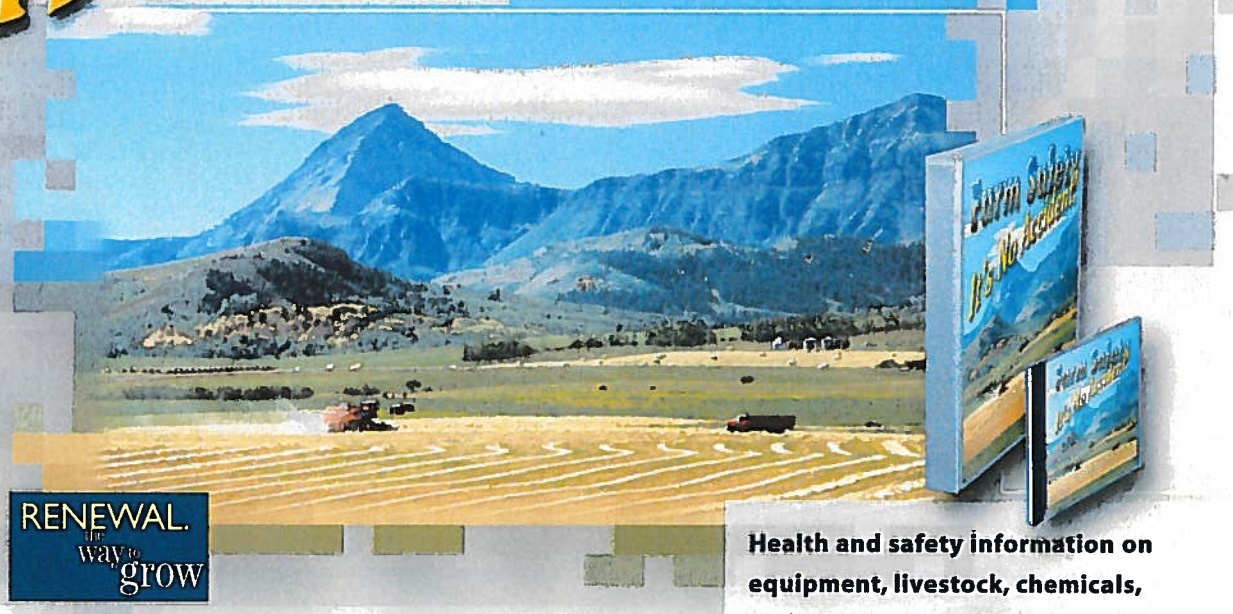
DVD & Manual

Farm Safety

It's No Accident!



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SECTION 2: FARM EQUIPMENT SAFETY

2.1 Farm Equipment Safety—Introduction (Video)

FROM THE VIDEO:

Working with machinery is a part of farm life. Machines help get the job done.

But when people "tangle" with farm machinery, the injuries are very serious. Broken bones. Amputated limbs. Permanent brain damage. Life-long disability. And sometimes, death.

It happens to inexperienced kids—and to farmers with thirty years' experience.

Machinery has no loyalty. It's stronger than you, and faster. But it's not smarter.

All injuries are foreseeable and preventable. You can work with power equipment safely, and still get the job done.

Before you operate a piece of equipment, know its limits and danger zones. Familiarize yourself with the operator's manual and the safety decals.

After that, get in the habit of leaving yourself a safety margin.

Often, farmers rely on experience to determine how far they can bend the rules without getting hurt. But when you take a chance, you lose your margin for error. A small mistake around moving machinery can cost you everything. And anyone can have an "off" day.

DON YOUNG:

"The cause of the accident was my carelessness and not shutting the equipment off, but more importantly not thinking before I acted and certainly that is the major cause of farm accidents, not thinking before you act."

Take a second to ask "what if?"

Set up every work situation so there's a safety margin between you and moving machinery.

One day, when everything goes wrong, that margin will pay off.

2.2 Top 25 Ways to Prevent Injury Checklist

DVD:

Machinery has no loyalty. Maintain a safety margin!

- Understand operator manual and safety decals.
- Walk around your equipment.
- Turn off power before maintenance. Key in pocket.
- No riders allowed.
- Keep guards and shields in place.
- Keep clear of moving parts, pinch/crush points.
- Keep ladders, platforms and control pedals free of debris.
- Reduce speed on uneven ground. Avoid ditches.
- Be rested and mentally alert.
- Signal clearly to others.
- Don't trust hydraulics alone.

Getting injured by machinery is "learning the hard way." That's a lousy way to learn.

If you can say "Yes" to the following 25 statements, you will prevent most injuries working with power machinery.

☑ **Use this checklist to rate your power equipment safety.**

- ☐ I turn off all power before clearing plugged equipment.
- ☐ I always carry a fire extinguisher and a first aid kit.
- ☐ I practice a "no rider" policy (no extra seat, no seat belt, no extra rider on any equipment).
- ☐ Before moving farm equipment, I check that no one has climbed aboard the tractor and trailer equipment without my knowledge. I walk around my equipment before I move it!
- ☐ I do not allow any person to ride on the drawbar of towed machinery.
- ☐ I lock all guards and shields in place before starting equipment.
- ☐ I know the dimensions of my combine (turning radius and tail swing) and other equipment when operating in confined areas, near obstructions or when travelling on public roads.
- ☐ I keep ladders, platforms, foot-plates, control pedals and steps clear of mud, snow and manure.
- ☐ I do not make quick changes in speed or turn sharply when operating tractors and combines on slopes.
- ☐ I reduce speed on rough, uneven or hilly ground.
- ☐ I maintain a good distance from ditch banks when operating a tractor or combine.

