

DRILL 2300 SAFETY SECTION

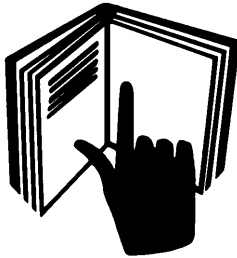
RECOGNIZE SAFETY ALERT SYMBOL



The above safety-alert symbol means "Attention! Be Alert! Your personal safety is involved!" This symbol draws your attention to important instructions concerning your personal safety. Read the message carefully to avoid personal injury or death.

FOLLOW MACHINE SAFETY SIGNS & MESSAGES

Observe safe operating practices. Carefully read this manual and all safety signs on your equipment. Safety signs must be kept in good condition. Replace missing or damaged safety decals or shields; available from **Sukup Manufacturing Company, Box 677, Sheffield, Iowa 50475 at no charge.**



Learn how to use controls and operate machine. Do not let anyone operate unit (especially youth) without thorough training of basic operating and safety procedures.

Make no unauthorized modifications to machine. Modifications may endanger function and/or safety of unit. Keep unit in good working condition.

EMERGENCIES -- KNOW WHAT TO DO

Have emergency numbers near your telephone:

- For doctors:
- Emergency medical squad:
- Ambulance service:
- Hospital:
- Fire department:

Have written directions to your location:

OPERATE SAFELY

- Lower unit when not in use.
- When leaving tractor always shut off engine, shift to "park," and remove key.
- Slow down when turning.
- Drive slowly over rough terrain.
- Do NOT operate close to ditch or creek.
- Keep SMV emblem and reflectors clean and visible.



WARNING: KEEP RIDERS OFF UNIT

Riding on any agricultural equipment is very dangerous. People can be killed or seriously injured when accidentally falling off of unit, or by thrown objects.



Caution: Walkboard may be slippery when wet.

WARNING: TRANSPORT SAFETY

Transporting this equipment on public roads may result in serious injury or death.

If road travel is required it is essential that all the following procedures are followed:

1. Read and understand -- operator's manual.
2. Check & comply with state & local regulations.
3. Be sure tractor has slow moving vehicle emblem and that all required warning lights are in working order.
4. Use tractor warning lights during transportation.
5. Use required warning flags, emblems or lights.
6. Check that red reflectors are on back of unit (at outer edges) and clearly visible.
7. Check that amber reflectors are on front of unit (at outer edges) and clearly visible.
8. Travel at a reasonable and safe speed. "**Never exceed maximum speed, 25 MPH**". Reduce speed and/or use lower gear on rough ground or slopes.
9. Transport unit in its narrowest configuration. Wings must be completely folded.
10. Stop slowly.
11. Have extended rear angle mirrors on vehicles.
12. Signal & check behind you when turning.



WARNING: Check for other vehicles when turning. (2/3 of roadway farm accidents occur when turning.)

- Use mirrors,
- Be sure to have clear visibility,
- Use signal lights



WARNING: Do not transport unit in areas of poor visibility --

- Especially on hills,
- During poor weather conditions,
- or at night

Failure to do so may cause serious injury or death.

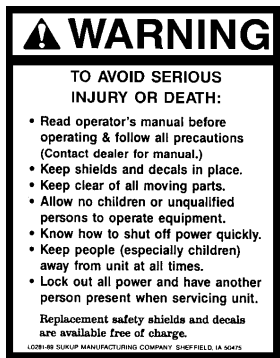
Use good judgment when transporting. Maintain complete control of machine at all times. Comply with state and local laws governing. Read safety regulations when moving machinery. Always strive to prevent accidents! Watch out for other vehicles.

IMPORTANT: If suggested locations are not clearly visible, place safety decals in more suitable area. Never cover up any existing safety decals. Make sure location for decal is free from grease, oil & dirt.

! Yearly and prior to equipment use, please check that all decals and shields are securely in place according to this drawing and in good legible condition. To order a replacement decal or shield (no charge) contact your dealer or **Sukup Manufacturing Company, Box 677, Sheffield, Iowa 50475 at no charge.**

Drill Safety

1. **Warning - Safe Operation**
Decal - L0281



2. **Warning - No Riders**
Decal - L0274



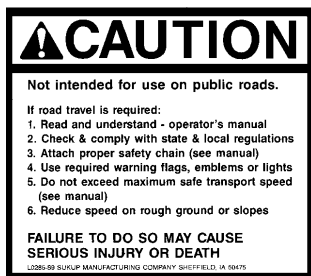
3. **Danger - Prevent Being Crushed**
Decal - L0282



4. **Amber Reflector Tape**
Decal - L0276 2"x 4-1/2"

5. **Red Reflector Tape**
Decal-L0277 2"x4-1/2"

6. **Caution - Not intended for use on public roads** - Decal - L0285



7. **Warning - Prevent serious injury or death from unit falling over.** Decal - L0090



8. **Warning - Beware of Pinch Points** - Decal - L02841



9. **Danger - Decal - L0271** - Shield missing Do not operate.



