner top support. Insert a section of the frame with each roll. Insert the hardware bag before making the last roll of the tent.

(3) Place rolled tent on cover and secure cover with the provided ropes.

21. Console Tent, Hawk Missile System, Range Only Radar, CW Acquisition and CW Illuminator

a. Use. The console tent, Hawk Missile system, range only radar, CW acquisition and CW illuminator (fig. 92), is designed to provide environmental protection to personnel during operations and maintenance of radar equipment related to the Hawk Missile system.

b. Description. The tent is supported by a lightweight aluminum tubular frame, which is attached to the trailer containing the electronic equipment. The tent is provided with two windows, a personnel access door, and two heater duct sleeves. Adjusting lines are provided on all sides of the tent to adjust the tent to suit ground conditions.

(1) *Tabulated data.*
Height: front height, 2 feet 5 inches; rear height, 8 feet 3 inches.
Length: 6 feet 9 inches.
Width: 8 feet 3 inches.
Weight: 60 pounds.
Cube: 4 cubic feet.
Floorspace: 55.7 square feet.

(2) *Material.* The tent fabric is made of 9-ounce olive green wind-resistant cotton sateen cloth, FWWMR treated.

(3) *Door.* The personnel access door is a curved slide fastener located on one side of the tent.

(4) *Windows.* A window assembly is located on each side of the tent.

(5) *Heating.* The tent is heated by an external heater. Heater duct sleeves are located in the rear of the tent to accommodate the heater ducts.

(6) *Cover.* A cover is provided for the tent and frame.

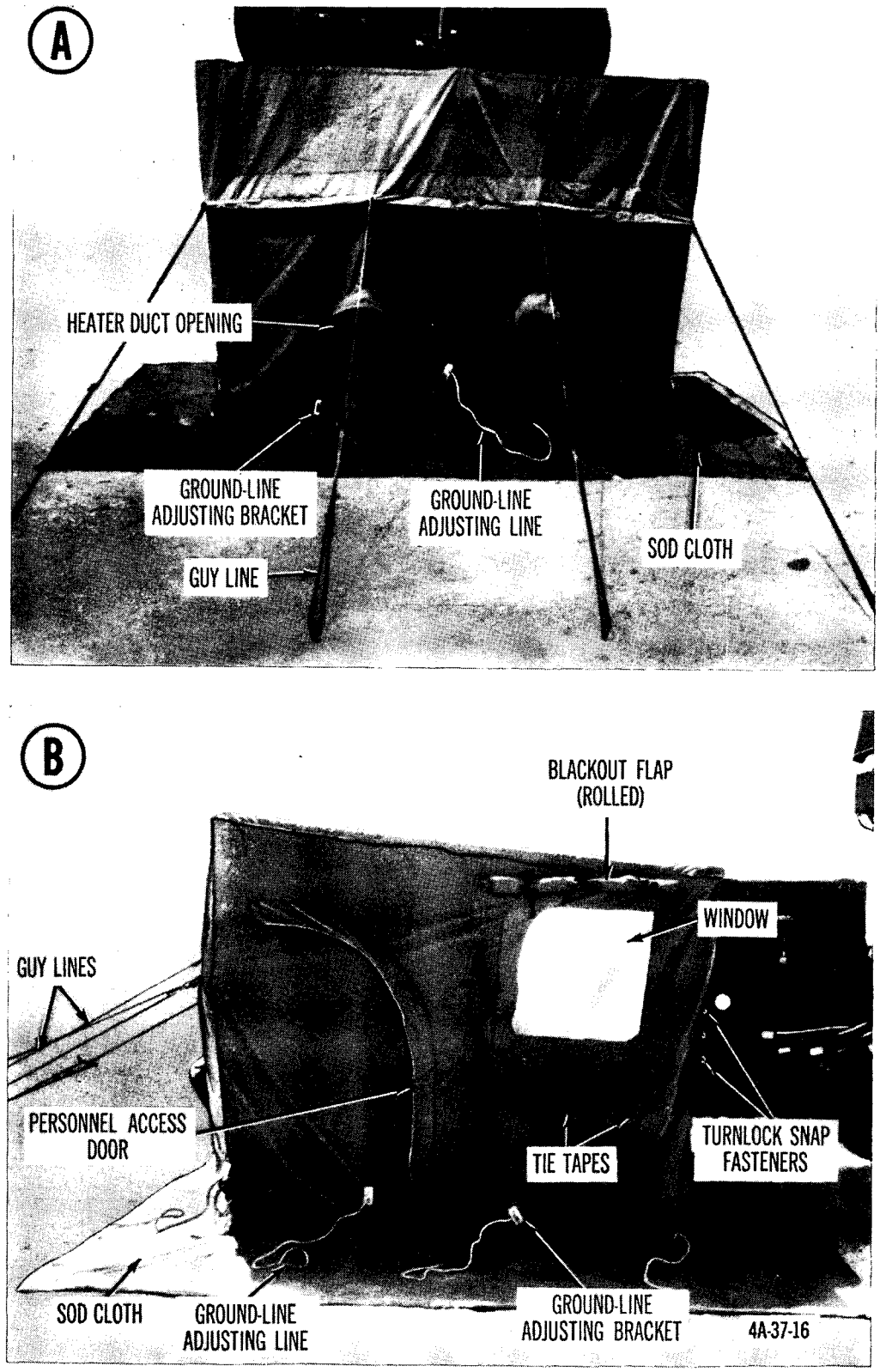
c. Pitching. Before pitching the tent, level the radar trailer.

(1) *Attaching frame to radar set group cabinet* (fig. 93).

(*a*) Bolt inner top support on top of the radar set group cabinet.

(*b*) Fold the tent on top of the radar set group cabinet, insert the side top supports into the inner top support elbows, and tighten the elbow screws.

(*c*) Install tee coupling and elbows onto outer top support, and insert the free ends of the side top supports into the outer top support elbows. Tighten elbow screws.



A. Rear view B. Side view

Figure 92. Console tent, Hawk Missile system, range only radar, CW acquisition and CW illuminator.

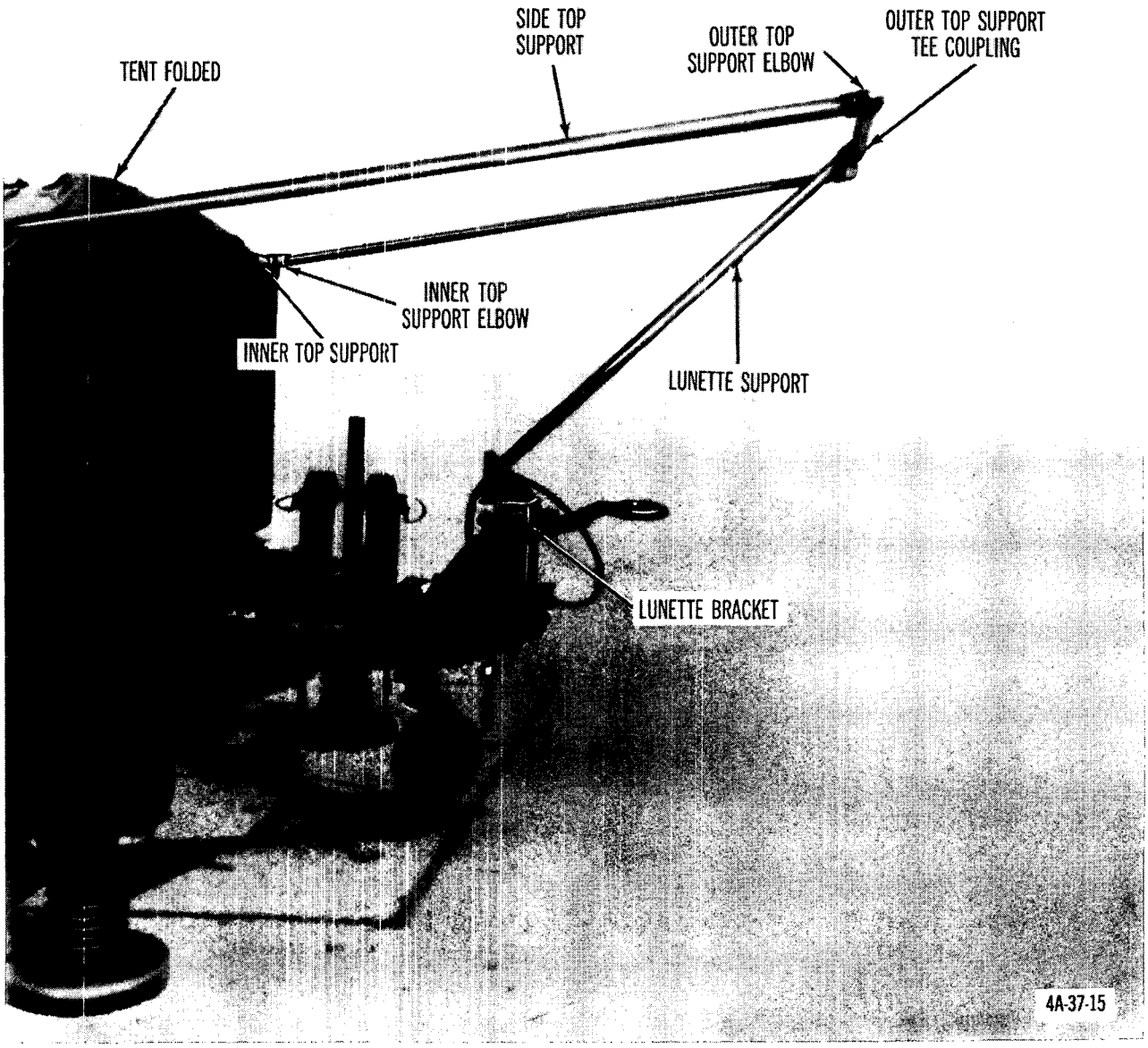


Figure 93. Attaching frame of console tent, Hawk Missile system, range only radar, CW acquisition and CW illuminator, to radar set group cabinet.

(*d*) Insert the round end of the lunette support into the tee coupling of the outer top support, and tighten the tee coupling screw.

(*e*) Insert the flat end of the lunette support into the lunette bracket, and engage the slot of the lunette support over the pin of the lunette bracket.

(2) *Attaching tent to frame* (fig. 92).

(*a*) Place the tent over the frame, and secure it to the frame with the tie-down straps located on the inside top edges of the tent.

(*b*) Attach the walls of the tent to the turnlock fasteners on the radar set group cabinet and trailer.

(*c*) Attach the short wall to the sidewall of the tent by means of the slide fastener.

(3) *Securing tent to the ground* (fig. 92).

(*a*) Drive footstop tent pins into the

ground directly under the frame outer supports and the front of the equipment cabinet.

(*b*) Secure the tent footstops to the footstop pins and adjust the ground-line adjusting lines for existing ground conditions.

(*c*) Drive guy-line tent pins into the ground, and attach and tighten guy lines to pins.

(*d*) Pull sod cloth away from the tent, and weight the cloth down with rocks, dirt, snow, or other available material.

d. Striking. Before striking the tent, close the radar set group cabinet cover.

(1) Remove footstops and guy lines from tent pins, and remove all tent pins from the ground.

(2) Release the turnlock fasteners and slide fasteners, and remove the walls of the tent from the radar set group cabinet and trailer.

(3) Release the tiedown straps and remove the tent from the tent supports.

(4) Remove the lunette support from the lunette and outer top support.

(5) Remove the side top supports.

(6) Remove tent inner top support from the top of the radar set group cabinet, and remove the tent from the radar.

e. Folding (fig. 88).

(1) Close all slide fasteners and lay tent out flat, inside up.

(2) Fold tent sides onto the tent, and roll the tent toward the inner top support.

