
ASPA ON-HILL COMPETENCY REQUIREMENTS

Basic Skills Common to Both Akja and Cascade Toboggan Operation

1. Side Slipping

Body Position: In the fall line. Legs flexed at knees, ankles and hips. Uphill ski advanced by about one half a boot length over the downhill ski. Legs about hip width apart. Weight on both skis.

The patroller must perform a direct fall line descent whilst maintaining parallel skis across the fall line, hips parallel to knees and ankles, and shoulders in a position as close as possible across the fall line (chest facing downhill). In short, the operator must display the ability to side-slip in the sled position. He/she may hold their stocks as though they were the handles of the Akja.

2. Forward Side Slipping:

By allowing the tips to point slightly downhill and maintaining the body position described above.

3. Backward Side Slipping:

By allowing the tips to point slightly uphill whilst maintaining the body position described above.

4. Forward and Backward Side Slipping:

The patroller must display smooth and controlled transitions from forward to backward side slipping and back again whilst the body position described above.

5. Snow Ploughing

The patroller must display a competent and controlled snow plough with good edge control and the ability to stop, on command. Body position should be central and balanced.

6. Standard (Pivot) Turn:

This basic skill should be taught only when a trainee has displayed competence in as in Items 1 to 5 above. Whilst making a descent as described in 'Side Slipping' above, edges are released and the skis pivoted completing the movement with tips to the opposite side and side slipping on the opposite ski edge. The pivot may be assisted with a step of the heel of the uphill ski at the time of releasing edges, placing the skis in a snow plough position during the actual transition from one side to the other. Nevertheless, there must be a definite pivot such that the turn is completed whilst maintaining fall line direction and within as short a distance as possible (usually one ski length). There is to be no curved path in the turn as when made in a normal snow plough turn.

7. Side Slip to Snow Plough:

The patroller must be able to make a smooth and controlled transition from side slip to snow plough and back again. Some unweighting may be required.

8. Kick Turn:

From a stationary position with skis across the fall line, proceed as follows:

- a. Stand on uphill ski.
- b. Lift and rotate the downhill ski to a point in the opposite direction across the fall line.
- c. Stand on the downhill ski.
- d. Bring the uphill ski around to become the downhill ski.

9. Terrain:

Understand and be able to determine fall line, concave and convex surfaces.

The Akja Sled

Positions for Akja Sled Handling

1. Front:

The front is the lead role as the front selects the best path available across the terrain. The front communicates to the back what is required in the assist role of the back. The front provides most of the braking and speed control.

Downhill hand on Akja loop. Uphill hand on Akja loop or slightly back on shaft as comfortable. Arms should be slightly flexed in an athletic position and available to extend or retract as necessary. The upper body should be erect and rotated above the hip. The hip should be parallel to the line made by the knees and by the ankles. Shoulders should be as close as is comfortable to a position across the fall line (i.e. chest open to the fall line). Both legs must share overall weight and should be flexed and working in unison. In the side slipping position, the skis should be about hip-width apart so as to permit the sharing of weight between the legs and to avoid the buckling of the uphill leg. The open stance position provides greater security against the loss of stance on both skis either by slipping (such as on ice) or tripping (as with a build-up of new snow under the skis).

2. Back:

Both hands on handle loops. Hips as near as possible to level with the loops and central between the shafts. Arms, back and general body position as for front. The back is the assist role.

3. Traversing:

On medium or steep slopes, extra weight should be placed upon the uphill handle to maintain akja stability and better tracking in the traverse. Note that the downhill handles should not be lifted so as to bring the akja horizontal. At all times, all runners on the bottom of the akja should be in contact with the snow.

4. Lifting:

Front calls: *'Ready to lift'*

Front and back shift their hands down the shafts whilst moving closer to the sled. Knee and hip flexion is increased but straight backs are maintained.

Back calls: *'Ready'*

Front calls: *'Lift'*

Front and back lift by straightening at the knees and hips with straight backs.

The reverse procedure is used for lowering the akja back to the snow.

Running an Empty Akja

Keep control of the akja and watch for other skiers. Apply slight pressure on uphill handle when traversing. Lift the handles slightly to prevent the akja from swinging. Acceleration will stop a swinging akja.

Changes of Edges - Akja Sled

1. Kick Turn:

This turn will only be used in a stationary position. Whilst the akja weight is held by the back, the front undertakes the kick turn. Throughout the manoeuvre, both front and back maintain contact with the akja handles. When the front resumes the weight-holding role, the akja proceeds slowly whilst the back then performs a pivot turn so that both front and back have identical ski direction.