- ☐ I ensure nobody is close to the rear of the large round baler while a bale is being ejected. I ensure others stay clear of operating equipment until I, as operator, give them a signal to advance.
- ☐ I never try to work on a baler or any other type of equipment until the flywheel has completely stopped. (On a round baler, all components must be at a dead stop.) The ignition key goes in my pocket.
- ☐ I always check for power lines while moving and working with portable augers.
- ☐ I stay away from moving parts.
- ☐ I am aware of pinch points, shear points, wrap points and crush points. I am aware that some of the new equipment with remote 3-point hitch controls places the operator in a pinch or crush point.
- ☐ I give the operation of farm machinery my full time and attention, and avoid distractions.
- ☐ I always strive to have a safety-first attitude.
- ☐ I know the common causes for injuries involving machinery: missing guards and shields, failure to recognize hazards, risky operations and fatigue.
- ☐ I avoid working around power machinery when I am tired, drowsy, sick or on medication.
- ☐ I make sure I am physically rested and mentally alert before operating any machinery.
- ☐ I get machinery into safe and efficient condition during off-season. I correct any safety hazards immediately. I conduct a thorough annual or semi-annual inspection of all equipment, looking for things such as: cracked welds, missing nuts or bolts, damaged hydraulic lines or safety guards, worn out parts, etc. I carry out ongoing maintenance to ensure safe operation.
- ☐ I am aware of hazards and proper operation of my equipment. I am familiar with the appropriate instruction manuals.
- ☐ I communicate clearly with other persons working in the vicinity. I maintain direct visual contact with signallers.
- ☐ I never trust hydraulics alone. I block equipment when repairing, and lower implements when machinery is parked. I ground all hydraulic attachments before leaving equipment unattended.

2.3 Auger Safety Introduction (Video)

FROM THE VIDEO:

Don't get sloppy or careless when you're working around an auger. This thing is a meat grinder. You don't want to put your hand or foot in there—ever!

Don't take a chance on it—keep your safety margin intact.

Loose clothing or long hair can pull you in. And watch out for situations where you could slip or fall into moving parts—either the auger screw or the drive train.

2.3.1 Auger Safety

DVD:

Over 80% of auger injuries result from missing safety equipment!

- Most grain auger injuries require medical attention.
- 25% of auger injuries result in amputations.
- Guards must be in place.
- Keep hands, feet, hair and clothing away from moving parts.
- Shut off power before servicing or unplugging.
- Lower portable augers fully before moving.
- Watch for electrical wires overhead.

Most grain auger injuries require medical attention!

- In 2001 there were 41 reported auger injuries in Alberta. One in nine machinery injuries is caused by an auger.
- 25 per cent of auger injuries result in amputations. Over 70 per cent of auger injuries involve fingers, hands and feet.

Experience isn't a real factor!

- Over 90 per cent of those injured by augers are over the age of 18 (18-65). They have farmed an average of 27 years.

Why do the injuries happen?

- Over 80 per cent of auger injuries occur when safety equipment is missing.
- Common reasons for missing safety equipment:
  - Auger is an older model, and never had guards or shields.
  - Shields reduce grain flow, so were removed.
  - Auger would not fit into the bin door with safety equipment in place, so shields were removed.

2.3.2 Auger Safety Checklist

Since one in nine machinery injuries is an auger injury, it pays to take the time and work safely.

☑ **Use this checklist to rate your auger safety.**

- ☐ I ensure all safety devices are in place before operation. I make sure all guards are in place, properly secured and functional to prevent entanglement with the auger screw and power train.
- ☐ I make sure that everyone is clear before operating or moving the auger.
- ☐ I keep hands, feet, hair and clothing away from moving parts.
- ☐ I remove jewelry (bracelets, watches, rings, neck chains, etc.) before operating an auger.
- ☐ I make sure long hair is tied up, or put under a hat, when operating an auger.
- ☐ When working at night, I make sure the area has good lighting.
- ☐ I shut off power to adjust, service, clean or unplug the auger.
- ☐ I watch for overhead obstacles and electrical wires when transporting the machine. I transport portable augers in the fully lowered position, with safety locking devices in place.
- ☐ I ensure that my work area has secure footing and is free of debris and tools that can cause trips or falls.
- ☐ I make sure that the hopper and auger are empty before stopping the equipment at the end of the day.
- ☐ I have enlarged the access holes of any bins that could not accept augers with guards.

2.4 Tractor Safety Introduction (Video)

FROM THE VIDEO:

Tractors are at the centre of most farm operations. They're designed to be heavy and powerful. But when things go wrong, there's a real danger of the operator or a bystander being run over or crushed by the tractor itself.

Tractors look stable, but only within a range. On steep slopes, their high clearance makes them top-heavy.

And this high centre of gravity means that tractors can roll over sideways or flip backwards. Once they're out of their range of stability, this can happen very quickly.

A rollover is very serious — with several tons of steel crushing the operator. Without protection, the likely results are extreme injury or death.

Two things have to happen to maintain your safety margin when working with tractors: first, having and using protective equipment; and second, preventing rollovers and runovers by recognizing and avoiding hazardous situations.

2.4.1 Tractor Safety Checklist

DVD:

Be rested and mentally focused before operating!

- No riders allowed.
- Shut off engine before servicing. Key in pocket.
- Walk around equipment before moving.
- Install ROPS. Buckle seat belt.
- Connect only to drawbar when towing or pulling (not 3-point hitch).
- Avoid ditches, streams and steep hills.
- Do not make sharp, high-speed turns.
- Keep chain or cable tight when pulling stuck equipment.
- Be highly visible on the road.

☑ **Rate your tractor safety by filling in this checklist.**

☐ I ensure farm tractors are equipped with roll-over protective structures (ROPS). These structures prevent injuries and even death in both sideways rollovers and backwards "flips".

☐ My tractor is equipped with a neutral safety switch (bypass starter covers) to prevent the tractor from starting while it is in gear. This is not always standard equipment on older tractors. Without it, the tractor could jump forward and run over the operator or a bystander.

- ☐ I practice a "no rider" policy. Passengers could shift the attention of the driver from the task of operating the tractor. Also, passengers are in danger of falling off the tractor and being run over.
- ☐ I make my tractor visible and safe on the road. I use headlamps and tail lamps, and display a Slow-Moving Vehicle (SMV) sign.
- ☐ I avoid operating a tractor when I am fatigued, drowsy or sick. I make sure I am physically rested and mentally focused before operating a tractor.

Avoiding Rollover Injuries

- ☐ I always fasten the seat belt when operating a tractor equipped with a rollover protective structure (ROPS). (This structure only gives protection if the operator stays inside it. In a rollover, the operator can easily be thrown out of the structure and crushed under the tractor. Cabs can give a false sense of security. In a rollover, the safety glass in a cab won't keep the operator from being thrown out and crushed under the tractor. Only the seat belt can do that.)
- ☐ I keep tools and hitchpins out of the cab. (In the event of a rollover, these things can strike the operator causing serious or even fatal injuries.)
- ☐ I do not make short, sudden, high speed turns (this helps prevent sideways overturns).
- ☐ I never hitch a towed load higher than drawbar height (helps prevent rear rollovers).
- ☐ I pull heavy loads and equipment at safe speeds to avoid fishtailing. Fishtailing could throw my tractor out of control.
- ☐ I steer clear of ditches, streams and steep hills.
- ☐ I avoid backing downhill whenever possible.
- ☐ I always back the tractor out when stuck in mud. When pulling a tractor out, I always connect drawbar to drawbar (lowest point).
- ☐ When I am pulling with another tractor, I keep the chain or cable tight. (Jerking on a slack chain/cable may cause it to fail and fly through the cab window, striking the operator.)
- ☐ I always pull with a chain or cable that is rated for the load.