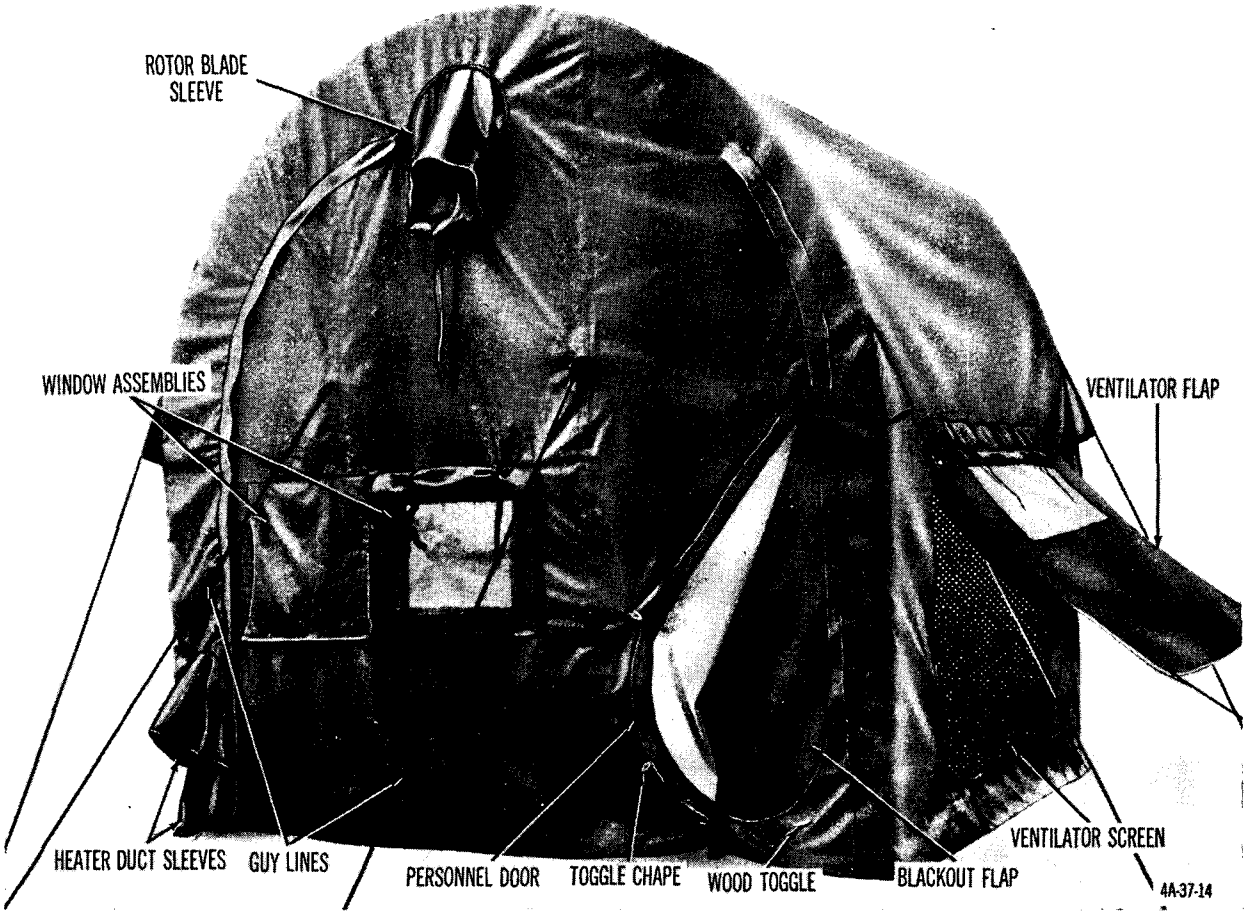


Figure 94. Tent, aviation maintenance, small.

Insert a section of the frame with each roll; insert the hardware bag before the last roll of the tent.

(3) Place rolled tent on cover and secure cover with the provided ropes.

22. Tent, Aviation Maintenance, Small

a. Use. The tent, aviation maintenance, small (fig. 94), is designed to provide all-weather environmental protection to personnel performing maintenance on 0–1, U–6A, and OH–13 aircraft.

b. Description. The tent is rectangular shaped with an arched top, and consists of an aluminum frame, a roof and end assembly, a tent liner, and three end closures for use, as appropriate with the O–1, U–6A, or OH–13.

(1) *Tabulated data.*
Height: 12 feet.
Length: 10 feet.
Width: 12 feet.
Weight: tent fabric, 121 pounds; tent frame, 240 pounds.
Cube: 26.8 cubic feet.
Floorspace: 120 square feet.

(2) *Material.* The tent outer fabric, and the three end closures, are made of 13- to 15-ounce neoprene-hypalon-coated polyester cloth.

(3) *Door.* The personnel door is a curved slide fastener located in the rear of the tent. When closed, the door is further secured with toggle chapes and wood toggles. A blackout curtain for the personnel door is sewn to the inside of the tent.

(4) *End closures.* The tent is provided with end closures (figs. 98, 99, and 100) to accommodate the O–1, U–6A, and OH–13 aircraft. Each end closure consists of a slide fastener around the side and roof edges; an aircraft closure opening, and two tent guy lines.

(5) *Ventilation.* The tent has two ventilators, one located at each side of the tent. Each ventilator assembly consists of a cloth netting insect screen, a U-shaped ventilator flap, and two ventilator guy lines. A window assembly is installed in each ventilator flap. The flaps are attached at the top to the tent sidewalls and are secured at the sides and bottom with slide fasteners, toggle chapes, and wood toggles.

(6) *Windows.* There are two window assemblies on the rear of the tent and a window assembly on each tent ventilator flap. Each window assembly at the rear of the tent consists of a plastic window screen, a vinyl plastic windowpane, and a canvas blackout flap. The window assemblies on the ventilator flaps consist of a vinyl plastic windowpane, and a canvas blackout flap. The windowpane is attached at the top to the wall or ventilator flap and is secured at the sides and bottom by a slide fastener. The slide fastener may be unfastened and the windowpane rolled up and tied at the top with tie tapes. When the blackout flap is in use, it is secured by tying tie tapes at the two sides and at the bottom; when not in use, it is rolled up and tied at the top with tie tapes.

(7) *Liner.* The tent is also equipped with a 5.2-ounce cotton sheeting tent liner. The liner provides insulation from the cold in winter and reduces radiation from the sun in summer. The liner is secured to the tent frame with tie tapes.

(8) *Heating.* The tent is heated by an exterior 150,000-B.t.u. duct-type portable gasoline heater. Two heater duct sleeves are located in the rear of the tent.

(9) *Blower.* A ⅓-horsepower electric fan is used for operating the tent under blackout conditions in oppressive heat. The fan is placed inside the tent and one of the heater duct sleeves is fitted to the fan intake; the other heater duct sleeve is tied closed.

(10) *Covers.* Two bag-type tent covers are provided for packing the fabric sections of the tent.

c. Pitching. The tent can be pitched by four men in approximately 1 hour.

(1) *Assembling top portion of frame* (fig. 95).

(*a*) Lay out all frame components in area selected for erection of the tent.

(*b*) Assemble the arches by inserting joints of upper arch segments into intermediate arch segments.

(*c*) Assemble the arch purlins by inserting one end of half the purlin into the other half of the purlin and securing the parts together with attached pin and chain assemblies.

(*d*) Place the partially assembled arches approximately 10 feet apart, and hold them in an upright position.

(*e*) Attach three purlins to arches by inserting end studs of purlins into arch key lock slots. Turn purlins approximately one-fourth of a turn and insert studs of purlin diagonal braces into slots of arch assemblies. Turn shackles at ends of braces, one-fourth of a turn, and press down or up on shackles to lock them in place.

(2) *Attaching tent to frame and raising frame* (fig. 96).

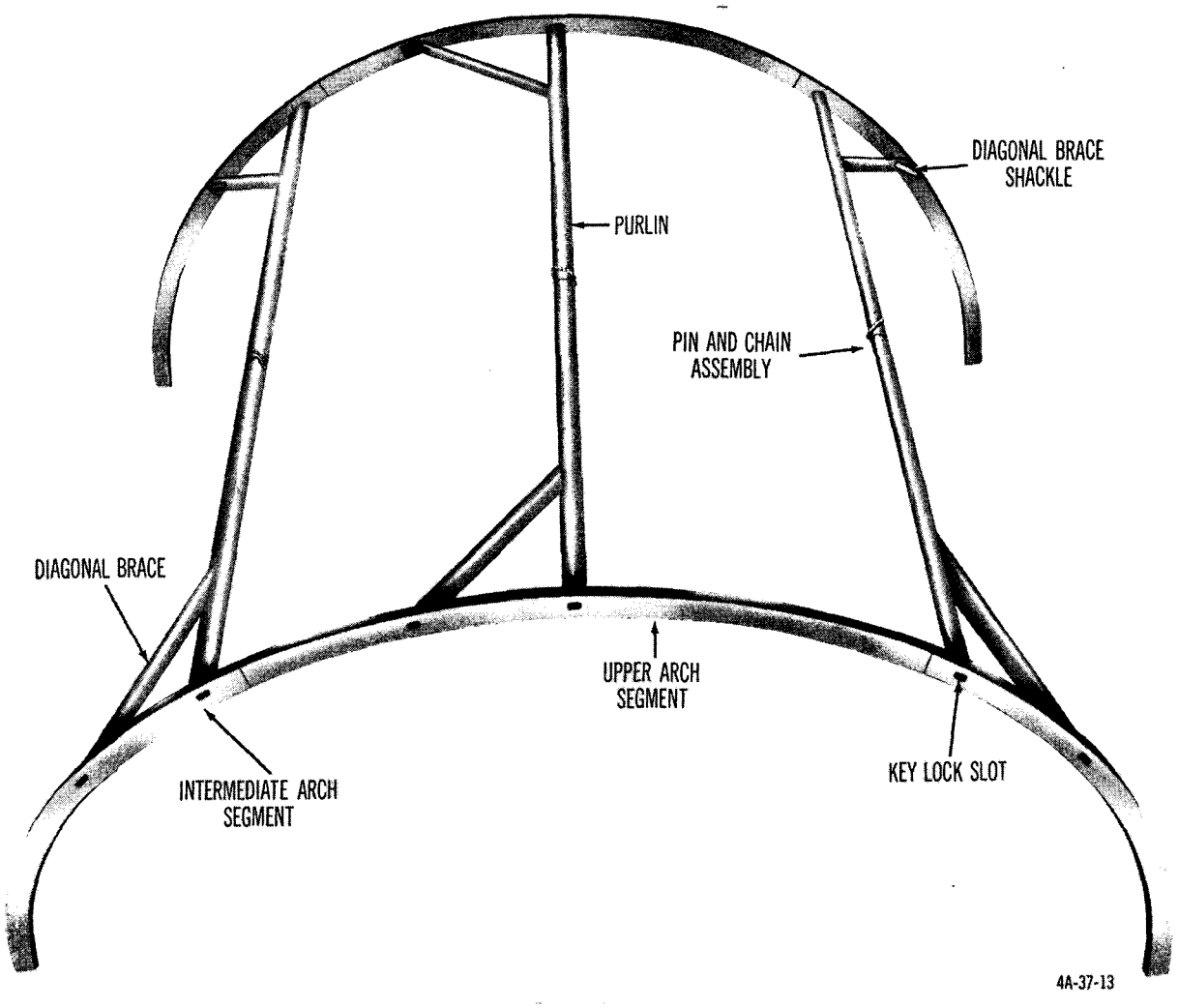


Figure 95. Top portion of frame assembled (tent, aviation maintenance, small).

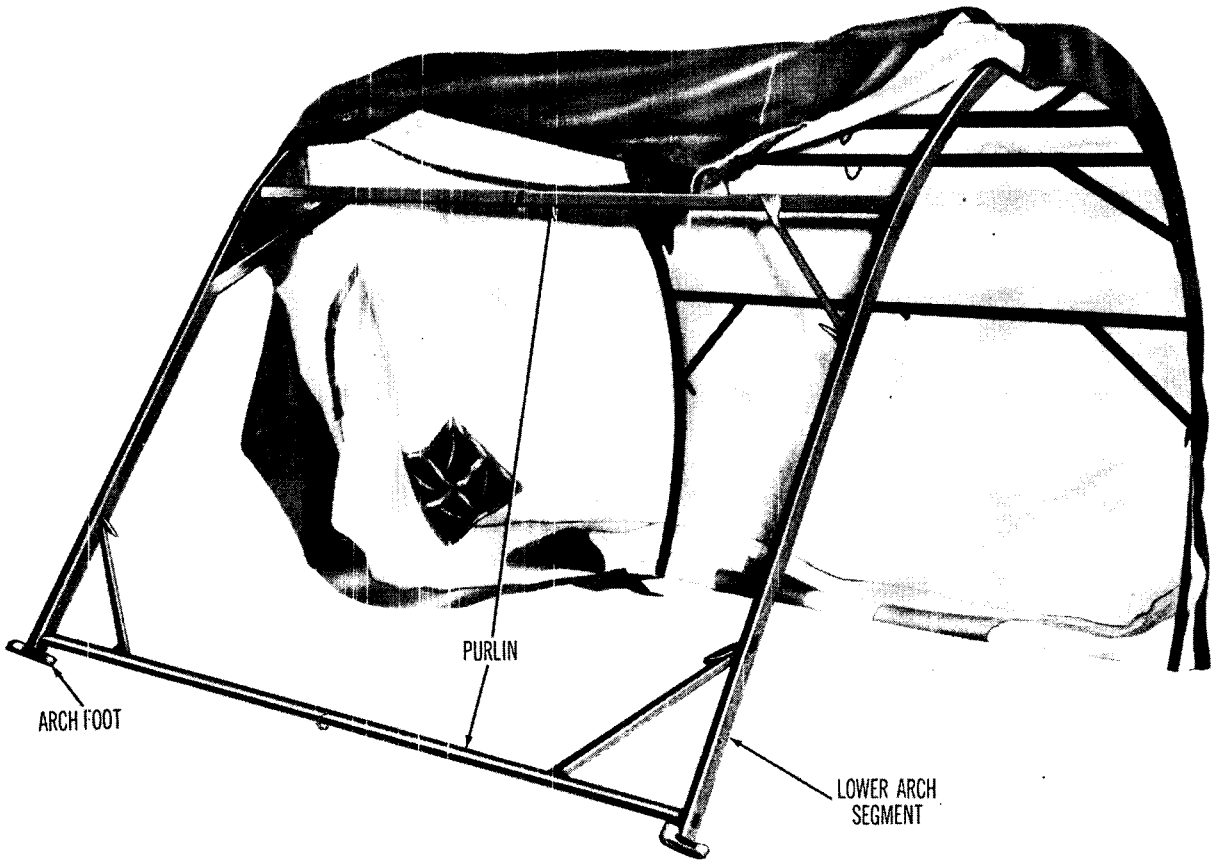


Figure 96. Attaching tent to frame and raising frame (tent, aviation maintenance, small).