2. Snow Plough Turn:

Use of this turn is appropriate on shallow slopes not requiring side slipping. The turn must have sufficient radius to allow the back runner to follow the turn. In this manoeuvre, the Akja also changes direction in the fall line and considerable care must be taken.

3. Standard (Pivot) Turn

For this manoeuvre to be performed, instantaneous communication between front and back is vital. The front brings the akja sled into the fall line. The front then initiates a 180° pivot turn whilst the back holds the majority of the akja weight with skis across the slope in a

blocking position. Once the front has completed the pivot turn, he/she resumes the major weight holding role and the back performs a pivot turn. The akja must remain in the fall line throughout the manoeuvre whilst continuous slow velocity can be maintained if the manoeuvre is completed with ideal continuity.

4. Forward and Backward Side Slip:

The side slip can be effectively used to alter the downhill direction of the akja. Care should be taken not to accumulate excessive loose snow. This turn is particularly useful when navigating the walls of moguls or steep terrain. The advantage with steep terrain is that at no stage do the skis enter the fall line whilst numerous directional changes can be undertaken in one descent. Backward side slipping should not be applied for prolonged periods nor should the front initiate dramatic directional change by backward side slipping, as the back patroller will be forced into the awkward position of an unsustainable rotation of the shoulders and upper body in the opposite direction to that which his/her hips and knees are facing.

Path Selection for Akja Sled

Path selection will depend on:

1. an appreciation of terrain.
2. the steepness of the slope.
3. the snow conditions.

It is important to choose the best available path for the travel of the Akja to avoid unnecessary moguls, ruts and traverse ledges. It is desirable to keep the Akja in the fall line of the slope, proportional to steepness, i.e. the steeper the slope the more desirable it is to keep the Akja close to the fall line.

Akja Sled Stability

The akja is designed to run on the snow and should at all times be transported with all bottom runners edging (unless lifted, of course).

Under most circumstances, the fall line should be used as the most direct and suitable path in descent. In other words, the front should have a reason for choosing to depart from the fall line. Examples of such reasons might be: to avoid mogulled terrain, an area of poor snow cover, or crud snow. When it is necessary to traverse across a steep slope, uphill handle pressure must be maintained to hold and grip the upper akja runners to the snow surface but the bottom handles should never be lifted because that would lose the tracking benefit of the downhill akja runners by lifting them from the snow surface.

In mogulled terrain, it is preferred for the akja to travel over the shoulders or sides of the moguls rather than over the ridges and into the ruts and troughs. Adoption of the preferred path will assist in maintaining continuity of velocity, maximum ski/snow contact, and the

best patient comfort. The bridging of skis across the troughs and ruts of moguls should be avoided. It is always advisable to ski on the convex surface of the moguls.

When negotiating steep slopes in new snow, it may be necessary to depart from the fall line by about 5° in both the forward and backward side slip to avoid excessive snow build up under the skis. In extremely steep terrain or bad ice conditions, a belaying rope should be used, preferably with the assistance of a third patroller.

The Cascade Toboggan

General Operation

1. Packing and Familiarisation:

Familiarisation of the Cascade is basic and should be done at the start of each day.

The checking procedure to follow is:

- Horn handles should be checked for bends or breaks. Ensure that horn pins are secure. Horn locks should be operational.
- Straps and tail rope should be in a satisfactory condition
- Fins should be inspected for loose rivets, bends or breaks
- Chain and chain cord, and loops at front and rear of toboggan should be in a satisfactory condition

2. Positioning and Anchoring

In most cases, you will want to position the toboggan below the patient with the front of the toboggan towards the head. On a slope with an easy or moderate grade, position the toboggan across the fall line and below the patient.

When anchoring the toboggan, the front of the horns can be pressed into the snow. Use your uphill ski to anchor the front using either the front uphill loop or put it between the cross bars of the horns. Use your downhill ski to anchor the back either using the uphill loop in back or below the toboggan where the last strap is located. You may also drop the chain.

The Cascade has five anchor points: The horns; Front ski; Back ski; Chain (for steep slopes); Fins (underneath).

3. Single Patroller.

Unlike the akja, the Cascade can be run by one patroller. Always run the loaded toboggan with the horns locked in. Your main concern is to transport the patient safely off the hill and to give a smooth and controlled ride. On easy or intermediate terrain, transport should pose few problems. Stay out of the main flow of skier traffic, usually to the side of a trail.

Side slip, snow plough or run straight down as necessary. Slope, snow and weather conditions will dictate how you run the toboggan.