10. SMV Sign- J2250

11. Light Kit Provided 10' and larger - Optional Light Kit is available # R6654, if rear tractor lights are such that they are



not visible when 7" drill is attached.

13. **Orange Reflector Tape - Decal - L02765** (2"x9")

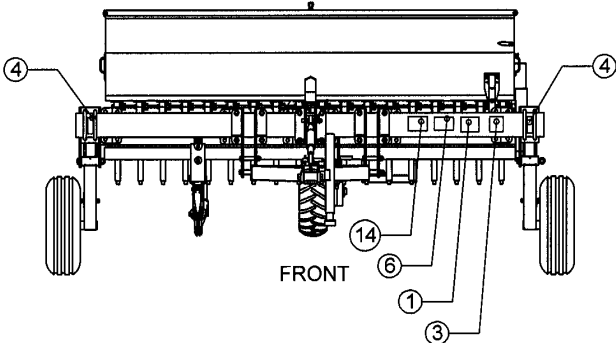
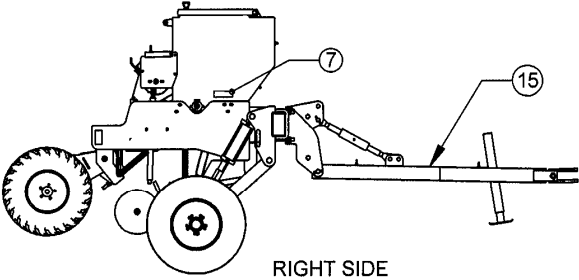
14. **Warning - Keep away from hydraulic system until pressure relieved.** Decal -L0273



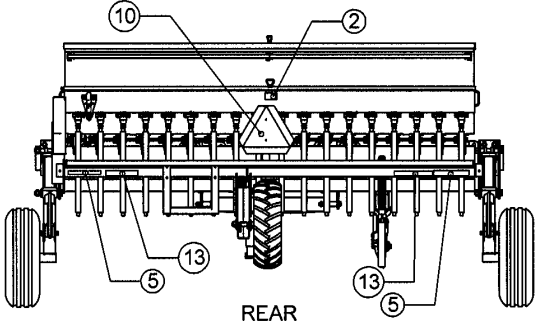
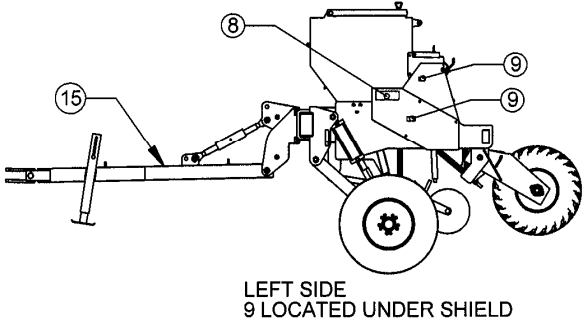
15. **Warning - Use Safety Chain when towing unit to eliminate detachment hazard.** Decal - L0512



DECAL PLACEMENT



SWRR0026
3/20/02 JB



#11 NOT SHOWN (Light Kit). This is a 7' drill.

OPERATING INSTRUCTIONS

General Description

The following information is a brief description of how this seeder works. It is included to help you understand the operation of this seeder.

The power to drive the seeding function of this seeder comes from the ground speed of the tractor. The seed metering is powered by the rear drive wheel at a rate proportional to the distance driven. This ensures that the rate applied remains constant as ground speed is varied. The power is transmitted via drive chains to the seed meters. This drive can be adjusted to three rate settings to vary seed rates. The seed rate is adjustable using the seed rate lever located on the hopper. This system will handle a large variety of seed sizes from the small legumes to kidney beans or sunflowers.

Operating Check List

In addition to design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence and proper training involved in its operation, transport, maintenance and storage of equipment. Before beginning to operate your seeder, the following inspection should be performed.