(*a*) Place roof and end section of tent over the partially assembled tent frame.

(*b*) Insert an arch foot in the bottom end of each lower arch segment. Join the segments together with purlins.

(*c*) Raise one side of frame and insert joints of two lower arch segments, which have been joined together with a purlin, into intermediate arch segments. Lock lower arch segments to frame with another purlin.

(*d*) Raise other side of tent as described in (*c*) above.

(3) *Securing tent to frame and frame to to ground* (fig. 97).

(*a*) Raise arch feet (one at a time) of one arch, and insert hook ends of a cable assembly in arch feet. Adjust arch until cable assembly is tight, and anchor arch feet to the ground with steel tent pins.

(*b*) Secure other arch to the ground as described in (*a*) above.

(*c*) Attach arch hooks at open end of tent fabric to lower arch segments.

(*d*) Pull sod cloth, at each side of tent, under bottom purlin; wrap purlin flaps over lower purlins; secure lacing line S-hooks in bottom purlin flaps to grommets in top purlin flaps; pull both ends of lacing lines to tighten; and tie ends of lacing lines to arches.

(*e*) Secure snaps at bottom of end section to ground cable assembly. Pull sod cloth under ground cable.

(*f*) Insert footstop tent pins through footstops in tent, and drive pins into the ground.

(*g*) Drive an arrowhead ground anchor (para. 29*b*) into the ground 6 feet diagonally from each corner of the tent.

(*h*) Slip loop and toggle bar of each guy assembly through a tent guy-line sleeve, pass loop around arch and over purlin inside the tent, and slip toggle bar through loop to secure guy line to tent frame (1, fig. 55).

(*i*) Attach guy assembly S-hook to ground anchor loop, adjust guy assembly for proper tension, and close guy assembly toggle (2, fig. 55).

(*j*) Measure out 6 feet from the bottom of the tent end section, in line with the end assembly guy lines, and drive two tent pins into the ground. Attach and tighten guy lines to tent pins (fig. 94).

(4) *Attaching tent liner to inside of tent.*

(*a*) Unfold tent liner inside tent so that tie tapes are exposed.

(*b*) Raise liner and tie center row of tie tapes to center purlin at top of tent frame.

(*c*) Tie adjacent rows of tie tapes to lower purlins until liner is secured.

(5) *Installing wiring harness assembly.*

(*a*) Attach and secure hanger assembly

Figure 97. Securing tent to frame and frame to ground (tent, aviation maintenance, small).

to either arch, about 4 feet from the ground.

(*b*) Install circuit breaker in hanger assembly.

(*c*) Connect lighting and outlet assembly to cord protruding from top of circuit breaker. Hang lights and power outlets to desired points in the tent with hanger hooks.

(*d*) Pass cord protruding from bottom of circuit breaker under lowest purlin, and connect the cord to an appropriate outside power source.

(6) *Attaching an end closure to tent.*

(*a*) Close all slide fasteners on end closure.

(*b*) Attach slide fastener chain on end closure to slide fastener chain on exposed end of tent, and close the slide fastener.

(*c*) Secure snaps to D-rings at bottom of each slide fastener.

(*d*) Secure snaps at bottom of end closure to ground cable assembly.

(*e*) Insert footstop tent pins through footstops in end closure, and drive pins into the ground.

d. Use of End Closures.

(1) *Tent section, end closure, O–1* (fig. 98).

(*a*) Open slide fastener running from aircraft opening to ground cable.

(*b*) Place edges of aircraft opening around 0–1 aircraft, at a point behind the engine cowling, and close

Figure 98. Tent section, end closure, 0–1 (tent, aviation maintenance, small).

end closure slide fastener. Fasten slide fastener snap to D-ring at bottom of slide fastener.

(*c*) Fasten aircraft opening retainer rings together.

(*d*) Measure out 6 feet from bottom of end closure, in line with end closure guy lines, and drive two tent pins into the ground. Attach and tighten guy lines to tent pins.

(2) *Tent section, end closure, U–6A* (fig. 99).

(*a*) Open slide fastener running from aircraft opening to ground cable.

(*b*) Place edges of aircraft opening around U–6A aircraft, at a point behind engine cowling, and close end closure slide fastener. Fasten slide fastener snap to D-ring at bottom of slide fastener.

(*c*) Fasten aircraft opening retainer rings together.

(*d*) Wrap sleeve around engine exhaust manifold, close sleeve slide fastener, and secure sleeve with retainer rings.

(*e*) Measure out 6 feet from bottom of end closure in line with end closure guy lines, and drive two tent pins into the ground. Attach and tighten guy lines to tent pins.

(3) *Tent section, end closure, OH–13* (fig. 100).

(*a*) Open slide fastener running from bottom edge of end closure to aircraft opening; open slide fastener

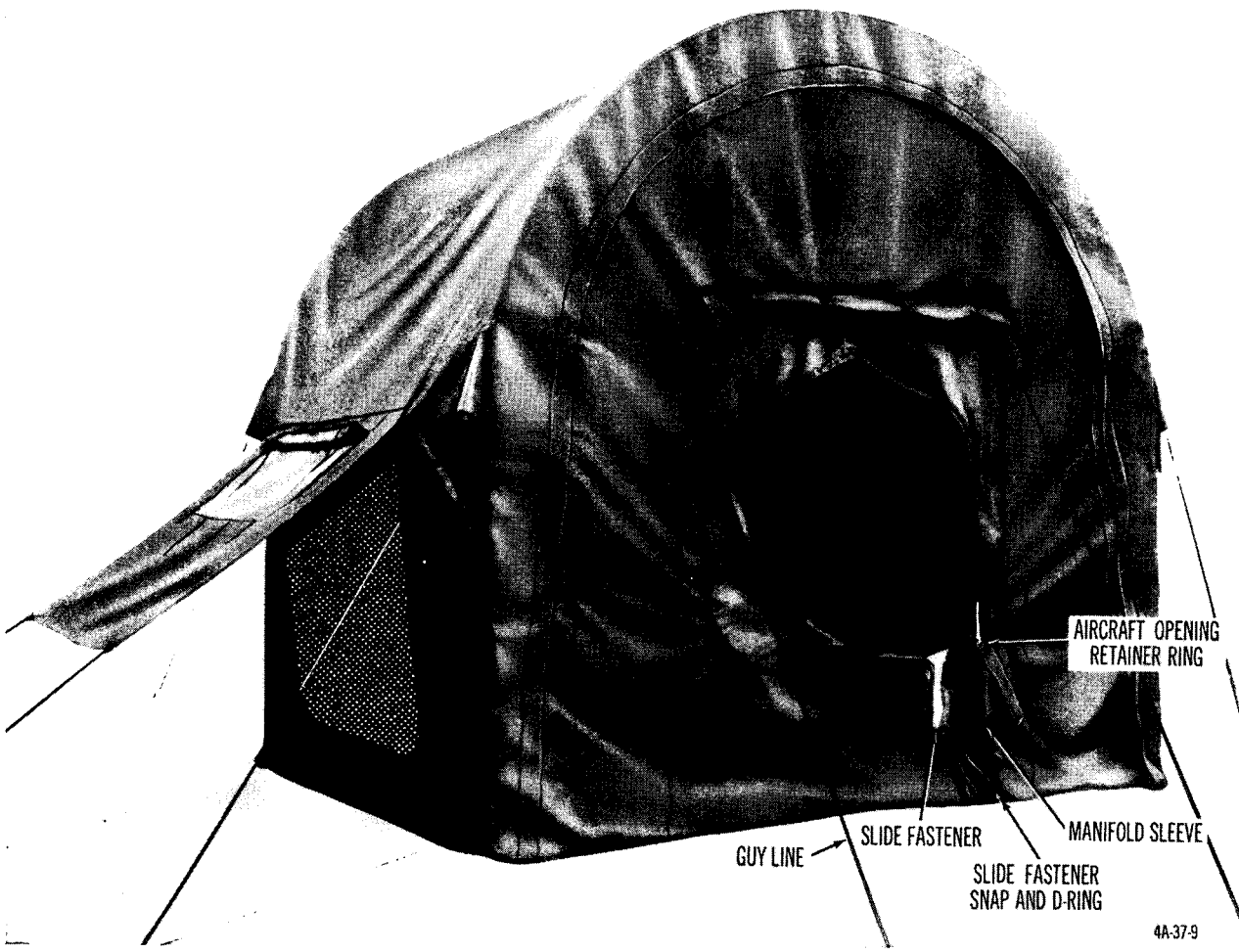


Figure 99. Tent section, end closure, U–6A (tent, aviation maintenance, small).

running from aircraft opening to rotor blade sleeve.

(*b*) When placing OH–13 aircraft into tent, pass the forward aircraft rotor blade through rotor blade sleeve on end portion of tent roof and end assembly (fig. 94). Secure sleeve around rotor blade with tie tapes.

(*c*) Secure end closure rotor blade sleeve around rear aircraft rotor blade with tie tapes.

(*d*) Close end closure slide fasteners. Secure slide fastener snap to D-ring at bottom of end closure.

(*e*) Secure buckles and tie tapes on flap of aircraft end closure opening.

(*f*) Measure out 6 feet from bottom of end closure, in line with end closure guy lines, and drive two tent pins into the ground. Attach and tighten guy lines to tent pins.

e. Striking. The tent can be struck by four men in approximately 1 hour.

(1) *Removing end closures.*

(*a*) Remove aircraft from tent.

(*b*) Close end closure slide fasteners and flap.

(*c*) Remove guy lines from tent pins, and roll and tie guy lines. Remove tent pins from the ground.

(*d*) Remove footstops from footstop pins, and remove pins from the ground.

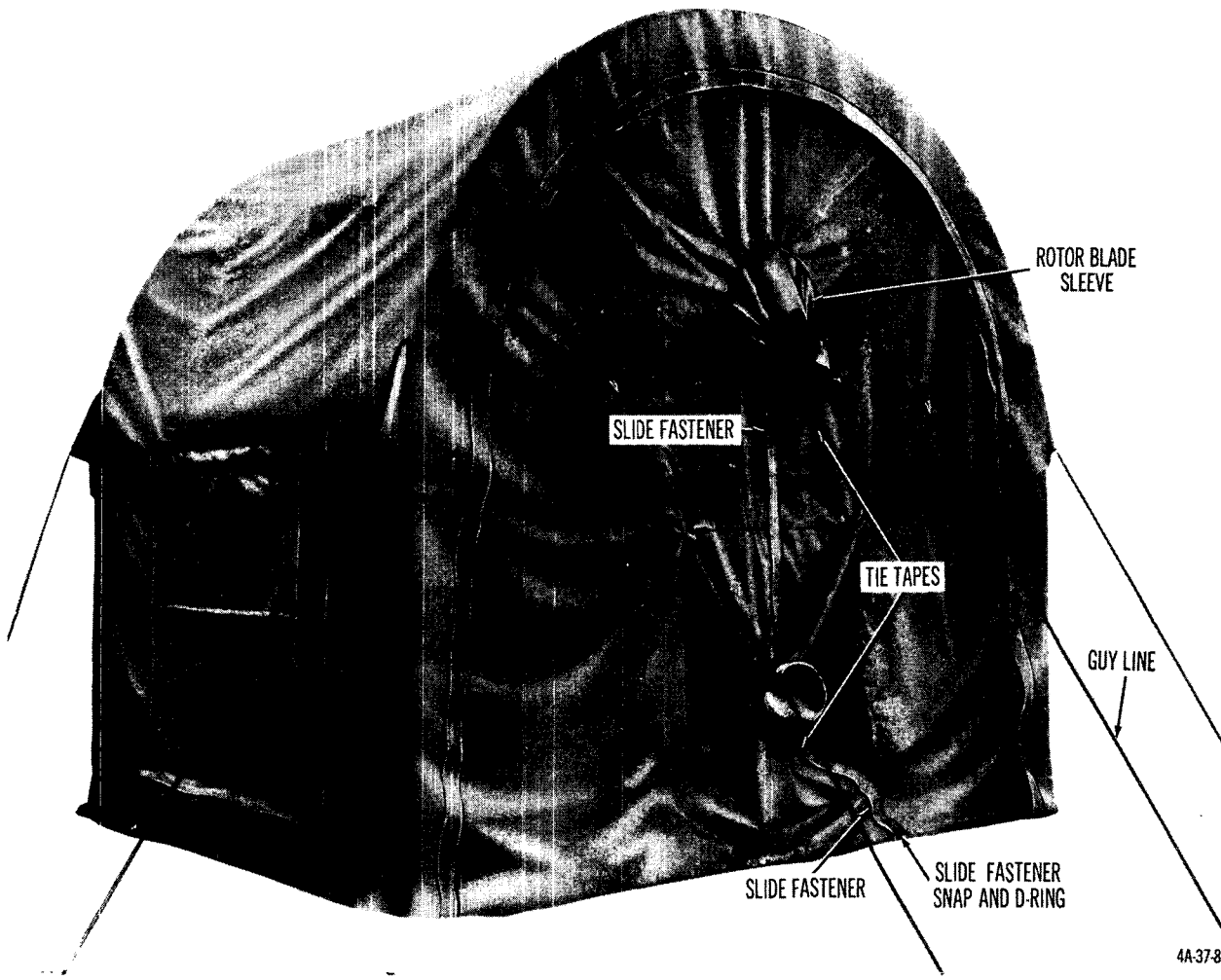


Figure 100. Tent section end closure, OH–13 (tent, aviation maintenance, small).