2.5 Round Baler Safety Introduction (Video)

FROM THE VIDEO:

Here's something to keep in mind: the rotating parts on a baler move at high RPM—many times faster than human reflexes.

If you think you can put your hand in and pull it out in time, you're mistaken. You'll be trapped long before you can do anything about it.

Nobody can react fast enough to escape. So pay attention—think about where you're putting your hands and feet.

2.5.1 Round Baler Safety Checklist

DVD:

Baler parts move faster than you can!

- Never try to adjust or unplug a baler while the tractor is running.
- Shut off engine. Key in pocket.
- Keep bystanders clear when ejecting bales.
- Bale handling: carry bales low to keep tractor stable.
- Watch out: bales can roll down tractor arms and crush the operator.

☑ **Use this checklist to rate your safety when working with round balers and handling round bales.**

Working with Round Balers

☐ I always disengage power before I repair, adjust or clear plugged equipment. I put the ignition key in my pocket. (Sometimes the turbocharger has to be cooled before turning the engine off. That's the cost of protecting your hands and feet. Power must be off, and the ignition key in your pocket. PTO clutches aren't foolproof, and there's the danger of someone else entering the cab and operating the controls while the machine is being worked on.)

☐ I read the operator's manual and follow the recommendations for operation, maintenance and safety.

☐ I keep bystanders clear of the rear of a round baler while a bale is being ejected.

☐ I never try to work on a baler until the flywheel has completely stopped.

Bale Handling

- ☐ I position bales in a way that will prevent them from rolling. (The greatest danger is when improperly attached bales roll down the arms of front-end loaders and crush the operator or bystander.)
- ☐ I avoid making quick changes in speed or turning sharply when handling and transporting bales. I use a tractor with a ROPS (rollover protective structure).
- ☐ I carry bales as low as possible for greater stability.
- ☐ I operate loader tractors that are large enough and equipped with sufficient counterweight to handle bales safely.
- ☐ I practice a "no rider" policy on the tractor.
- ☐ I avoid operating a tractor when fatigued, drowsy or sick.

2.6 Farm Shop Safety Introduction (Video)

FROM THE VIDEO:

Farmers spend many hours in the shop, doing repairs and maintenance, and preparing equipment for the field.

A shop environment has its own unique set of hazards.

There are a hundred different ways to be injured. You can be cut, burned, electrocuted or crushed. You can slip and fall, sprain an ankle, step on nails or damage your hearing and eyesight.

Getting injured is a poor way to get the job done. A safe shop is an efficient shop; the two go hand-in-hand.

Like the rest of the farm, activities in the shop need to have proper safety margins built in.

The farm shop is a good place to develop safe work habits. They'll pay off in the end.

2.6.1 Farm Shop Safety Checklist

DVD:

A safe workshop is an efficient workshop!

- Have good lighting.
- Clear debris from steps and walkways.
- Keep fire extinguishers and first aid kit ready for use.
- Keep flammable materials away from grinding and welding.
- Protective equipment must be readily available and worn.
- When working alone, ensure someone knows where you are.
- Provide ventilation when engines are running (carbon monoxide).
- Don't trust hydraulics alone! Jack and block equipment before work.
- Keep children out of the shop.

☑ **Use this checklist to help you evaluate and "tune-up" your farm shop facilities and work practices.**

Preparing Your Workshop

☐ My workshop is organized so that everything has a designated place. Items are secure so they will not fall on anyone. (A safe workshop is an efficient workshop.)

☐ All steps and walkways are clean and free of objects and debris. (This reduces the likelihood of trips and falls.)

☐ I have an adequate fire extinguisher in good working condition. (When you need one, you need it fast!)

- ☐ Wiring, power cords, plugs and switches are in good condition.
- ☐ The electrical system has enough capacity to handle all loads.
- ☐ All electrical circuits are equipped with the proper size fuses or breakers. (This prevents electrocution and fire hazards.)
- ☐ Flammable materials are stored well away from welding and grinding operations.
- ☐ The shop is well lit.
- ☐ Personal protective equipment is readily available when performing repair jobs. (Get in the habit of using protective gear. It's helpful to keep the necessary safety equipment by each tool at all times, or at a conveniently located "station," so it's always right at hand when you've got a job to do. If you have to hunt around for your safety gear, you may be tempted to take a chance.)
- ☐ A first aid kit is available.
- ☐ Someone is aware of where I am at all times when I am working alone.

Working on Equipment

- ☐ I always keep doors and windows open when vehicles or equipment with internal combustion engines are started or run indoors. (If not, poisonous carbon monoxide can form.)
- ☐ I stabilize farm equipment using jacks and blocks before repairing or servicing. (Don't rely on hydraulics alone.)
- ☐ Before I work on agricultural equipment, I make sure that the equipment is turned off, all rotating parts have stopped moving and safety locks are put in place.
- ☐ I keep all guards and shields in place on power equipment. (Injuries in the shop are as serious as injuries in the field.)
- ☐ I make sure children are not in the shop while work is underway.

2.6.2 Safe Use of Tools Checklist

DVD:

- Stationary power tools must be grounded with shields in place.
- Portable power tools require proper three-wire grounding or double insulation.
- Use the correct tool for the job.
- Keep tools in good condition.
- Switch off and unplug power tools before changing blades or servicing.
- Ensure you have no loose clothing (strings, cuffs).
- Wear personal protective equipment.
- Store sharp tools properly.
- Unplug and put tools away after use.
- Lock up power tools to prevent children from using them.

A good set of hand and power tools is essential for any farm shop, but they can cause injuries if not used properly.