CHECK

- Read and follow the “**Safety Rules**” carefully.
- Read all of the “**Tractor Hook Up**” and preparation instructions.
- Lubricate the seeder as needed. Refer to “**Lubrication**”
- Check the seeder initially and periodically for loose bolts & pins. “**Torque Values Chart**”.
- Make sure all guards and shields are in place.
- Check initially and periodically for loose bolts, pins, chains.
- Inspect the seed meters and seed tubes for foreign matter.
- Set speed change sprocket for drive type desired.
- Set and calibrate seed rate. See “**Seed Rate Charts**”.
- Make sure the meter gate adjustment handle on each cup is set the same across the seeder.
- Clear the area to be seeded of rocks, branches, or other foreign objects.
- Raise drill before turning, to keep from binding or bending openers or coulters.
- Do not back up with the drill lowered in planting position. Seed tubes may plug and opener damage may occur.

Tractor Requirements

The Mounted Seeder is designed for tractors in the Category II class. Refer to **Specifications and Capacities for seeder weight**.

NOTE: In order to maintain steering control, ballast may May have to be added to your tractor. To determine whether or not to add ballast. refer to your tractor operator’s manual.

Tractor 3-Point Hookup

1. Back tractor up to seeder until 3-Point links are aligned with 3-Point hitch brackets on seeder.
2. Secure the tractor’s 3-Point lower links to the lower 3-Point brackets using 1-1/8” diameter hitch pins.

Pull Type Hookup

Sukup pull type drills are designed to work with CAT II or III drawbar tractor using a minimum 1” diameter pin and requires two hydraulic outlets.

TRANSPORTING

⚠ CAUTION

When traveling on public roads whether at night or during the day, use accessory light and devices for adequate warning to operators of other vehicles. Comply with all federal, state and local laws.

- Do not transport with a full hopper of seed, the hopper should be as empty as possible to avoid extra weight during transport.
- Select a safe ground travel speed when transporting from one area to another. Do not exceed 20MPH to avoid tire failure. When traveling on roadways, transport in such a way that faster moving vehicles may pass you safely.
- When transporting a pull-type drill, insert transport locks on cylinders and lower drill to the stops before unhooking hydraulic hoses. (See drawing on page 18)
- Reduce tractor ground speed when turning. Leave enough clearance so the seeder does not contact obstacles such as buildings, trees or fences.
- When traveling over rough or hilly terrain, shift tractor to lower gear.

Parking

The following steps should be done when preparing to store the seeder or unhitch it from the tractor. See "Maintenance and Lubrication" on page 15 for additional information on long term storage of your seeder.

1. Park the seeder on a level, solid area.
2. Secure jack and/or parking stands.
3. Shut off tractor engine and engage parking brake.
4. Unhitch from tractor.

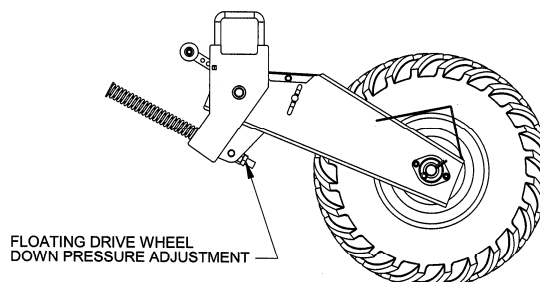
Drive System

Your Seeder uses standard # 40 roller chain throughout its drive system. The drive system is simple and designed for low maintenance.

1. Check the drive idlers to insure that they are taking up any excess chain slack.
2. Check each chain to insure that it is not over-tightened.
3. Annually clean and lubricate chain with chain oil.

Spring Loaded Drive Wheel

Sometimes conditions, especially in no-till situations, become rather rough. For this reason Sukup drills feature a spring-loaded floating drive wheel for 3 point or pull type drills. This floating design allows the drive wheel to move up or down if the ground contour requires such movement, preventing any seeding skips in the roughest of fields. Spring pressure may have to be adjusted depending on ground conditions.