On easier and intermediate slopes, the chain will not be needed. When running with the chain up, you pick up on the horns to slow down. This will put extra weight/force into your ski edges, thus braking and slowing the sled. When not lifting up on the horns, stay out from the cross bars. Always keep your skis apart with weight on both skis. Anticipate changes in slope and snow. Be fully aware of your surroundings.

The chain shall be used on steep slopes to help control the speed of the toboggan or to stop the toboggan. Running with the chain down requires a certain amount of lifting. It takes somewhat of a fine touch.

Often, when running with the chain up, one may need to drop it. Always be aware of the position of the chain cord. In moguls, the chain may drop when travelling over a mogul. A triangular bandage or short piece of rope attached to the middle of the chain will help keep the chain under the toboggan.

When running the toboggan through moguls one should stay mostly in the troughs. This may cause the patroller to manoeuvre their skis sometimes tails first through a trough or up onto a mogul and then into the trough. It is usually better to stay to the side of the trail where the bumps are not as big. When picking the route down, try to stay with that line.

If the slope is steep, the chain should be down. With the chain down, stay close to the cross bars so as to lift and anticipate the next mogul by lifting before going over it. Upon reaching an easier or flat area, pull the chain up again.

To get extra grip with the chain, apply gentle downward pressure, thus forcing the chain to penetrate deeper into the snow. This actually takes the weight off your skis, so do not push too hard or you will lose ski edge control or cause the back of the toboggan to lift and skid.

If you fall over or the toboggan starts to get away from you, you must stay in front of it.

4. Dual Patroller (Tail Rope):

Usually extreme steep or icy slopes and traverses will require a second patroller working the tail rope. The patroller on tail rope must stay directly up the fall line from the tail of the toboggan. The tail rope should be about seven feet long with a loop on the end with knots tied in it every few feet. The chain is optional while running, depending on the slope steepness and snow conditions.

The Tail Rope Patroller shall:

Provide additional braking as required; and

Ensure side-on stability of the tail of the toboggan. especially during traversing.

Should the patrollers wish to swap positions, they must stop the toboggan. The tail rope patroller then moves down to the front of the toboggan, with the tail rope and facing the

toboggan. He/she then lays the rope on the ground and moves to the front of the horns and holds the toboggan. The front patroller ducks down out of the horns, moving backwards, takes the tail rope and moves uphill of the tail.

When running, the patroller in the horns will shout directions to the tail rope patroller before any changes are made. Both patrollers should have their skis pointing in the same direction.

When starting a traverse, the front patroller shouts out '*traverse left*' or '*traverse right*'. When switching from side slipping facing one direction to the opposite direction, the front patroller should shout '*changing direction*'. At this time, the tail rope patroller takes the weight of the toboggan until the front patroller has changed direction. The front patroller then shouts back that he/she has the toboggan and the tail rope patroller then does his/her change of direction.

It can be difficult for the tail patroller to maintain his/her momentum while side slipping. They may find it easier to ski behind in a stern turn position moving back into a side slip as necessary.

Positions for Cascade Toboggan Handling

1. Front:

If the tail rope, assist position, is used, the lead role is taken by the patroller in front.

The front position stance can to be changed from shoulders square to fall line, to parallel to fall line.

Arms should be slightly fixed in an athletic position. The upper body remains erect, hips parallel to the line made by the knees and by the ankles, and skis across the fall line. Both legs should be flexed at the knees.

In the side slipping position, the skis should be about hip-width apart so as to permit the sharing of weight between the legs and to avoid the buckling of the uphill leg. The open stance position provides greater security against slipping and tripping. This position is most often used.

Changes of direction using side slip techniques are possible and weighting and unweighting of the toboggan and skis to can be used to gain braking effects. One hand is placed on the end of the handle and the other near the cross bar diagonally opposite the forward hand.

Before making any change of edge (turn), first bring both hands forward onto the handles, shoulders as close as is comfortable to a position across the fall line (i.e. chest open to the fall line), hips, knees and ankles into the fall line. (This is the akja sled front position)

From this 'neutral' position, the snow plough standard or kick turn can be performed.

Once the change of edge is complete, hand and shoulder positions are changed to allow one hand on the cross-bar.

2. Back:

When using the tail rope, care must be taken to remain in a position directly above the rear of the toboggan with the rope being in the same line as the fall line of the terrain.

Being behind this position will make the rear of the toboggan slip down the hill, while being too far ahead will pull the toboggan more into the fall line, making for a much too fast descent.