(e) Remove snaps from ground cable.
(f) Unfasten closure slide fastener from front of tent, and remove closure from tent.

(2) *Removing wiring harness assembly.*
(a) Disconnect cord connected to power source.
(b) Disconnect lighting and outlet assembly from circuit breaker cord and from points within the tent.
(c) Remove circuit breaker from hanger, and remove hanger from frame arch.

(3) *Removing liner.* Remove liner from tent by untying tie tapes attached to purlins.

(4) *Removing guy assemblies.* Remove all guy assemblies from ground anchors and from tent frame. Ground anchors are not retrieved.

(5) *Removing roof and end assembly from tent frame.*
(a) Remove tent footstops from footstop pins. Remove guy lines from tent, and roll and tie guy lines. Remove tent pins from the ground.
(b) Untie lacing lines from arches and remove lacing line S-hooks from grommets in purlin flaps.
(c) Remove arch hooks from arches.
(d) Remove snaps from ground cable.
(e) Close and secure ventilator flaps.
(f) Close and secure window assemblies.
(g) Close and secure personnel door.
(h) Remove roof and end assembly from tent frame.

(6) *Disassembling tent frames.*
(a) Remove tent pins from arch feet, lift arch feet (one at a time), and remove ground cables from tent frame.
(b) Disconnect purlin diagonal braces from arches, and remove purlins from arches.
(c) Disassemble arch purlins.
(d) Remove arch feet from arches and disassemble arches.

f. Folding and Packing (fig. 101).

(1) Fold tent roof and end assembly into a small bundle. Do not fold window assemblies. Place folded tent roof and end assembly in large bag-type cover. Secure cover with drawstrings.

(2) Fold tent end closures into small bundles and place them in a small bag-type cover.

(3) Fold tent liner into a small bundle and place it in small bag-type cover. Secure cover with drawstrings.

(4) Stack arch segments and tie stacks with provided lashing lines.

(5) Bundle purlin sections and tie bundles with provided lashing lines.

(6) Tie arch feet together with provided lashing lines.

(7) Bundle tent pins, ground cable assemblies, and guy assemblies together and tie with provided lashing lines.

(8) Bundle wiring harness assembly and tie bundle with wiring harness assembly cord.

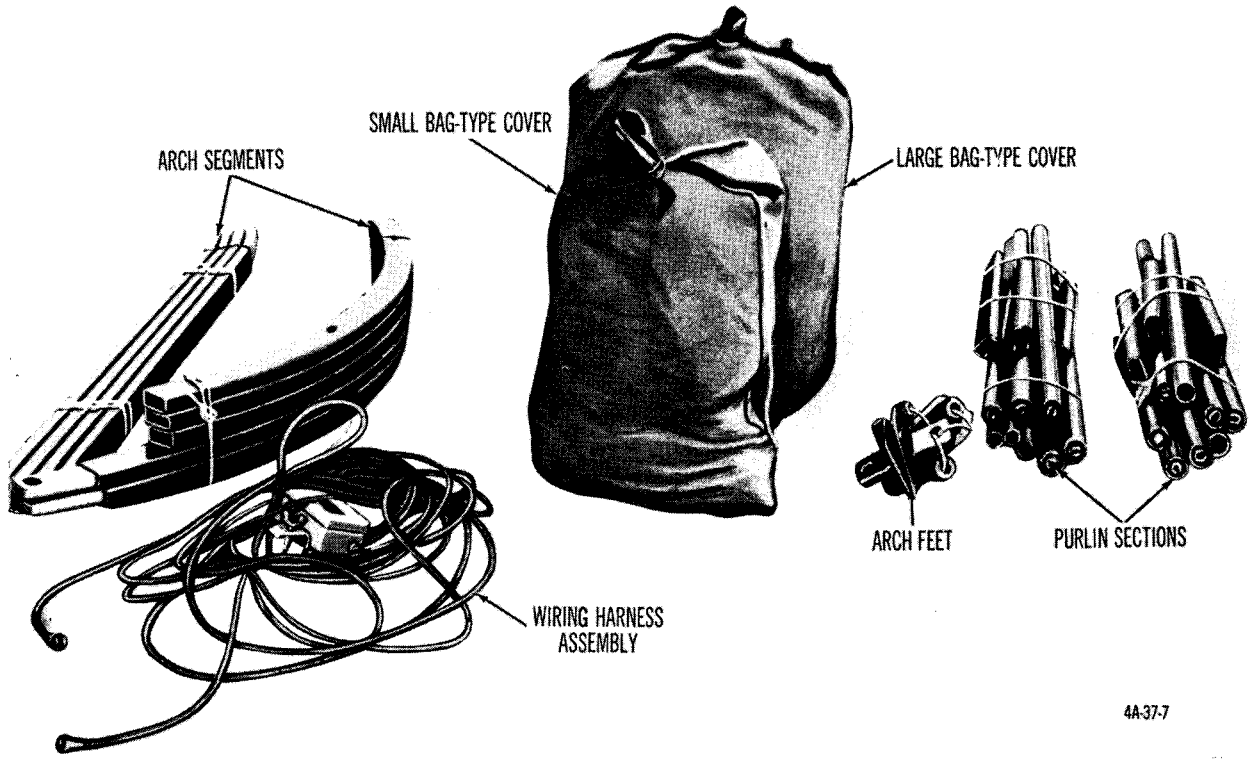


Figure 101. Folding and packing tent, aviation maintenance, small.

CHAPTER 4

MARKERS AND SCREENS

23. Large Red Cross Marker

a. Use. The large Red Cross marker is used by the Medical Corps. It is designed to be spread flat on the ground to indicate a hospital area.

b. Description. The marker is composed of five 20-foot-wide sections made of 9.68-ounce vinyl-coated cotton duck. The marker weighs 1,225 pounds.

c. Pitching. Spread sections on ground in proper sequence: end section, intermediate section, center section, intermediate section, and end section. Fasten sections together by inserting pins through overlapping grommets of sections and through grommets around edge of marker so that a large red cross on a white field is formed.

d. Striking. Remove pins and separate sections.

e. Folding.

(1) Fold each of the five sections separately. Fold each section twice toward center along its long dimension. Then, in 2½-foot folds, fold ends of each section toward center. Place each folded section on a cover.

(2) Place the 55 pins provided with each section in a pin roll and close roll securely, tying with tie tapes. Place each pin roll, with pins, on top of a folded section.

(3) Close flaps of each cover securely and tie tielines tightly through grommets, making sure that no part of marker is exposed.

24. Small Red Cross Marker

a. Use. The small Red Cross marker (fig. 102) is used by the Medical Corps. It is designed to be lashed down over the ridge of an A-shaped tent (usually a general purpose tent) to indicate the use of that tent for medical purposes.

b. Description. The marker is made of 9.68-ounce vinyl-coated cotton duck, bearing two red crosses on a white field. The marker weighs 25 pounds and has a cubage in storage of 1.5 cubic feet. The marker is provided with center guy lines, corner guy lines, and tent slips so that it can be lashed down securely.

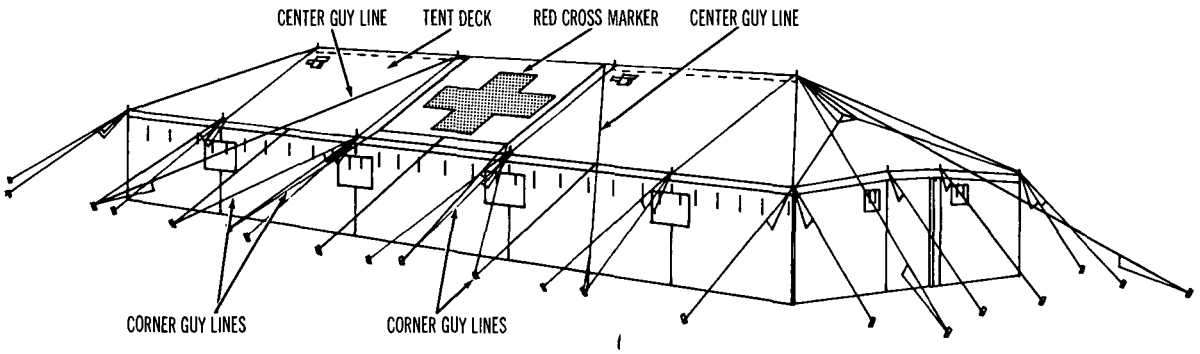


Figure 102. Small Red Cross marker attached to tent, general purpose, large.

c. Pitching.

(1) Spread Red Cross marker over roof of tent on which it is to be displayed. Place center of marker over ridge of tent so that one of the Red Cross insignia is on each side of tent roof and one end of each guy line falls to each side of the tent.

(2) Spread each side of marker out smooth by adjusting the corner lines.

(3) Attach corner guy lines and center guy lines to pins staked out for tent lines. Tighten and adjust corner guy lines and center guy lines by adjusting tent slips.

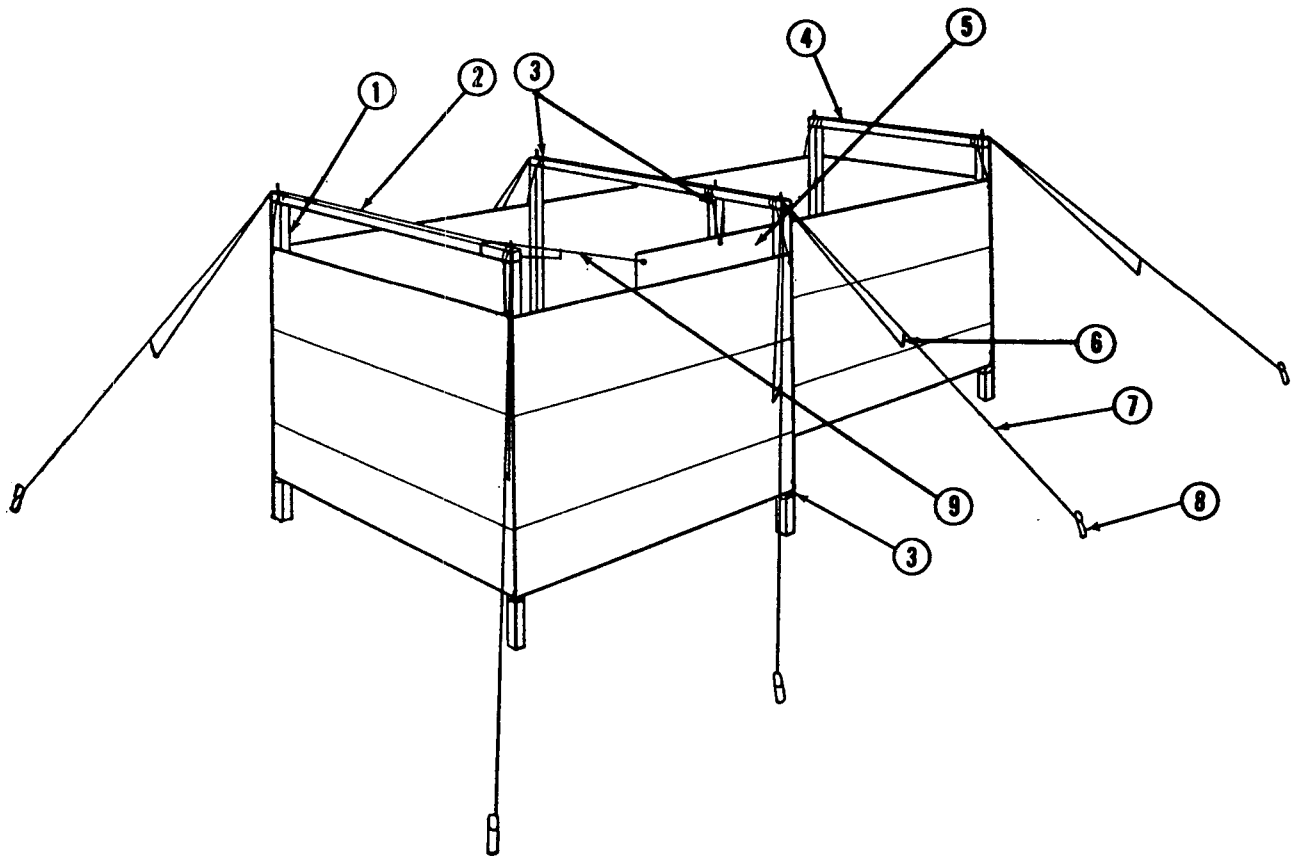
d. Folding. Remove the two center guy lines and the eight corner guy lines from pins. Spread marker flat on ground and coil all lines except two of the corner guy lines at one end of marker. Fold marker twice toward center along its long dimension. Then, in 2½-foot folds, fold ends toward center, and tie with the two corner guy lines.