☑ **How safe are you? Use the checklist to evaluate your safe use of tools.**

Tool Safety

- ☐ All stationary power tools are grounded.
- ☐ Shields are in place on all stationary tools.
- ☐ Portable power tools that aren't double insulated have proper three-wire grounding.
- ☐ I use the correct tool for the job.
- ☐ I keep tools in good condition.
- ☐ I use and maintain power tools according to their instructions.
- ☐ I switch off and unplug power tools before changing blades or servicing.
- ☐ I wear clothing that is free of strings or loose cuffs that can pull me into rotating parts.
- ☐ I wear appropriate personal protective equipment when performing a job: gloves, glasses, goggles, dust masks, face shields, hearing protection, etc.
- ☐ I store all sharp hand tools (saws, knives, axes, etc.) properly to prevent injury during falls or accidental contact.
- ☐ I unplug and put tools away after use. I lock up power tools to prevent children from using them without permission.
- ☐ I keep bystanders at a safe distance.

2.7 Machinery Transport on Highways Introduction (Video)

FROM THE VIDEO:

Car drivers think they own the road. They don't, but they think they do.

And they're not expecting to meet you and your farm equipment, moving so slowly.

So they do dangerous things, like running into the back of you, trying to pass when it's not safe, and maybe clipping your equipment as they go by.

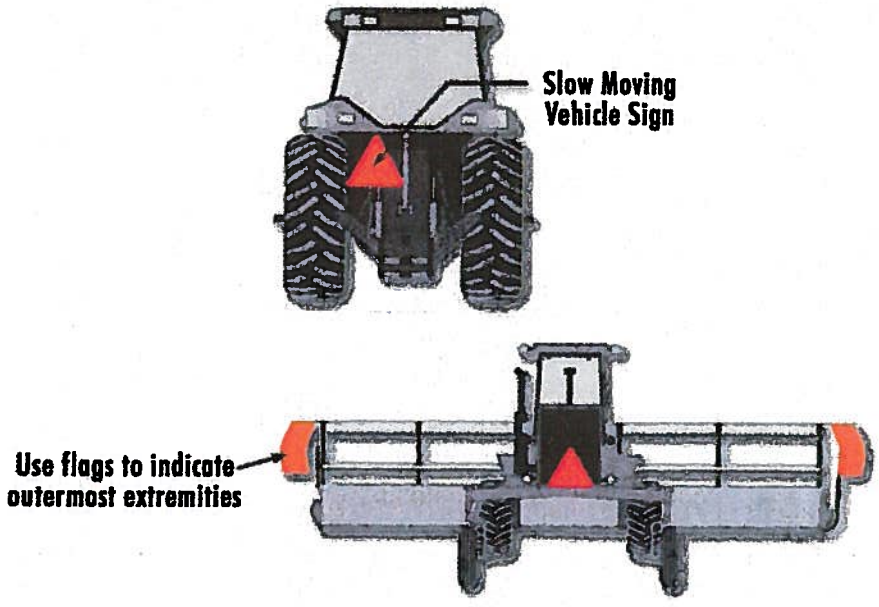
That's why you need to be as visible as a fire truck.

You need to let car drivers know how slow you're moving, how wide you are and what you're planning to do.

2.7.1 Machinery Transport on Highways—Daytime Travel

DVD:

- Be highly visible, especially on highways!
- Place clearly visible Slow-Moving Vehicle sign at rear.
- Install warning flags to mark widest part of machine.
- Flags must be visible from front and rear.



(Graphic courtesy of Alberta Transportation. Used with permission.)

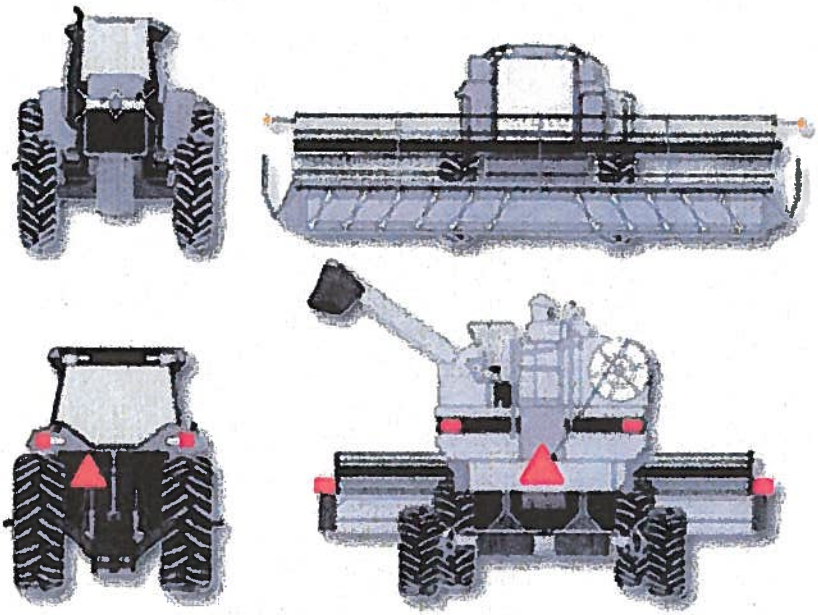
- Display a Slow-Moving Vehicle (SMV) sign that is attached to the rear end of the vehicle and clearly visible to all traffic.
- Place the SMV sign at or close to the centre line of the vehicle or equipment, at a height between 1-1.5 metres (3-5 ft.) above the road.
- Use warning flags to mark the widest part of the machine. Flags should be displayed so that their full area is visible from the front and rear.

2.7.2 Machinery Transport on Highways—Night-Time Travel

DVD:

Night travel requires special preparations!

- Ensure Slow-Moving Vehicle sign is clearly visible.
- Display two to four white headlamps at front (not more).
- Display two red tail lamps visible to 150 metres (500 ft.) as required by law.
- If wider than 2.6 metres (8.5 ft.), place warning lights on widest part.
- Use lights one hour before sunset to one hour after sunrise.



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Make your farm machinery visible and safe: use headlamps and tail lamps whenever you are on the road at night-time or in darkness.

