



# STOP GOPHERS WHERE THEY LIVE



## SOLEX GOPHER KILLER

### OPERATOR'S MANUAL AND PARTS BOOK

DIXON



CALIF

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# SOLEX CORPORATION

## GOPHER KILLER

### WARRANTY

Seller warrants to original Purchaser that its product is free from major defects in material under normal use and service for a period of 90 days from the date the product is shown to have been placed into operation by original distributor customers or for one year from date of shipment from seller's plant, whichever shall first occur.

Seller's obligation under this warranty is expressly limited to the repair or replacement, at its option, of the parts which are returned F.O.B. seller's warehouse, Dixon, CA, and which are determined by seller to be defective. Provided further that such parts shall be returned within thirty (30) days from date of failure to Solex Corporation through the dealer or distributor from whom the purchase was made. Transportation charges prepaid by customer.

THIS IS THE SOLE AND ONLY WARRANTY OF SELLER AND NO OTHER WARRANTY IS APPLICABLE, EITHER EXPRESSED OR IMPLIED, IN FACT OR BY LAW, INCLUDING ANY WARRANTY AS TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE.

This warranty shall not be interpreted to render us liable for injury or damages of any kind or nature, direct, consequential, or contingent, to person or property. This warranty does not extend to loss of crops, loss because of delay in harvesting or any expense or loss incurred for labor, supplies, substitute machinery, rental or any other reason.

The sole and only remedy in regard to any defective products shall be the repair or replacement thereof herein provided, and seller shall not be liable for any consequential, special, incidental, or punitive damages resulting from or caused by any such defects.

Solex Corporation reserves the right to make improvements in design or changes in specifications at any time, without incurring any obligations to owners of units previously sold.

No one is authorized to alter, modify, or enlarge this warranty nor the exclusions, limitations, and reservation.

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## **INTRODUCTION**

Congratulations on your choice of a Solex Gopher Killer. This equipment has been designed and manufactured to meet the needs of a discerning customer for the efficient eradication of unwanted gophers.

Safe, efficient and trouble free operation of your Solex Gopher Killer requires that you and anyone also who will be operating or maintaining the machine, read and understand the Safety, Operation and Maintenance information contained within the Operator% Manual.

Keep this manual handy for frequent reference and to pass on to new operators or owners. Call your Solex dealer or distributor if you need assistance, information or additional copies of the manuals.

**Operator Orientation** - The directions left, right, front and rear, as mentioned throughout this manual, are as seen from the drivers seat and facing in the direction of travel.



### **PRACTICAL TREATMENT FOR STRYCHNINE POISON ONLY**

if swallowed: Call a physician or Poison Control Center. Drink 1 or 2 glasses of water and induce vomiting by touching back of throat with finger. Do not induce vomiting or give anything by mouth to an unconscious person.

### **DANGER . . . CONVULSIVE POISON! KEEP OUT OF REACH OF CHILDREN**

Poisonous if swallowed. Bait should be placed in areas inaccessible to children, pets, wildlife, and domestic animals or in tamper proof bait boxes.

Treated seeds exposed on soil surface may be hazardous to birds and other wildlife. Do not contaminate water by cleaning of equipment, or disposal of wastes. Dispose of excess treated seeds or wastes by burial. Do not reuse container. Destroy when empty. Apply this product only as specified on the label.

## **SIGN-OFF FORM**

Solex Corporation follows the general Safety Standards specified by the American Society of Agricultural Engineers (ASAE) and the Occupational Safety and Health Administration (OSHA). Anyone who will be operating and/or maintaining the Solex Gopher Killer must read and clearly understand ALL Safety, Operating and Maintenance information presented in this manual.

Do not operate or allow anyone else to operate this equipment until such information has been reviewed. Annually review this information before the season start-up.

Make these periodic reviews of SAFETY and OPERATION a standard practice for all of your equipment. We feel that an untrained operator is unqualified to operate this machine.

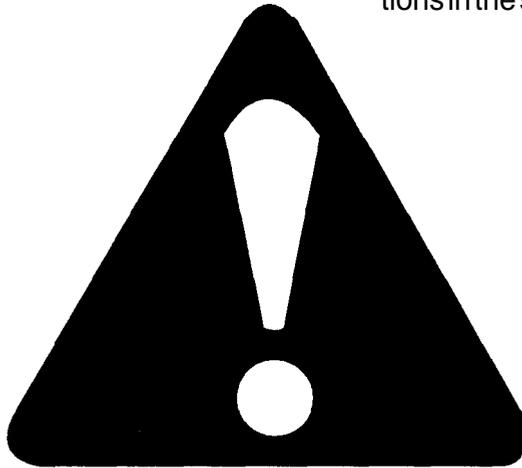
A sign-off sheet is provided for your record keeping to show that all personnel who will be working with the equipment have read and understand the information in the Operators Manual and have been instructed in the operation of the equipment.