25. Screen, Latrine

a. Use. The screen, latrine, FWWMR, complete with cover, pins, and poles (fig. 103) is issued to units in the field for use as an outdoor latrine. It may also be used by graves registration personnel to conceal remains from view until identifications procedures and preparation of remains for burial have been completed.

b. Description.

(1) *Dimensions.* The screen is a canvas panel, 55 feet long and 5 feet 3 inches



1 7-foot tentpole
2 9-foot ridge pole
3 Tie line
4 7-foot ridge pole
5 Entrance
6 Tent slip
7 Guy line
8 16-inch wood tent pin
9 Tie line

Figure 103. Screen, latrine.

wide. When erected, the screen is rectangular, 18 feet long, 9 feet wide at one end, and 7 feet wide at the other end. The difference in width is for the purpose of forming a 2-foot entrance on one side of the screen. The entrance side consists of a 12-foot section and a 9-foot section, which overlap by approximately 3 feet to give depth to the entrance.

(2) *Floorspace.* The floorspace of the screen, when erected, is approximately 144 square feet.

(3) *Material.* The screen is made of 9.68-ounce duck.

(4) *Cover.* The screen is provided with a cover for use when it is in storage or is being transported.

c. Ground Plan. Before pitching screen, study the ground plan carefully (fig. 104).

d. Pitching. The screen can be pitched by six men in approximately 20 minutes.

(1) *Preliminary procedure* (1, fig. 105).

(*a*) Unfold screen and lay it out on ground, following ground plan. Place end having both a long and a short tieline, as differing from the

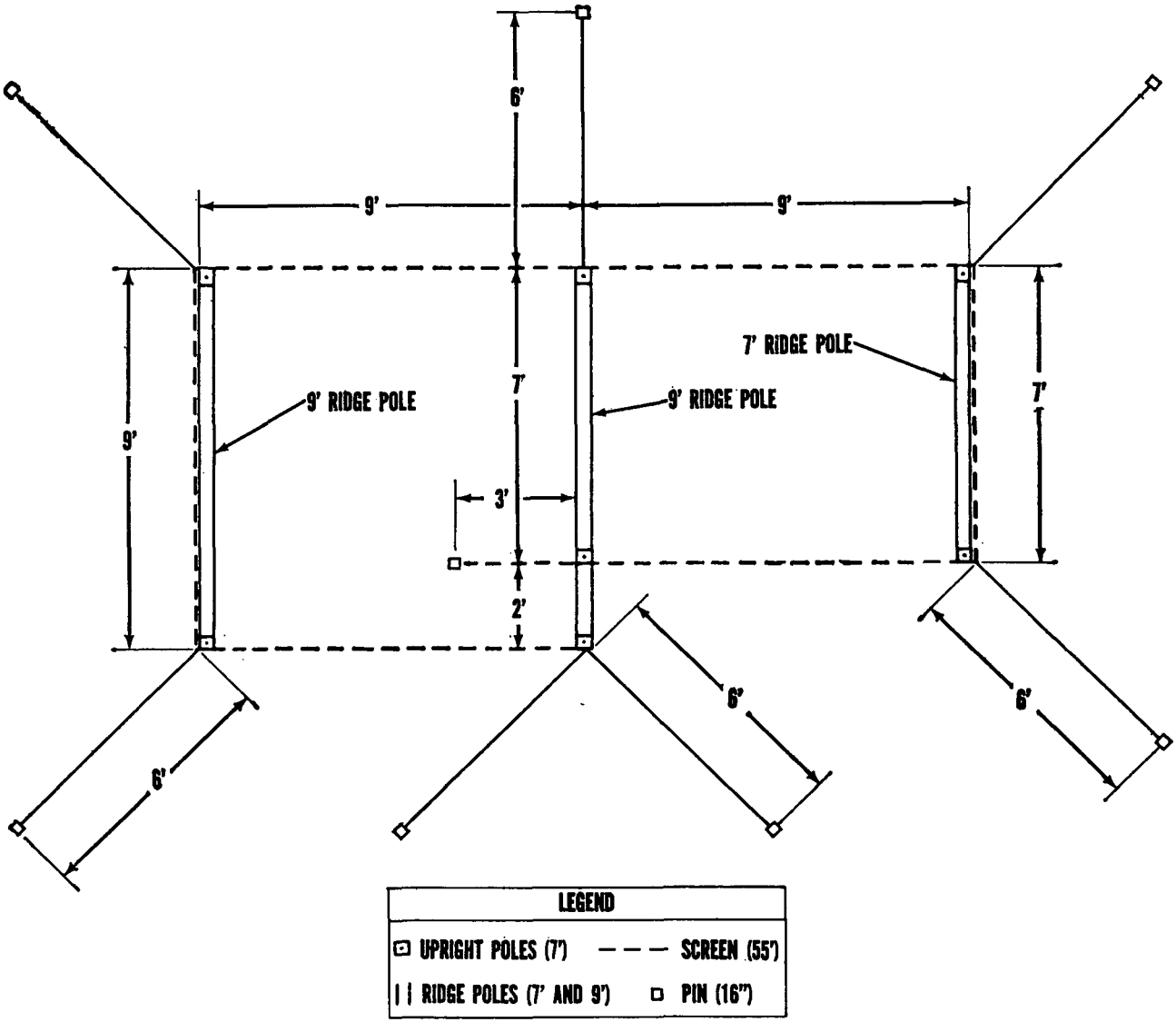


Figure 104. Ground plan of screen, latrine.

end having two short tielines, at inside corner of entrance.

(*b*) Drive a tent pin at inside corner of entrance, following ground plan. Attach short tie line on bottom of screen to this pin.

(2) *Connecting upright poles to ridge poles* (2, fig. 105).

(*a*) Connect two upright entrance poles and one upright side pole to a 9-foot ridge pole.

(*b*) Connect two upright side poles to one 7-foot ridge pole.

(*c*) Connect two upright side poles to one 9-foot ridge pole; before assembling, loop the 11-foot tieline over ridge pole.

(3) *Raising and securing center poles in position inside screen* (3, fig. 105). Raise the three center upright poles connected to the 9-foot ridge pole to a vertical position on inside of screen near center. Hold upright poles in position and drive in two center guy-line pins 6 feet from outside door upright pole, according to ground plan. Drive a third guy-line pin 6 feet from upright pole on opposite side of screen and in line with the three upright poles. Place guy lines over these pins and over spindles of upright poles.

(4) *Raising screen at center* (4, fig. 105). Raise screen at center and tie short tielines to center ridge pole so that screen is 6 inches off ground at bottom.

(5) *Raising end poles at narrow end of screen* (5, fig. 105).

(*a*) At narrow end of screen, raise the two end upright poles, connected to the 7-foot ridge pole, to a vertical position.

(*b*) Hold upright poles in position and drive in an end guy-line pin 6 feet from each upright pole, according to ground plan. Place guy lines over these pins and over spindles of upright poles.

(*c*) Raise screen at end and tie short tielines to ridge pole so that screen is 6 inches off ground at bottom.

(6) *Raising end poles at wide end of screen* (6, fig. 105).

(*a*) At wide end of screen, raise two end upright poles connected to the 9-foot ridge pole to a vertical position.

(*b*) Hold upright poles in position and drive in an end guy-line pin 6 feet from each upright pole, according to ground plan. Place guy lines over these pins and over spindles of upright poles.

(*c*) Raise screen at end and tie short tielines to ridge pole so that screen is 6 inches off ground at bottom. Adjust and tighten the long (11-foot) tieline from top of inside entrance of screen to the end 9-foot ridge pole so that screen is 6 inches off ground at bottom.

(7) *Securing screen around outside entrance pole* (7, fig. 105). Place end of screen around outside entrance upright pole and tie short tie line at end of screen to center ridge pole so that screen is 6 inches off ground at bottom.

(8) *Securing bottom of screen* (8, fig. 105). Tie all short tie lines at lower edge of screen to upright poles. Adjust and tighten all guy lines.

e. Striking.

(1) Untie all tie lines on lower edge of screen from upright poles.

(2) Untie outside of entrance from center ridge pole.

(3) Untie screen at wide end and drop it to the ground. Detach guy lines at wide end, and disassemble ridge pole and two upright poles and place them in a pile to one side.

(4) Untie narrow end of screen. Detach guy lines and place ridge pole and upright poles with poles previously placed to one side.

(5) Follow same procedure with center ridge pole. Collect the eight tent pins and seven guy lines and place them near ridge poles and upright poles.

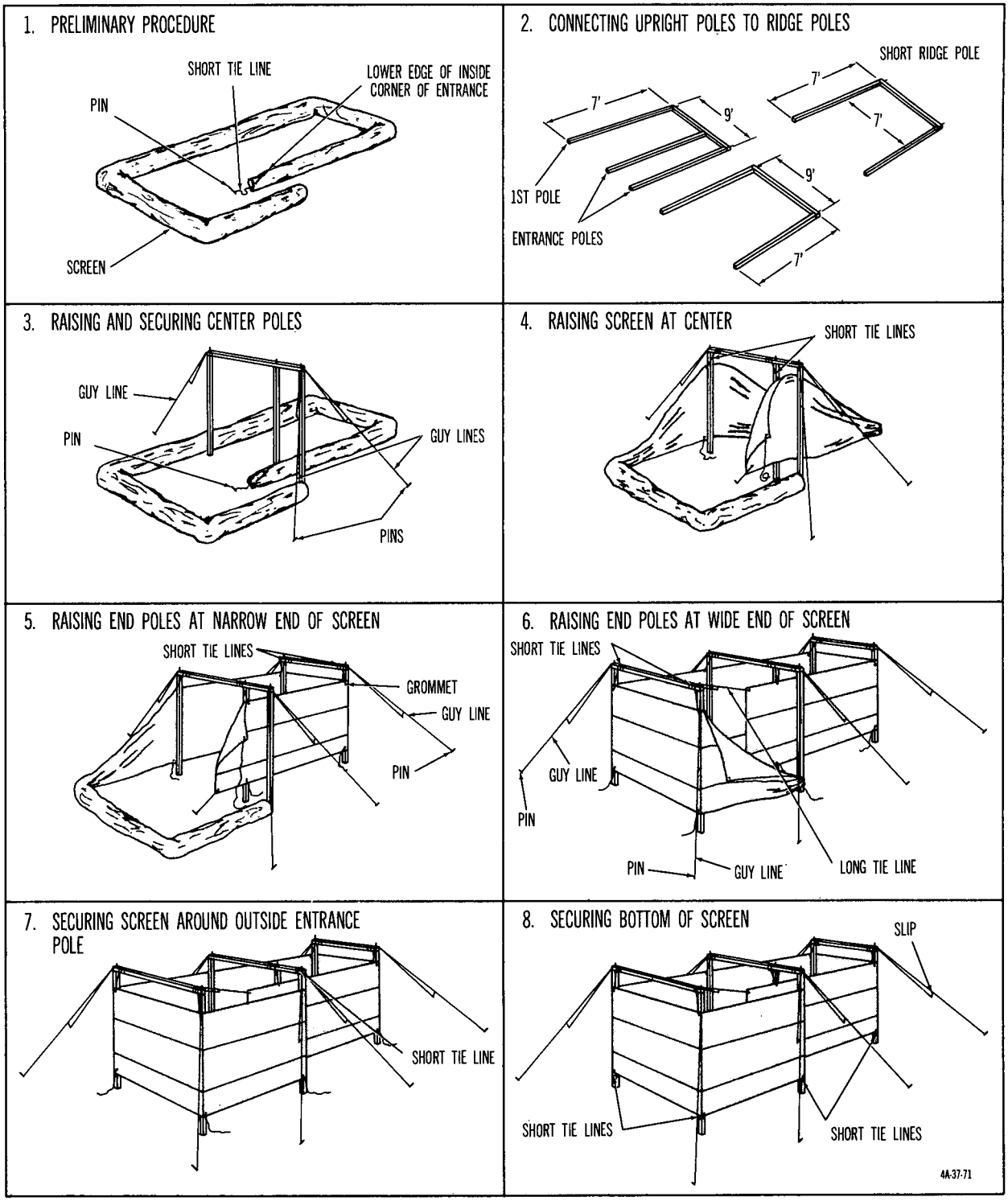


Figure 105. Steps in pitching screen, latrine.

f. Folding.

(1) Place screen flat on ground and smooth it out.

(2) Make two folds. To make the first fold, pull one end over the other. Repeat this step, placing folded edge even with the two ends of the screen. Be sure to smooth out canvas after each fold. The screen can be controlled better if the first two folds are made into the wind.

(3) Continue folding. Fold either top or bottom edge over one-third of width of screen. Then fold other edge completely over first fold. Put tielines and guy lines inside folds at one end of screen.

(4) Form final bundle by making a 2-foot fold from each end of screen toward center. Repeat this step twice, leaving the two folded sections 2 or 3 inches apart. Place one folded section over the other. Place bundle on cover, folding edges of cover in. Tie with cover tielines.