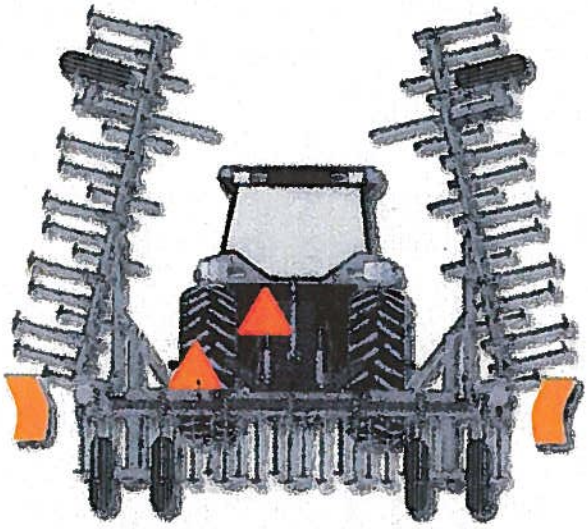
- Use lights from one hour before sunset to one hour after sunrise. Also use lights when snow, rain, fog and smoke do not allow you to see a person from 150 metres (500 ft.) away.
- Ensure that tractors and other self-propelled equipment have the required lights: at least two but not more than four head-lamps visible from the front.
- Be aware that if the machine is more than 2.6 metres (8.5 ft.) wide, warning lights must mark the widest part of the implement.
- Display a Slow-Moving Vehicle (SMV) sign that is attached to the rear end of the tractor and clearly visible to all traffic.
- Ensure that tractors and other self-propelled farm equipment have at least two red tail lamps, as required by law. Lights should be visible at a distance of no less than 150 metres (500 ft.).

2.7.3 Machinery Transport on Highways—Towed Implements

DVD:

Be highly visible on highways!

- Ensure towed implement has a clearly visible Slow-Moving Vehicle sign.
- Install warning flags to mark widest part of machine.
- Flags must be visible from front and rear.



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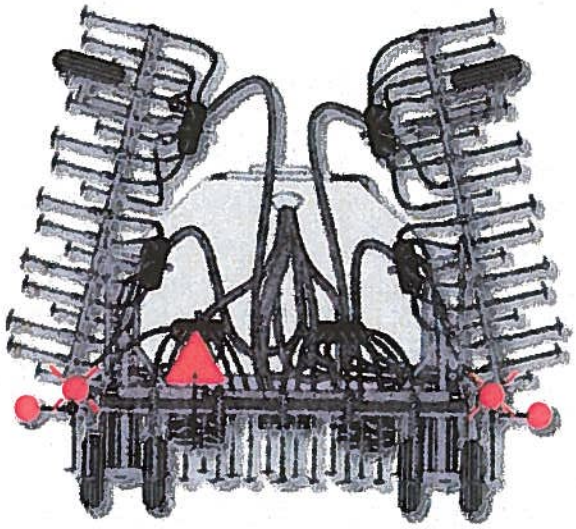
- Ensure a towed implement has its own clearly visible Slow Moving Vehicle sign. Place the SMV sign at or close to the centre line of the equipment, at a height between 1-1.5 metres (3-5 ft.) above the road.
- Install warning flags to mark the widest part of the machine.
- Flags should be displayed so that their full area is visible from the front and rear.

DVD:

Night travel requires special preparations!

- SMV sign must be clearly visible on towed implements.
- Towed implements need two red tail lamps (required by law).
- If wider than 2.6 metres (8.5 ft.), place warning lights on widest part.
- Amber reflectors mark front.
- Red reflectors mark rear.



(Graphic courtesy of Alberta Transportation. Used with permission.)

- Ensure towed implements have at least two red tail lamps, as required by law. If the implement is more than 2.6 metres (8.5 ft.) wide, warning lights must mark the widest part of the machinery.
- Use reflectors for better visibility at night. Use amber reflectors to mark the front and two red reflectors to mark the rear of towed implements.

2.8 ATV Safety Introduction (Video)

FROM THE VIDEO:

All-terrain vehicles like quads and trikes are handy—and most farms have one.

But along with the increase in ATV popularity, the cases of serious injury and death have also increased.

The big hazards are:

- lack of awareness of the dangers
- too much speed for the terrain
- young drivers losing control
- head injuries from being thrown off without a helmet

Like any piece of farm equipment, you have to respect the power of your ATV and maintain your safety margin.

2.8.1 ATV Safety Checklist

DVD:

Respect the power of your ATV. Maintain your safety margin.

- Wear helmets!
- Children must not operate without safety training.
- Large ATV (over 90cc) operators should be 16 or older.
- No riders allowed.
- Adjust speed when towing or using attachments.
- Keep off streets, highways and paved roads.

Improper use is the main cause of ATV injuries and fatalities. Develop a "safety first" attitude.

☑ **Use the following checklist to assess your ATV safety.**

☐ I do not allow children to operate ATVs without safety training (such as a safety course). Youth are encouraged and expected to drive safely. Adults provide positive role models.

☐ Children ride vehicles that are appropriate for their size and ability. ATVs with an engine size of greater than 90cc are only operated by people at least 16 years of age.

☐ Anyone riding an ATV wears protective equipment: helmet, goggles, gloves, over-the-ankle boots, long-sleeve shirt and long pants. (Store your helmet and goggles right on the quad. If you have to search for them, you'll be tempted to say "the heck with it"—especially if you're in a hurry. And there goes your safety margin.)

☐ I practice a "No Riders" policy on ATVs. (ATVs are built for one person—the driver.)

- ☐ I have familiarized myself with the operator's manual.
- ☐ I adjust my speed and turning when using attachments. (Added attachments affect the stability, operating and braking of the ATV. This includes mounted attachments like sprayers; or pulled attachments like wagons or mowers.)
- ☐ I keep the ATV in a safe and efficient operating condition. I correct any hazards. (Maintenance programs help prevent ATV injuries.)
- ☐ I avoid operating an ATV on streets, highways or paved roads. (ATVs are not licensed or designed for street use.)

2.9 Loader Safety Introduction (Video)

FROM THE VIDEO:

Loaders are the farmer's universal tool. A loader extends the power of your hands a thousand times. Whether it's tractor-mounted or a skid-steer, it's amazing what a skilled operator can accomplish.

In some situations, however, loaders pose an injury risk to the operator or workers on the ground.

When a loader is added to a tractor, its stability and centre of gravity are changed. With the loader raised, the tractor's centre of gravity moves higher and forward. Tipping or rollover is a potential hazard for the operator.

As a rule, try to arrange loader work so that ground workers are not in close proximity to loader operations. Workers can be crushed or run over in an instant.

Don't disable or modify factory-installed safety equipment. Safety interlocks may be inconvenient, but they must be used; otherwise, a single error can cause serious injury or death.

Consider what hazards might affect the operator, ground workers and the equipment. Think about what could go wrong.