3. Traversing:

Traversing is not done on steep slopes except under exceptional conditions and when a tail rope is used. The Cascade toboggan has a tendency for the tail to slide away in these steep conditions.

On medium slopes, extra weight should be placed on the uphill handle to maintain toboggan stability. The toboggan must not be lifted but remain flat on the snow surface allowing both skids and fins to bite into the snow.

4. Lifting:

This should only be done on flattish areas.

Front calls: *'Ready to lift'*

Front shifts back in handles to a lift position with flexed knees and hips but with a straight back. Rear patroller skis to rear of toboggan, spreads legs, grasps rear hand loops and maintains a straight back.

Rear calls: *'Ready'*

Front and back lift by straightening at the knees and hips whilst maintaining straight backs.

The reverse of this procedure is used for lowering the toboggan.

Running an Empty Cascade Toboggan

Empty Cascade toboggans are run with the handles in the free floating position. When traversing, apply slight pressure to the uphill handle. Beware of the tail sliding away.

Changing of Edges

1. Stop Kick Turn:

This turn is only done when the tail rope is in use, and the toboggan is in the stationary position. Whilst the toboggan's weight is held by the tail rope patroller, the front undertakes the kick turn. Throughout the manoeuvre, the front maintains contact with the toboggan handles. When the front resumes the weight-holding role, the toboggan proceeds slowly whilst the tail rope patroller performs a pivot turn so that both patrollers have identical ski direction. It is recommended that such a directional change be undertaken only if patrollers are faced with an obstruction, e.g. rocks, trees, crevices, etc.

2. Snow Plough Turn:

Use of this turn is appropriate on shallow slopes not requiring side slipping. The turn must have sufficient radius to allow the toboggan a smooth transition and not swing the rear, as the toboggan also changes direction in the fall line.

3. Standard (Pivot) Turn:

The front patroller has several manoeuvres to perform to finish the turn.

From the initial running position, the patroller must first move forward to the front of the handles, at the same time bringing the toboggan into the fall line and applying braking to slow the toboggan a little. The pivot turn of 180° is then performed. Once skis are facing the new direction, the patroller takes up the normal running position with one hand forward and one hand on the cross bar.

The toboggan remains in the fall line once the patroller has moved forward to the handles and until the turn is completed. If this is not done the toboggan may slide out at the rear.

When using a tail rope, the lead calls to the rear on initiation of the turn. The rear then takes the weight of the toboggan. Once the front has changed direction, he/she resumes the major weight-holding role and the rear executes a pivot turn to bring both sets of skis into the same direction.

4. Forward and Backward Side Slip:

Side slipping is the main way to manoeuvre the toboggan through small changes of direction when negotiating a mogulled area or any other slope. Care must be taken not to accumulate excessive loose snow. The advantage in steep terrain is that at no stage do the skis enter the fall line. Numerous directional changes can be undertaken in one descent without a turn being risked.

Backward side slipping should only be used for short periods of time as patroller may have to make emergency moves and be unable to turn skis.

Path Selection

This will depend on:

An appreciation of terrain
The steepness of the slope
The snow conditions.

It is important to choose the best available path for the travel of the toboggan to avoid unnecessary moguls, ruts and traverse ledges. It is desirable to keep the toboggan in the fall line of the slope, proportional to steepness, i.e. the steeper the slope, the more desirable it is to keep the toboggan close to the fall line.

The Cascade toboggan travels best in the troughs of a mogul field, and accordingly much side slipping is involved.

Toboggan Stability

Cascade toboggans are designed to run on the snow and should at all times be transported with all bottom runners edging (unless lifted, of course).

Under most circumstances, the fall line should be used as the most direct and suitable path in descent. In other words, the front should have a reason for choosing to depart from the fall line. Examples of such reasons might be to avoid mogulled terrain, an area of poor snow cover or crud snow. Only in extreme circumstances should a toboggan traverse the fall line on a steep slope. In such cases, uphill handle pressure must be maintained to hold and grip the upper toboggan runners to the snow surface. The bottom handle should never be lifted as it would lose its tracking benefit. A tail rope patroller must also be used.

In mogulled terrain, it is preferred that the toboggan travel along the troughs of the moguls rather than over the tops and into the ruts. If this is not achieved, the toboggan may spin off the tops of the moguls.

Adoption of the preferred path will assist in maintaining velocity control, maximise ski/snow contact and allow best patient comfort. Sharp turns are inadvisable because of the possibility of tail spinout and to provide better patient comfort.

When negotiating steep slopes in new snow, it may be necessary to depart from the fall line by about 10° in both forward and backward side slip to avoid excessive snow build-up under the skis.