CHAPTER 5

TENT SUPPORT

26. Types of Tent Frames

The types of tent frames described in this manual are the A-shaped frame, the arch-shaped frame, and those frames that are attached to vehicles or trailers.

a. A-shaped tent frames discussed in the manual are made of either steel or aluminum. This type frame is hinged at the peak and at the eaves of the arches or truss and wall assemblies. Braces or headers secure the roof trusses or segments in position when the tent is being erected. Purlins, eave strut assemblies, and/or ridge assemblies, connected between arch assemblies or truss and wall assemblies, extend the tent frame to the proper length.

b. Arch-shaped tent frames are made of either metal or wood.

(1) The wood frame arches are hinged so that arch segments can be folded for transport. Wood purlins, connected between arches, extend the tent frame to the proper tent length.

(2) The metal frame arch segments are assembled by inserting one segment end into another segment end and fastening the two arch segments together with locking pins, bolts, or purlins. Metal purlins, connected between arches, extend the tent frame to the proper tent length.

c. The tent frames that are attached to vehicles or trailers are made of aluminum tubing or pipe, and are box-shaped. These frames are held together by tee couplings, elbows, and bolts.

27. Tentpoles

a. Types of Tentpoles. Tentpoles (fig. 106) are of two types: upright and ridge. A ridge pole is usually fastened to two upright center poles by placing the spindles of the upright poles through holes at the ends of the ridge pole.

b. Description.

(1) Poles are made of wood except the magnesium adjustable telescopic pole used in the 10-man arctic tent, small general purpose tent, and the 5-man lightweight hexagonal tent.

(2) Poles may be made of one piece or they may be made in sections which can be joined.

(3) Each pole or pole section is marked to show type, length, and section component; for example, "Upright—male section for 12 ft. 3 in. pole." This marking is important and should be taken into consideration in all cases to make sure that each tent pole is in its proper place.

(4) When tents are being pitched, the upright poles are usually sunk from 2 to 4 inches into the ground.

28. Tent Lines

a. Types of Tent Lines. Tent lines may be made of manila, polyester, or metal. They will also vary in length from a 19-inch-long footstop to a 64-foot-long guy line.

(1) *Manila lines.* Exterior lines of most tents are manila lines. Guy lines of this type will shrink when wet and, as a result, should be loosened during rainy weather so that when they shrink they will not become tight enough to tear the tent.

(2) *Nylon lines.* Nylon lines are normally found on the interior of tents or on tent liners.

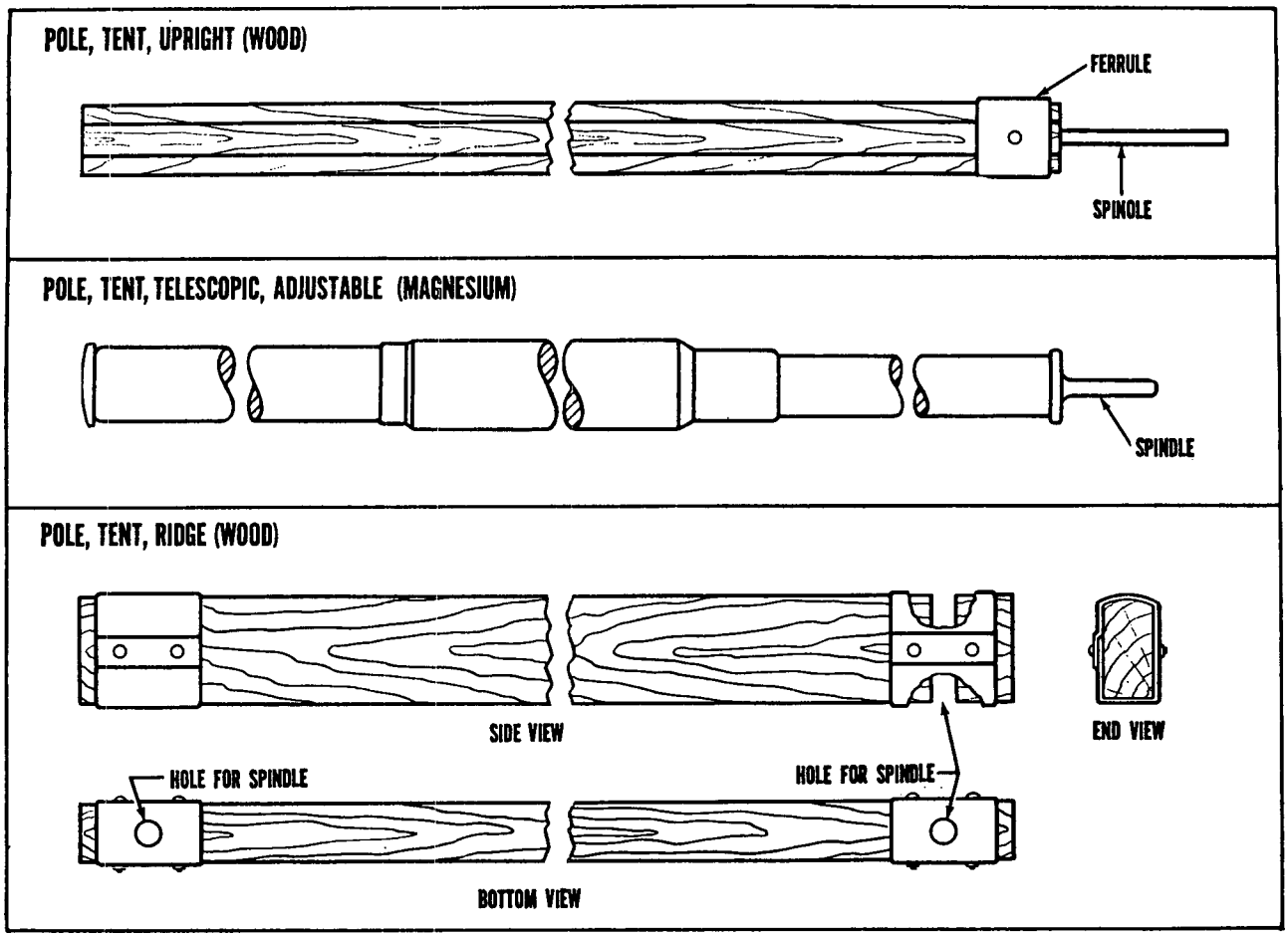


Figure 106. Tentpoles.

(3) *Metal lines.* The metal guy-line assemblies are used with arrowhead-type ground anchors. These assemblies are approximately 11 feet long and consist of a metal cable, metal adjusting beads, a toggle bar, an S-hook, and a locking toggle. Adjustment of the guy line is made by sliding the adjusting beads through the locking toggle and then locking the toggle in position.

b. Knots. Four knots commonly used in tent pitching are the clove hitch, the round turn and two half hitches, the square knot, and the rolling hitch (fig. 107).

(1) *Clove hitch.* The clove hitch is used to fasten a line to an anchorage. It will tighten as tension is applied, no matter which end of the hitch is pulled.

(2) *Round turn and two half hitches.* The round turn and two half hitches is used to fasten a line to an anchorage. For permanency, the running end should be seized to the standing part.

(3) *Square knot.* The square knot is used to join two lines of equal size.

(4) *Rolling hitch.* The rolling hitch is used to fasten one line to another, especially a small line to a larger one.

29. Anchoring Systems

a. Tent Pins.

(1) *Types of pins.* The types of pins (fig. 108) used with tents described in this manual are the 16-inch, the 24-inch, and the 36-inch wood pins, the 9-inch aluminum pins, and the 12-inch steel

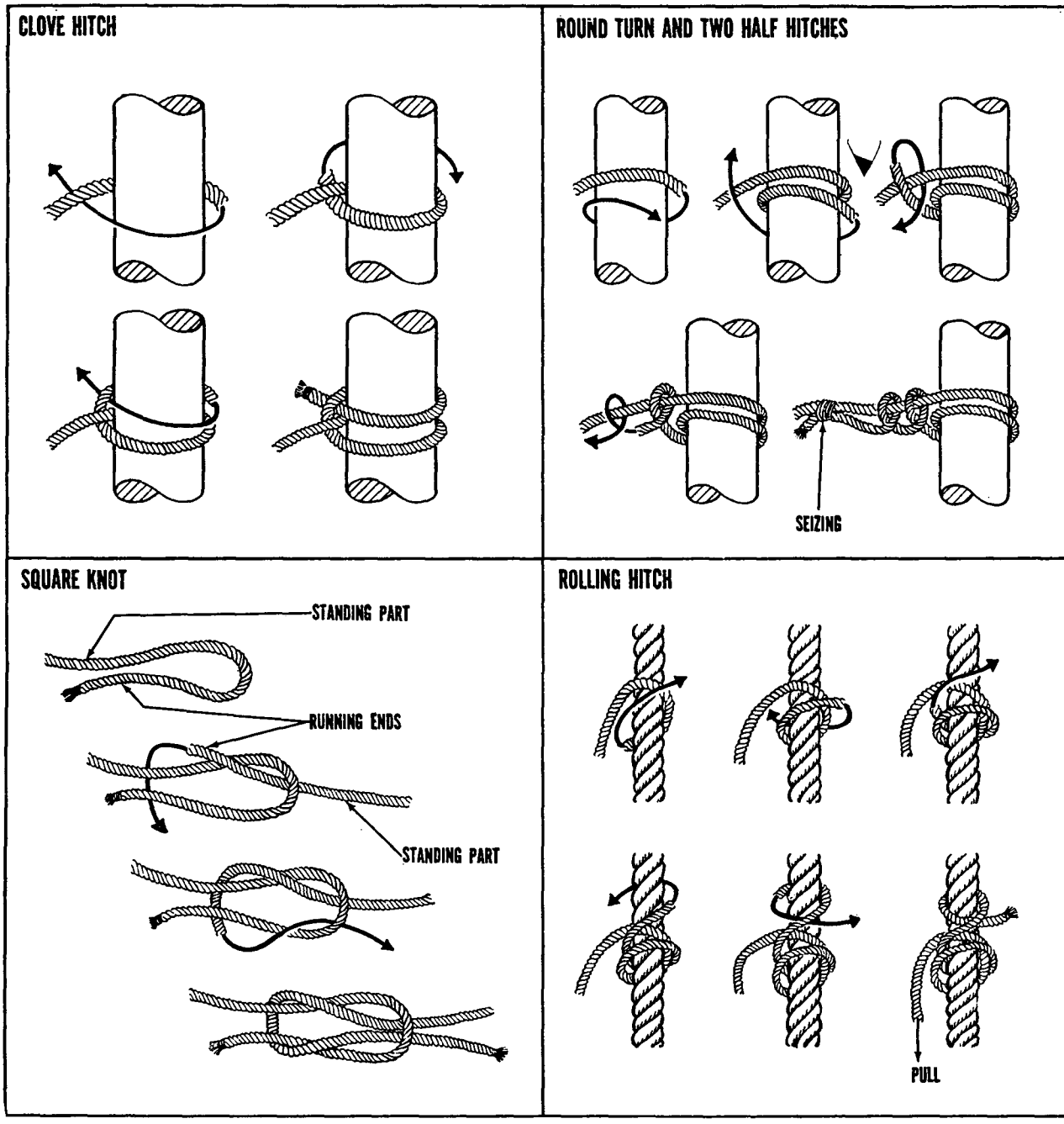


Figure 107. Knots used in tent pitching.

pins. Ordinarily, the 16-inch wood pins are used for footstops and the 24-inch wood pins are used for ridge and guy lines. The 9-inch aluminum pins and the 12-inch steel pins are used under cold weather conditions and under hard ground conditions.

(2) *Method of driving pins.*

(*a*) All pins except the 24-inch guy-line pins, 24-inch eave line pins, and the 16-inch latrine screen pins are driven vertically into the ground. The 24-inch guy-line pins, 24-inch eave line pins, and the 16-inch la-

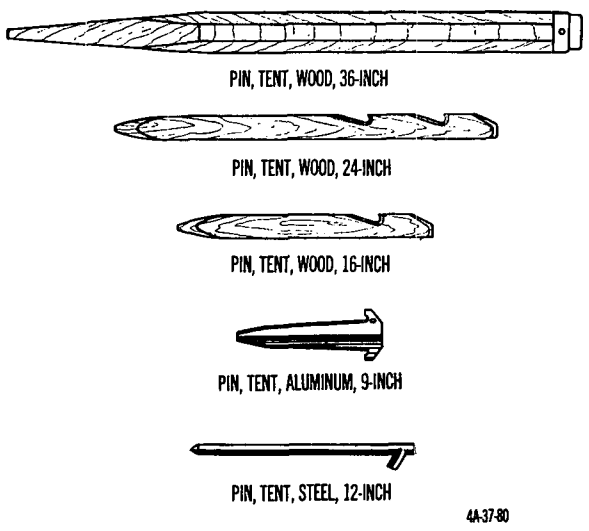


Figure 108. Tent pins.

trine screen pins are driven into the ground at a 60 degree angle, with the top of the pin leaning toward the tent.

(*b*) Wood pins are driven with the notches away from the tent.