Take every possible step to prevent injury, ensure there is a very wide safety margin and exercise extreme caution in doing the task.

2.9.1 Loader Safety—Avoiding Rollovers

DVD:

Tractor loaders increase the danger of tipping forward or rolling over.

A raised loader moves the centre of gravity higher and forward.

- Keep a loaded bucket as low as possible when moving.
- Never drive with the bucket raised.
- Don't turn while raising the loader.
- Watch for holes or uneven ground.
- Slow down! Speed is a big factor in rollovers.

When a loader is added to a tractor, its stability and centre of gravity (CG) are changed. With the loader raised, the tractor's centre of gravity moves higher and forward. Tipping or rollover is a potential hazard for the operator.

To Prevent a Rollover:

- Add the recommended wheel ballast or counterweight to the rear of the tractor, to offset the weight in the bucket.
- Keep the bucket low, especially when travelling with a load. This keeps the centre of gravity as low as possible. Never drive with the bucket raised.
- Ensure that a rollover protective structure (ROPS) and seat belt are installed and used.
- With a load in the bucket, drive forward when going uphill. When going downhill with a load, back up.
- Avoid driving across slopes with the bucket raised.
- Watch out for holes or uneven ground.
- Don't turn as you raise the bucket to unload. This can tip the tractor.
- Slow down when carrying a load or raising the loader. Speed is a big factor in rollovers.

2.9.2 Loader Safety—General Precautions

DVD:

- Read and understand the operator's manual.
- Don't operate hydraulic controls unless you are in the operator's seat.
- Don't jerk the hydraulics. Move loader arms slowly and steadily.
- Watch for low ceilings, beams and doorways.
- When operating inside buildings, ensure adequate ventilation (carbon monoxide).

- Anyone who operates a loader must read and understand the operator's manual.
- Don't operate hydraulic controls unless you are in the operator's seat.
- Don't jerk the hydraulics. Move loader arms slowly and steadily.
- Be aware of low ceilings, beams and doorways to prevent collisions or harm to the operator.
- When operating inside buildings, ensure adequate ventilation so carbon monoxide from the engine will not build up.

2.9.3 Loader Safety—Hydraulic Hazards

DVD:

- Don't trust hydraulics completely!
- Hydraulics can and do fail.
- Avoid walking or working under a loader.
- Use strong supports if you must go underneath (maintenance).

- Hydraulic systems cannot be completely trusted. Worn hoses, poor connections and mechanical parts can fail, causing the bucket and lift arms to fall at high speed.
- Workers should never walk or work under a loader. The bucket or load could fall on them if the hydraulics fail or if the operator makes a mistake. If workers must go under the bucket, or if maintenance is to be done, heavy bracing or built-in mechanical stops must be used.

2.9.4 Loader Safety—Loaders in Close Proximity to Other Workers

DVD:

Loaders + ground workers = danger. Extreme caution required!

- If possible, change work plan to keep workers clear.
- Where is your safety margin? Workers must have an escape route.
- Operator must always keep visual contact with workers.
- Workers must not enter crush zone between loader and walls, posts, etc.
- Workers never enter swing zone or path of motion unless clearly signalled to enter by the operator. Operator must secure loader so accidental movement is not possible (park brake on, throttle down, hands/feet off controls).

As a rule, try to arrange loader work so that ground workers are not in close proximity to loader operations. Workers can be crushed or run over in an instant.

- Extreme caution is required when ground workers are near to a hydraulic loader.
- Workers and operators must never walk or work under a raised loader.
- The operator must never move or swing a load with workers in close proximity.
- Operators must know where ground workers are at all times, especially when working in close quarters and narrow spaces.
- The worker must always have an escape route in case of mechanical failure or operator error.
- The loader can swing faster than a ground worker can get out of the way.
- Ground workers must realize that the operator's vision is limited by the lifting arms, bucket and ROPS. Just because the worker can see the operator doesn't mean the operator sees the worker. The worker needs to make direct eye contact and exchange clear signals before moving.
- Workers in the area of the loader or skid-steer must be instructed to keep well clear, and to never put themselves between any part of the loader and a stationary object (wall, post, etc.).
- Workers must never move into the loader's swing zone or path of motion unless directly signalled to do so by the operator. The operator must throttle down, put controls in neutral, set the wheel brake and take hands off the hydraulic and steering controls while a ground worker is in close proximity.

2.9.5 Loader Safety—Digging Operations

DVD:

Walk through work area and scan for hazards!

- Check clearance between overhead wires and loader.
- Place ground marker for ground hazards and overhead hazards.
- Be very cautious when backfilling holes, trenches or foundations (weight of loader could collapse excavation wall).
- Don't undercut high banks (cave-in).
- Know exactly where buried utility lines are. Leave a wide margin.
- Stay back from edge of a high bank or slope.

- Walk through and scan the work area before you start.
- Watch for overhead wires and ensure that the raised loader will clear all obstacles.
- Put a ground marker in front of ground hazards and overhead hazards (e.g., use an empty barrel, a sawhorse, a post with a bright flag or even a five-gallon pail). When an operator gets to full speed on a repetitive operation, he or she can lose track of area hazards.
- Be very cautious when backfilling holes, trenches or foundations. The weight of the loader plus the fill in the bucket could cause the wall of a nearby excavation to collapse, causing tractor upset or burying persons working below.
- When digging, don't undercut high banks or a cave-in may occur. Know exactly where buried utility lines are, and leave a wide margin. Stay well back from the outer edge of a high bank or slope.

2.9.6 Loader Safety—Unorthodox and Hazardous Uses

DVD:

Avoid using loaders for tasks not recommended by the manufacturer.

- Unapproved tasks carry a high risk of injury.
- Think through the job. Leave a very wide safety margin.
- If there is a better and safer way to do the job, choose it.
- Abandon task if hazard is greater than anticipated.

Use extreme caution:

- Pulling posts
- Knocking down fences and buildings

Never:

- Use bucket as raised work platform
- Tow with a loader
- Let people ride on bucket

There are many farm tasks that are not the intended use of a loader, and are not recommended by the manufacturer. Still, many farmers choose to use front-end loaders for these tasks.

The safest and most responsible course of action is to follow the manufacturer's recommendations and avoid "unorthodox" uses.

If you choose to do unapproved tasks with your loader, you take on a heavy personal responsibility. You must think the job through carefully.