START-UP PROCEDURE

1. Set the frame height to 21-23" from the ground to the bottom of the tube the openers are mounted on.
2. Adjust the hitch cylinder or tractor top link so that the frame is level in planting position.
3. On mounted drills: remove the float pins on the tractor's 3-point arms.
4. Set the Meter Adjustment Lever, Meter Gates, and Sprocket speed according to the seed charts and calibrate.
5. Set the No-Till coulters in the second from the end hole to start, the first hole is shallower, third is deeper, it should be set at the desired seeding depth or slightly deeper.
6. Set the upper hairpin on the downpressure rod in the top hole.
7. Set the lower hairpin in the bottom hole, move it up if more downpressure is needed.
8. Set the T-Handle in the center of its range, to increase plant deeper, move the T-Handle backward. To plant shallower, move the T-Handle forward.
9. If the drill does not penetrate after adding spring downpressure, you will have to add additional weight or keep the hoppers full of seed to push the openers in the ground.
10. Recheck planting depth and rate whenever you change fields.

NOTE: For detailed instruction see "Settings and Adjustment" in the following section.

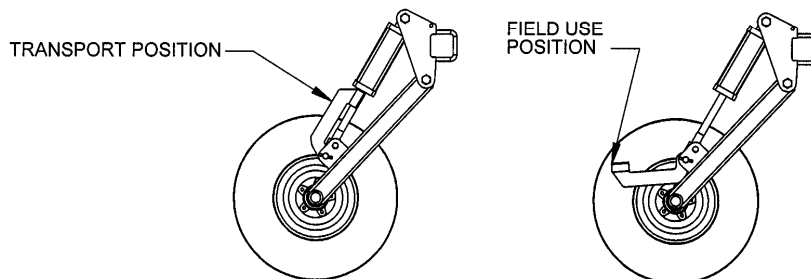


WARNING

Do not force the seed meters to close if there is seed in them. This may damage the meters. If the meters need to be closed, do so while turning the drive wheel.

TRANSPORT LOCKS

SWRW0007
11/3/03 JB



FIELD OPERATION GUIDE

Addition of Extra Weight

The success of No-Till drilling is often dependent on the proper machine set up in the field. In many cases, the weight of the drill is critical to the proper operation of the drill and since the weight of the drill is the ground penetrating force, the proper distribution of this weight is absolutely essential. The weight must be distributed to three main areas: The coulters, the openers, and the press wheels. If too much of the weight is placed on the coulters, for example, it is possible that there won't be sufficient weight left to create proper opener penetration and press wheel pressure. Up to 100 lbs. additional weight may be added per opener. If the desired frame height cannot be maintained, additional weight is probably necessary. There may be some situations where the ground/trash conditions are so tough that the weight of the machine is not adequate to obtain proper penetration even when the allowable added weight is added to the machine.

Ground Preparation

The effective use of a NO-TILL drill is dependent upon proper field preparation. Consideration should be made long before the ground is to be planted about insuring a properly prepared field that will be suitable for NO-TILL drilling. In the case of wheat or rice ground tread ruts and poor straw distribution should be avoided. For best results, the straw should be chopped and spread evenly as the straw is harvested. Trash problems can be avoided by cutting the crop higher off the ground and herbicide application is not blocked by lying straw. The ground should be relatively smooth in contour and free of large clods or ruts. A Sukup drill will perform best on relatively smooth ground. With smooth ground, the spring pressures will be consistent across the width of the machine.

Check to be sure the press wheels remain in contact with the ground and with the T-Handle. It should make the soil over the seed firm, but not too firm. Over packing the seed bed can result in poor stands as the plant may have trouble pushing out of the packed soil. If the press wheel doesn't remain in contact with ground and T-Handle, more downpressure will be needed.

Whenever possible, plant in soils with plenty of moisture (not muddy). Soils with higher moisture contents have considerably less shear strengths than the same soils at lower moisture content. Therefore many penetration problems can be avoided by simply planting at the proper moisture content. Experience will teach each operator the proper moisture content for his particular soil.

Ground Speed

The recommended ground speed for drilling is 4mph. In smooth, well prepared soils, speeds in excess of 8 mph have been successful. The main concern is to allow the springs an opportunity to successfully maintain contact between the ground and the coulters, openers, and press wheels. Excessive bouncing causes inconsistent seed rates and seed depth, and unnecessary wear to the machine. Ground speeds can be tailored to each individual situation. Rough terrain, ground hardness and trash are the main consideration in adjusting ground speeds.

Stop and Check

1. Seed depth.
2. Disc opener penetration.
3. Closing and firming action by the press wheels and the gauge wheels (down pressure).

To check disc opener penetration, the press wheel should be resting firmly on the ground. The opening made by the disc opener should be closed by the press wheels. To check the downpressure, walk behind the drill while it is in motion. The press wheels should stay firmly on the ground. If the press wheels are bouncing off the ground, more down pressure is needed or the drill needs additional weight.