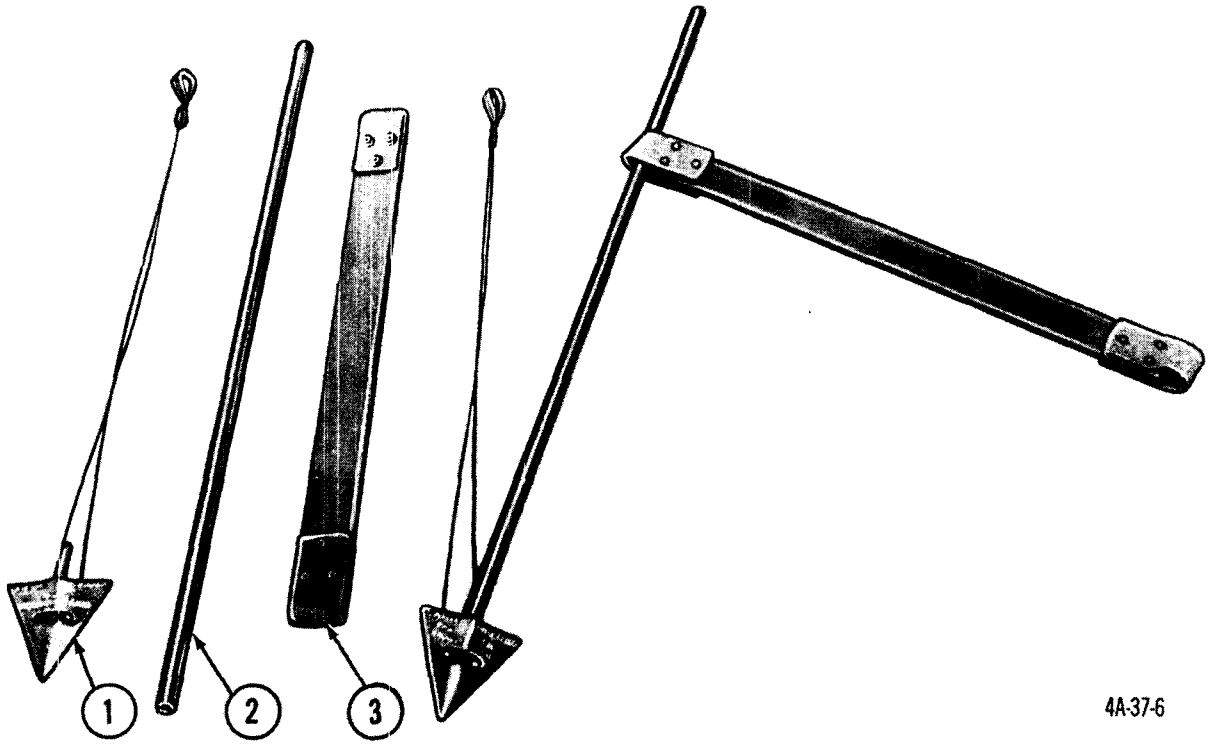
(*c*) Steel pins are driven with the rope retainer portion of the pin away from the tent.

(*d*) Aluminum pins are driven with the convex side of the pin away from the tent.

b. Arrowhead Ground Anchors.

(1) *Description.* Arrowhead ground anchors are issued in a kit which also includes a driving rod and a driving rod holder (fig. 109).

(2) *Method of driving anchors.* The arrowhead ground anchors are driven vertically into the ground for at least 2 feet and not more than 2½ feet. After the anchor has been driven into the ground, the anchor wire should be given a vigorous tug to upset the anchor in the ground. This action will insure stability of the ground anchor. In arctic regions, steel tent pins are used in lieu of arrowhead ground anchors.



1 Arrowhead ground anchor 2 Driving rod 3 Driving rod holder

Figure 109. Ground anchor with driving rod and driving rod holder.

CHAPTER 6

SITE SELECTION

30. Choosing Tent Site

The following points should be considered in choosing a tent site:

a. The ground should be level and free from projecting tree roots and rocks. When such a spot is not available, a place can often be leveled and cleared. In the woods, moss and rocks can be used to level the ground.

b. The ground should be high enough for drainage. Drainage can be improved by trenching around tents and digging an outlet ditch to divert water in the desired direction.

c. The tent should be protected from wind and storm.

d. An area having tough grass turf is desirable.

e. In woods, the location should be away from dead trees or trees with large dead branches.

f. In hot weather, a shady area free from underbrush is desirable.

g. The tent should be placed far enough from a river, lake, or other body of water to be above the high-water mark.

h. In mountainous country, the tent should never be placed in a canyon or next to a dry creek bed. Such places have been known to fill up with rushing torrents in a remarkably short time. The tent should never be placed at the base of a cliff or steep mountainside, where there may be danger from avalanches and falling rocks.

31. Pitching Tent in Snow

a. Before selecting a campsite on snow-covered ground, prod surface with an ice or ski pole to see whether snow conceals any crevices. It may be impossible to find an area entirely without crevices, but it is possible to avoid accidents by knowing where they are.

b. When an adequate site on snow has been found, pack snow hard by stamping on it with skis or snowshoes, or better still, shovel top snow off until firm snow is found below.

c. Pitch tent so that entrance is not directly downwind. If the tent is pitched on snow with the entrance directly downwind, the entrance may become blocked, since snow tends to pile up in the lee of any object.

d. If site is not temporary, dig tent into snow. This will provide better protection from the wind. In open terrain with a strong wind, it may be necessary to build a snow wall on the windward side of the tent to protect it from the wind; thus the tent is easier to heat and is less likely to blow down. Leave some space between sides of tent and snow wall to have room to shovel out snow that may drift into tent.

e. When a tent is pitched on a slope, a horizontal platform should be formed. The snow which is removed may be packed around the outer edge of the platform to widen the space for the tent.

f. High winds, common in cold weather regions, require that tents be anchored securely. Tent pins may not provide sufficient anchorage. Arctic tents have snow cloths sewed along the bottom edge of tent walls. When an arctic tent is set up, snow cloths should be flat on the ground outside the tent. Place snow, snow or ice blocks, stones, logs, or other heavy objects on the cloths to help anchor the tent.

g. Do not attempt to drive tent pins into hard, frozen ground if the force required is excessive. Instead, chop small holes into the ground, insert tent pins into holes, and fill holes

with slush or water; in a short time the tent pins will be firmly anchored. When removing pins from frozen ground, always chop them out; never hammer them sideways to break them loose.

h. Snow carried into a tent will melt and wet sleeping bags and clothing. The following precautions should be taken to keep snow out of tents:

(1) Each man must take care to brush all snow from his clothing and boots before entering a tent.

(2) One man should enter the tent first and take the sleeping bags, packs, and other articles from the other man after the items have been brushed off completely.

32. Trenching Tent

a. A safe rule to follow is to always trench a tent. When the tent is pitched on heavy soil, clay, or a flat rocky surface, a trench should always be dug. When the tent is set up on a very sandy soil, which absorbs water as fast as it falls, or when it is located on a mound which slopes off in all directions, a trench may not be necessary.

b. Dig trench all around the tent (figs. 110 and 111). Cut straight down just outside footstop pins; do not dig in a V-shape. Slope the side away from the tent.

c. Throw dirt from trench away from the tent; never throw it against the tent, for it will quickly rot the canvas.

d. In most cases, do not dig trench more than 4 or 5 inches deep and in the shallowest place not over 3 inches. There should be enough slope in the trench so that the water will flow freely toward the outlet and not back up.

e. To carry the water off, dig an outlet ditch (fig. 111) at the lowest point of the area and connect it to the trench which has been dug around the tent.

f. When there is a possibility that water may flow in from higher ground, dig a ditch to divert the water before it can reach the tent.

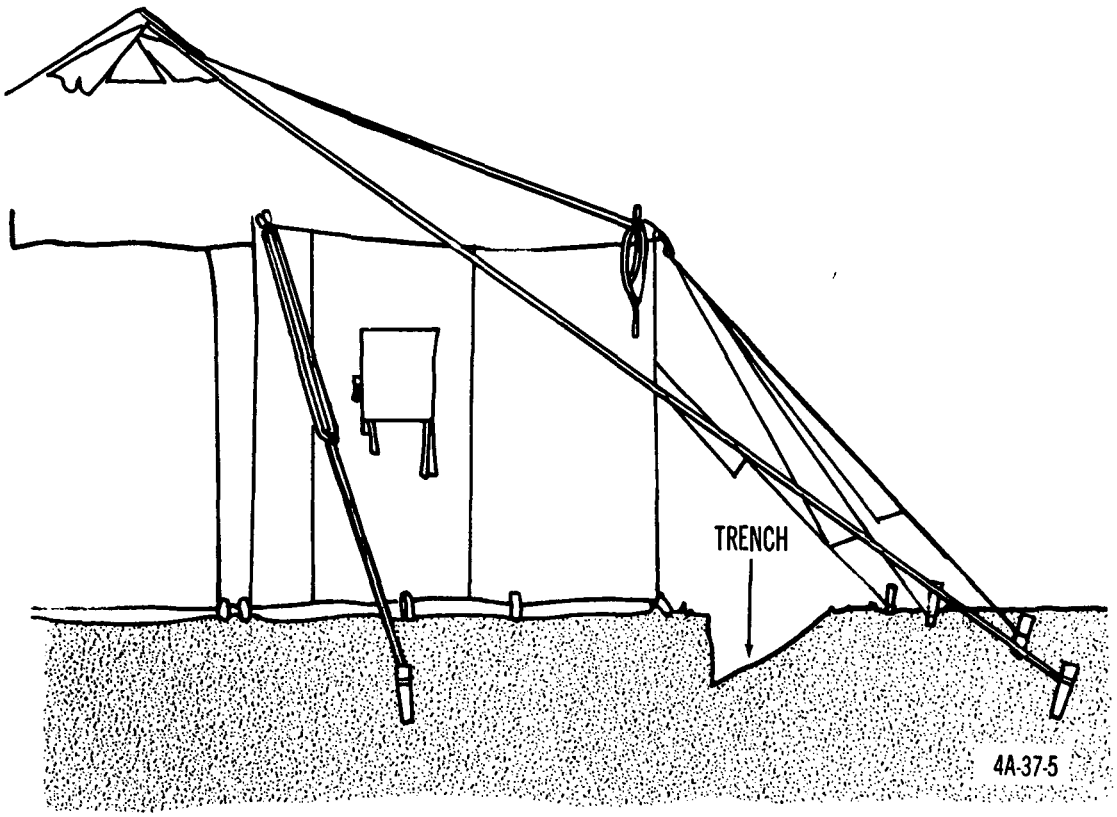


Figure 110. Cross-section view of tent trench.

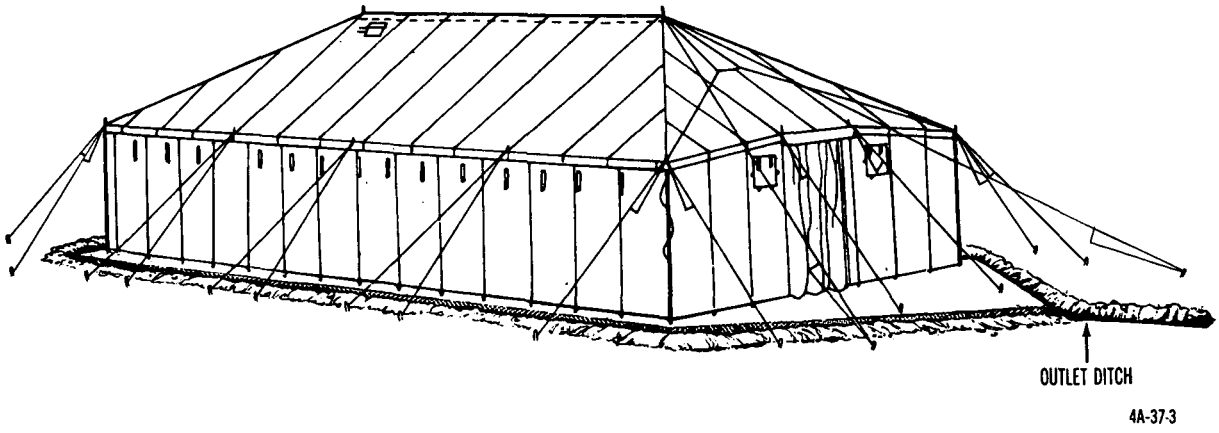


Figure 111. Trenching a tent.

CHAPTER 7

HEATING AND VENTILATION

33. Heating

a. Stoves and Heaters. Information on the types, quantity required, and operation of stoves and/or heaters authorized for use with tents can be found in appropriate technical manuals.

b. Stovepipe Openings. Stovepipe openings are built into most tents. Some openings are reinforced and the tent protected against the head of the stack; others are not protected. Metal shields, which are available, should be placed in the stovepipe openings of tents where there is no reinforcement or heat protection for tent material. Stovepipe openings have canvas flaps attached, which may be closed for protection against the weather and left open for ventilation when stoves are not in operation.

c. Heating Individual Shelters. Normally, there is no provision for heating the 2-man mountain tent. However, when men are forced to stay in it for long periods of time or when the men are wet and need to dry off, one or more of the following expedient measures can be used.

(1) A brush fire can be built over the area on which the tent is to be pitched and kept going for an hour or two. Then, the area should be cleared of all coals and sparks and the tent set up. The ground will remain warm for several hours, and the earth will be dry to sleep on.