- Consider what hazards might affect the operator, ground workers and the equipment. Think about what could go wrong.
- Never exceed the lifting capacity of your loader, and never permit conditions where a front, rear or side upset could occur.
- Take every possible step to prevent injury, ensure there is a very wide safety margin and exercise extreme caution in doing the task.
- If the job turns out to be more hazardous than anticipated, abandon it before an injury occurs.
- If there is a better and safer way to do the job, choose it.

Unapproved and potentially hazardous loader tasks include:

- pulling posts
- knocking things down (fences, buildings)

Some unapproved loader uses are extremely dangerous. Tragedies can result. Activities which must never be done include:

- using the bucket as a raised work platform (hydraulic failure, operator error)
- towing with the loader (centre of gravity too high, possibility of upset)
- letting people ride on the bucket (people can be bounced out or tipped out; pinch, crush and run-over injury possible)

2.9.7 Loader Safety—Skid Steer Loaders: Special Considerations

DVD:

Skid-steer loaders move instantly. Operators can be thrown out!

- Do not disable safety devices. One error can cause injury or death.
- Wear seat belt every time (keeps operator inside ROPS).
- Narrow wheelbase makes loader unstable on rough terrain and slopes.
- Bucket must be kept very low when in motion (tipping hazard).
- Keep floor pedal controls clear of debris (mud, snow, manure, grain).

- Don't disable or modify factory-installed safety equipment. Safety interlocks may be inconvenient, but they must be used; otherwise, a single error can cause serious injury or death.
- Do not remove or modify the ROPS, ignition safety interlocks, seat belt or lift-arm safety locks.
- Always wear the seat belt. This keeps the operator within the ROPS and out of range of the lift arms in case of sudden, unexpected movement of the loader.
- Be aware that a skid-steer loader's narrow wheelbase makes it unstable on rough terrain and slopes.
- Keep floor pedal controls clear of mud, snow, manure or grain that can keep them from moving freely.

2.9.8 Loader Safety—Under-Age Operators

DVD:

- Operating tractor + loader is more complex than operating tractor alone.
- Younger children cannot operate loaders safely.
- Children older than 14-15 require extensive training and supervision by adults to operate a loader safely.
- Evaluate your child's abilities honestly.
- Many authorities recommend 16+ as the minimum age for loader operation.

- Operating a tractor with a loader is much more complex than operating the tractor alone.
- Younger children cannot operate loaders safely.
- Children older than 14 or 15 require extensive training and supervision by adults to operate a loader safely. Evaluate your child's ability honestly. Many authorities recommend 16+ as the minimum age for loader operation.

2.10 Standard Hand Signals

DVD:

Make sure clear communication happens (protect people and equipment)!

- Hand signals work best in noisy farm environments.
- Maintain direct visual contact with signaller (eye contact).
- Only one person signals.
- Signaller must keep clear of equipment.
- Use hand and arm signals (easier to see).
- Learn and teach the ASABE (American Society of Agricultural and Biological Engineers) standard hand signals.

Hand Signals

Agricultural operations occur in noisy environments. Often, verbal communication is not possible.

Clear communication between the equipment operator and the person on the ground helps reduce the risk of injuries and equipment damage.

How to Communicate through Hand Signals

Effective signalling requires that the ground worker:

- Choose a location that is clearly visible to the operator, either in direct line of sight or visible in the mirror.
- Make and keep eye contact while signalling.
- Stand out of the path of the equipment and moving parts. Avoid moving into the path of equipment that is in motion.
- Signal with clear and deliberate hand-and-arm movements. Hand movements alone may not be clearly visible.
- To avoid conflicting signals, never have more than one signal person.

2.10.1 Standard Hand Signals Demonstrated (Video)

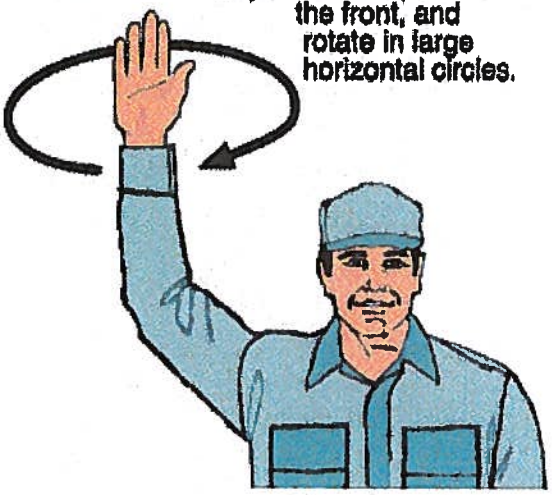
Everyone needs to use the same "sign language" to avoid misunderstandings.

These standard hand signals were designed by the ASABE (American Society of Agricultural and Biological Engineers), and have been adopted for use in the United States and Canada.

Note: video demonstrations of these hand signals are included on the DVD.

Come to me – (May mean "Come help me" in an emergency.)

Raise arm vertically overhead, palm to the front, and rotate in large horizontal circles.

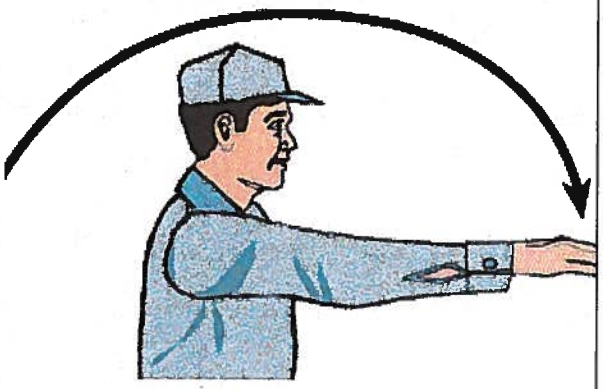


Stop

Raise hand upward, arm fully extended, palm to the front. Hold that position until the signal is understood.

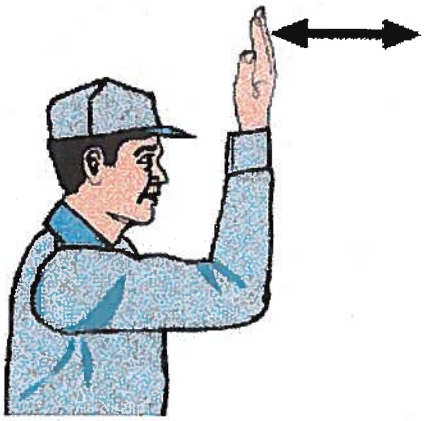
Move out – take off

Face desired direction of movement. Extend arm straight out behind you, then swing it overhead and forward until it's straight out in front of you with palm down.