(2) Stones 5 or 6 inches in diameter can be put in a hot fire for 2 or 3 hours, and then rolled or lifted with forked sticks into the tent. If a bucket or other metal container is handy, it can be used to hold the rocks or it can be placed upside down over them. The rocks will continue to give off heat for several hours. If there is not sufficient room to pile hot rocks in the tent safely, dig a hole and fill it with hot rocks even with, or slightly below, the surface of the ground.

(3) Although the one-burner cooking stoves issued are intended for cooking purposes, their heat will also take the chill off the inside of individual shelters. However, be extremely careful of this method of heating the two-man mountain shelter because of the danger of carbon monoxide.

(4) A gasoline lantern is an excellent heater, and even candle lanterns will take off the chill.

34. Ventilation

It is extremely important that a tent used for housing personnel or for sheltering working parties be ventilated properly. Most tents have built-in ventilators of various types. When stoves are not being used, stovepipe openings can be used for additional ventilation. In hot weather, the doors can be opened, and on most tents the sidewalls can be rolled up, or the windows opened, to give free circulation of air. The air coming in around the bottom of the tent should never be depended upon for ventilation. If the sod cloth or snow cloth is properly weighted down, very little air will enter. The bottom edge of the tent is the least desirable from which to get ventilation. It is like trying to ventilate a house through the cracks in the floor.

CHAPTER 8

CARE OF TENTAGE

Section I. PROTECTION OF TENTS AGAINST DAMAGE

35. General

Probably the greatest amount of damage to tentage is caused by carelessness, such as forgetting to loosen the lines when it starts to rain, not bothering to use spark arresters or draft diverters, adjusting lines carelessly, driving pins in a slipshod manner, or dragging tents over rough ground. To prolong the life and usefulness of tentage, observe the following rules:

a. Pitch, strike, and fold tentage in the manner described in this manual. Do not try to take shortcuts unless you are sure no damage will be done. To protect the top of the tent during handling and in storage, fold the tent so that the sidewalls rather than the top of the tent will be exposed.

b. Observe the utmost care when pitching and striking tents, making sure the material does not tear on protruding pins, overhanging branches, or other objects.

c. Never drag a tent along the ground or floor.

d. Use all the necessary parts and accessories for each tent and use them for their intended purpose.

e. Pack tents carefully for shipment. Some tents are issued complete with bag or cover. In this case, carry tent in bag or cover. When no bag or cover is issued, the tent is usually received wrapped in osnaburg or burlap. Save this material for rewrapping when the tent has to be moved again. Normally, a tent should never be transported without a covering of some kind.

f. Pack pins and poles separately from the tent itself except when tent instructions require them to be packed with the tent.

g. Inspect tentage at frequent intervals to make sure that it is in serviceable condition. Particular attention should be given to seams, bindings, lines, and all places where strain is exerted. Be constantly on the lookout for—

(1) Any evidence of mildew.

(2) Any foreign matter which may have collected on the tent.

(3) Small rips and holes, splitting of seams, grommets which have become loose, lines which are beginning to rot, or anything else which does not appear to be in normal condition.

36. Protection Against Rain

a. Most tents are water repellent. However, rain causes tent canvas and lines to shrink, the shrinkage often becoming sufficient to tear the tent. Tents have been torn completely in two under such circumstances.

b. Before tent lines become water soaked, loosen them sufficiently so that when they shrink they will not become tight enough to tear the tent. To compensate for shrinkage, eave and corner lines should have a free swing of approximately 18 inches at the middle of the line.

37. Protection Against Wind

In a strong wind, tighten all lines immediately. Close door entrances, secure walls to footstop pins, and close all corners.

38. Protection Against Fire

a. Most tents are fire resistant. This does not mean that they will not burn; they usually do not burst into flame, but smolder and char.

b. When using a stove in a tent, every precaution must be taken to avoid fires. Spark arresters or draft diverters must be installed and shields placed around stovepipe openings. All personnel should be well trained in building and maintaining stove fires and should be familiar with all fire regulations.

c. Whenever possible, fire extinguishers containing water should be kept in the tent area.

39. Protection Against Mildew

a. Most tents are mildew resistant. This does not mean that they are not subject to mildew. Under warm and damp conditions, especially in tropical and jungle areas, tents may be ruined by mildew in a few days, if proper care is not taken.

b. To prevent mildew, follow these rules:

(1) Never fold or roll a tent when wet. Even if it is only damp from dew, it will mildew when stored. Make doubly sure that the seams and edges of the tent, especially the bottom edge and the sod cloth, are dry.

(2) When storing or transporting, keep pins and poles separate from tents, except when tent instructions require them to be packed with the tent. In the case of the latter, make sure the pins and poles are cleaned and dried before being placed with the tent.

(3) Keep tents clean at all times. If a tent is pitched under trees, inspect the tent roof frequently to see if it is being harmed by drippings from branches or leaves. The growth of fungi and mold is caused to some extent by tree drippings, oils, greases, and starches, which accumulate on tentage.

(4) Before storing, dry a tent by hanging it up off the ground in bright sunlight. A tent dried on the ground or left hanging outdoors after sundown might absorb enough dampness for mildew to start. When necessary, a tent can be dried indoors. When drying indoors, hang the tent in a well-ventilated place, high enough to permit the tent to be suspended off the floor.

(5) Do not drag tentage along the ground or permit it to come in contact with the ground while in storage.

(6) When storing tents, stack them on dunnage supported by 2- by 4-inch lumber.

(*a*) If the floor is hard surfaced or wooden, the tentage should be at least 4 inches from the floor.

(*b*) If the floor is earthen, the tentage should be at least 8 inches from the ground.

(*c*) Only lumber that has been thoroughly cured should be used for dunnage, since the moisture contained in green lumber will promote the growth of mildew.

(*d*) When dampness in the atmosphere is prevalent, dunnage should be used between each course to permit circulation of air between the blocks. The blocks should be separated and reduced to a minimum number of courses to permit passage of air on all four sides.

(7) When tents are to be stacked near ventilators or openings that may admit moisture, protect tents by packing them in bags or waterproof coverings.

(8) Do not place tentage received from the field in bags until tents are thoroughly dried and all dirt removed by stiff brushes. If any visible signs of mildew are present, hang tents in open air, preferably in the sun.

(9) Give priority of issue to tentage that has been in storage the longest. To prevent issue of newly stored tentage before older stocks are exhausted, blocks should be marked in accordance with length of time tentage has been in storage.

(10) When tentage is stored in open sheds or in tents, it should be stacked well away from the sides and ends of shelter (preferably about 2 feet), and items not affected by moisture should be stacked between tentage and outer edges of shelter.

(11) Withdraw from storage tentage found to be infected with mildew. Brush with a stiff brush, allow to dry thoroughly, and issue immediately to installations where driest atmospheric conditions prevail. If there is no opportunity for immediate issue, segregate infected tentage from sound tentage to prevent contamination. Tents which have become unserviceable should be turned in to a salvage installation for classification, repair, and return to stock, or for destruction.

Section II. PROTECTION OF PINS, POLES, AND LINES AGAINST DAMAGE

40. Pins

All wooden tent pins currently issued receive a wood-preservative treatment. Care should be taken in handling pins to see that they are not broken or otherwise damaged. In determining the serviceability of pins, look for cracks, splits, distorted ends, and broken or flattened points.

41. Poles

Care should be taken in handling tentpoles to see that they are not broken or otherwise damaged. In determining the serviceability of poles, look for cracks, splits, condition of metal joiners, and missing or bent spindles.

42. Lines

Lines should be inspected frequently. The stability and safety of the tent may depend on the condition of the various lines used. Deterioration in tent lines is of two kinds: physical and chemical. Physical damage is caused by surface wear or from internal friction between the fibers. Chemical damage is caused by exposure to weather conditions and acids. To prevent damage to tent lines, observe the following rules:

a. Store lines properly in a dry, unheated building or in a room with free air circulation. Place lines in loose coils off the floor on wooden grating, or hang them on wooden pegs. It is best to hang small lines in loose coils and to coil large sizes loosely on a grating or platform raised from the floor to insure necessary circulation of air. Never store lines in a small confined space without air circulation. Clean thoroughly before storing. Continuous exposure to sunlight is injurious to lines. Improper storage conditions frequently cause dry rot.

b. Dry lines properly after exposure to dampness. Lines are best dried when hung loosely between two trees or other objects so that they do not come in contact with the ground.

c. Keep lines clean. If lines become dirty, they should be washed in clean water and thoroughly dried. Grit from sand, mud, or other materials, if allowed to remain and work into lines, will grind and wear the fibers.

d. Protect lines from chemicals. Keep lines away from chemicals or their fumes, especially acids or alkalis. Drying oils, such as linseed oil, and paint will also damage lines.

e. Slack off guy lines. When guy lines or other supports are exposed to the weather, slack them off to prevent overstrain because of shortening from wetting.

f. Reverse lines, end for end, periodically, so that all sections of the lines will receive equal wear. When wear is localized in a short section, periodical shortenings will present a new wearing surface.

g. If a line becomes damaged, cut and splice. A good splice is safer than a damaged section.

h. Whip ends of lines to prevent raveling.

Section III. PROTECTION OF FRAMES

43. Wood Frames

a. Care should be taken in handling wood frames to see that they are not broken or otherwise damaged. In determining the serviceability of frame arches and purlins, look for cracks, breaks, and loose, damaged, or missing hardware.

b. Keep frame components clean and free from dirt, mud, rust, and other foreign matter. Remove all damaged paint, and repaint frame surfaces with paint authorized for the tent.

c. When preparing wood frames for shipment, pack components as described in this manual. Care should be taken to prevent dropping or otherwise mishandling of packaged frame components.

44. Metal Frames

a. Steel Frames. In determining the serviceability of steel frames, look for cracked, bent, broken, or misshapen frame components. Keep frame clean and free from dirt, mud, snow, rust, and other foreign matter. Pack frame components so that undue strain will not be placed on any one piece. Care should be taken to prevent dropping or otherwise mishandling packaged frame components.

b. Aluminum Frames. Inspect all components of the frame for broken welds, bends, breaks, cracks, loose or missing rivets, missing items, corrosion, and other visible damage of any nature. Wipe metal surfaces clean, or if necessary, wash frame with soapy water, rinse with clean water, and dry thoroughly. Keep dirt or other foreign matter out of joints and open ends of frame components. Pack frame components as described in this manual. Do not drop or mishandle the frame.

c. Magnesium Frames. In determining the serviceability of magnesium frames, look for broken welds, bends, cracks, breaks, missing items, stripped threads on bolts, corrosion, and other visible damage. Clean frame components with soapy water, rinse with clear water, and dry thoroughly. When assembling or disassembling the frame, keep dirt or other foreign matter out of open ends of frame components. Do not drop or otherwise mishandle frame pieces when transporting tent.

APPENDIX

REFERENCES

1. Army Regulations (AR)

320–5	Dictionary of United States Army Terms
320–50	Authorized Abbreviations and Brevity Codes
700–26	Designating, Redesignating, and Naming Military Aircraft
700–58	Report of Damaged or Improper Shipment
701–8340	Tents, Logistic Responsibilities
750–5	Maintenance Responsibilities and Shop Operations

2. Department of the Army Pamphlets (DA Pam)

108–1	Index of Army Motion Pictures, Film Strips, Slides, and Photo-Recordings
310–1	Index of Administrative Publications
310–2	Index of Blank Forms
310–3	Index of Doctrinal, Training and Organizational Publications
310–4	Index of Technical Manuals, Technical Bulletins, Supply Bulletins, Lubrication Orders, and Modification Work Orders.

3. Field Manuals (FM)

21–5	Military Training
21–6	Techniques of Military Instruction
21–15	Care and Use of Individual Clothing and Equipment

4. Tables of Allowances (TA)

20	Field Installations and Activities
20–12	Quartermaster Equipment: Allowances for Flags, Tentage, Sewing Machines, and Equipment for Civilian Guards.
21	Clothing and Equipment

5. Technical Manuals (TM)

10–267	General Repair for Clothing and Textiles.
10–269	General Repair for Canvas and Webbing
10–270	Repair of Quartermaster Items of General Equipment.
10–616	Shelter, Tent-Type, Portable, Sectional
10–725	Stove, Tent, M1941, Complete and Burner, Oil Stove, Tent, M1941
10–735	Stove, Yukon, 1950
10–8340–202–10	Operator's Manual; Tent for Little John Missile System; Tent, Frame-Type, Little John Conditioning System.
10–8340–203–10	Operator's Manual; Tentage for Hawk Missile System
10–8340–204–10	Operator's Manual; Tent, General Purpose, Large (FSN 8340–285–5599); Tent, General Purpose, Medium (FSN 8340–543–7788).
10–8340–207–10	Operator's Manual; Tent, Lightweight, Frame—Type, Expandable (FSN 8340–753–6227).

By Order of the Secretary of the Army:

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USAQMS (100)
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Dep (OS) (5)
GENDEP (OS) (5)
POE (2)
USA Tml Comd (2)
Army Tml (2)
USA Corps (3)

NG: State AG (3); Units—Same as Active Army except allowance is one copy to each unit.
USAR: Units—same as Active Army except allowance is one copy to each unit.
For explanation of abbreviations used, see AR 320–50.