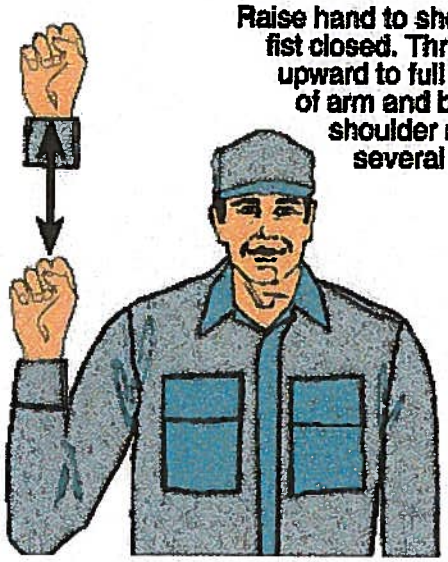
Move toward me – follow me

Look toward person or vehicle you want moved. Hold one hand in front of you, palm facing you, and move your fore-arm back and forth.



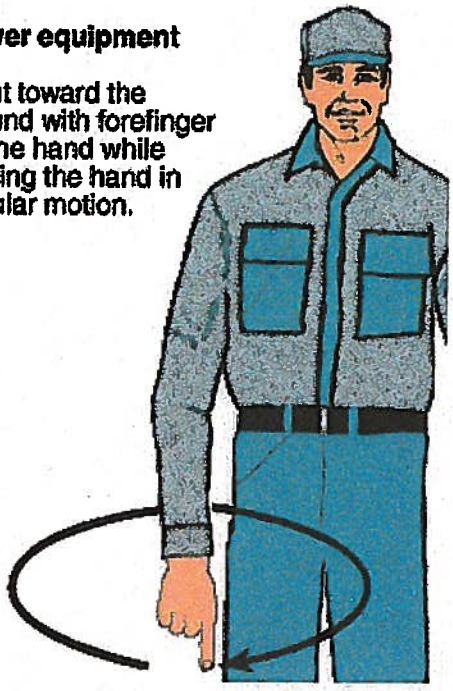
Speed it up – increase speed

Raise hand to shoulder, fist closed. Thrust fist upward to full extent of arm and back to shoulder rapidly several times.



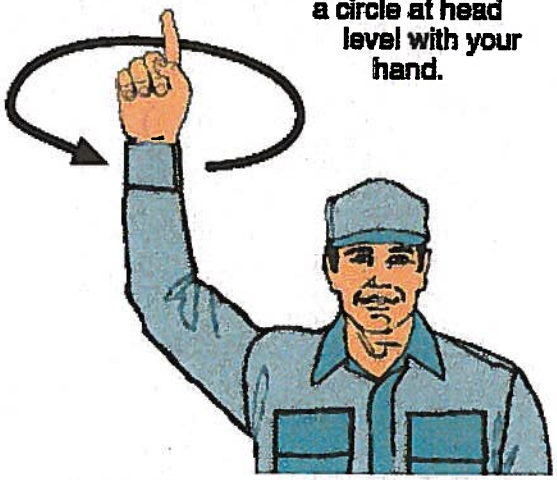
Lower equipment

Point toward the ground with forefinger of one hand while moving the hand in circular motion.



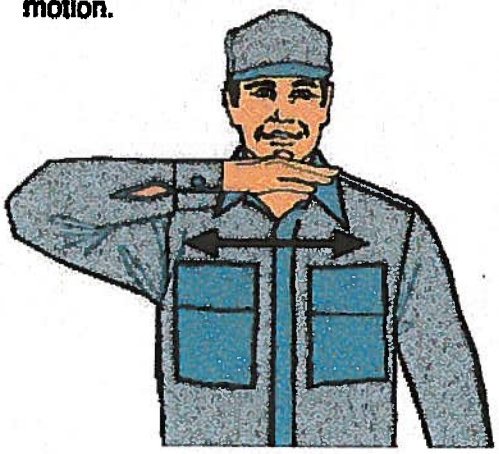
Raise equipment

Point upward with fore-finger, making a circle at head level with your hand.



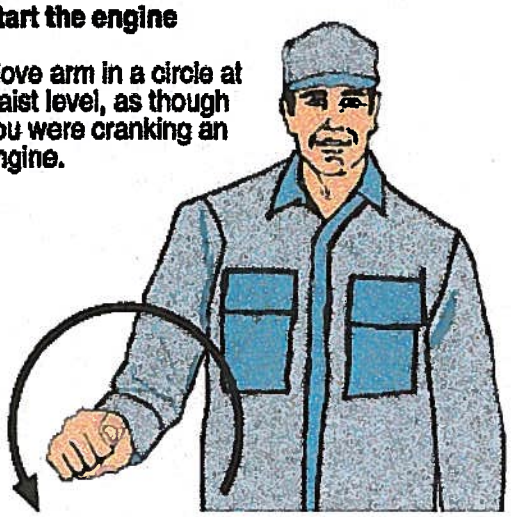
Stop the engine

Move your right arm across your neck from left to right in a "throat-cutting" motion.



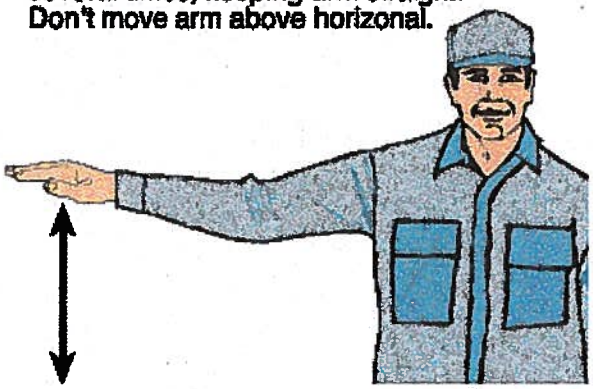
Start the engine

Move arm in a circle at waist level, as though you were cranking an engine.



Slow it down – decrease speed

Extend arm horizontally sideward, palm down, and wave arm downward 45° minimum several times, keeping arm straight. Don't move arm above horizonal.



This far to go

Put hands in front of face, palms facing each other. Move hands together or further apart to indicate how far to go.