# SAFETY ALERT SYMBOL

This Safety Alert symbol means  
**ATTENTION! BECOME ALERT!**  
**YOUR SAFETY IS INVOLVED!**

The Safety Alert symbol identifies important safety messages on the Solex Gopher Killer and in the manual. When you see this symbol, be alert to the possibility of personal injury or death. Follow the instructions in the safety message.



Why is SAFETY important to you?

## 3 Big Reasons

**Accidents Disable and Kill**  
**Accidents Cost**  
**Accidents Can Be Avoided**

## SIGNAL WORDS:

Note the use of the signal words DANGER, WARNING and CAUTION with the safety messages. The appropriate signal word for each message has been selected using the following guide-lines.

- DANGER - An immediate and specific hazard which WILL result in severe personal injury or death if the proper precautions are not taken.
- WARNING - A specific hazard or unsafe practice which COULD result in severe personal injury or death if proper precautions are not taken,
- CAUTION - Unsafe practices which COULD result in personal injury if proper practices are not taken, or as a reminder of good safety practices.

## SAFETY

YOU are responsible for the SAFE operation and maintenance of your Solex Gopher Killer. YOU must ensure that you and anyone else who is going to operate, maintain or work **around** the gopher killer be familiar with the operating and maintenance procedures and related SAFETY information contained **in this manual**. This manual will take you step-by-step through your working day and alerts you to all good safety practices that should be adhered to while operating the Solex Gopher Killer.

Remember, YOU are the key to safety. Good safety practices not only protect you but also the people around you. Make these practices a working part of your safety program. Be certain that EVERYONE operating this equipment is familiar with recommended operating and maintenance procedures and follows all the safety precautions. Most accidents can be prevented. Do not risk injury or death by ignoring good safety practices.

Solex Gopher Killer owners must give operating instructions to operators or employees before allowing them to operate the machine, and at least annually thereafter per OSHA (Occupational Safety and Health Administration) regulation 1928.57.

The most important safety device on this equipment is a SAFE operator. It is the operator's responsibility to read and understand ALL Safety and Operating instructions in the manual and to follow these. All accidents can be avoided.

A person who has not read and understood all operating and safety instructions is not qualified to operate the machine. An untrained operator exposes himself and bystanders to possible serious injury or death.

Do not modify the equipment in any way. Unauthorized modification may impair the function and/or safety and could affect the life of the equipment.

Think SAFETY! Work SAFELY!

## GENERAL SAFETY

1. Read and understand the Operator's Manual and all safety signs before operating, maintaining, adjusting or unplugging the gopher killer.



2. Have a first-aid kit available for use should the need arise and know how to use it.



3. Have a fire extinguisher available for use should the need arise and know how to use it.



4. Wear appropriate protective gear. This list includes but is not limited to:

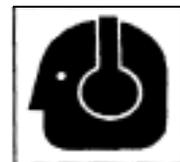
- A hard hat
- Protective clothing
- Heavy gloves
- Protective clothing
- Respirator mask
- Protective shoes with slip resistant soles
- Protective goggles, glasses or face shield



5. Install and secure all guards before starting.

6. Do not allow riders.

7. Wear suitable ear protection for prolonged exposure to excessive noise.



6. Place all controls in neutral, stop tractor engine. set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.

9. Clear the area of people, especially small children, before starting.

10. Review safety related items annually with all personnel who will be operating or maintaining the gopher killer.

## OPERATING SAFETY



### OPERATING SAFETY

1. Read and understand the Operator's Manual and all safety signs before operating, servicing, adjusting, repairing or unplugging.
2. Do not allow riders.
3. Install and secure all guards and shields before starting or operating.
4. Keep hands, feet, hair and clothing away from moving parts.
5. Place all controls in neutral, stop tractor engine, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
6. Place all tractor and machine controls in neutral before starting.
7. Never start or operate machine unless sitting on tractor seat.
8. Clear the area of bystanders, especially small children, before starting.
9. Clean reflectors, SMV and lights before transporting.
10. Use hazard flashers on tractor when transporting.
11. Do not put hands or feet under machine while tractor engine is running.
12. Review safety instructions with all operators annually.

## MAINTENANCE SAFETY



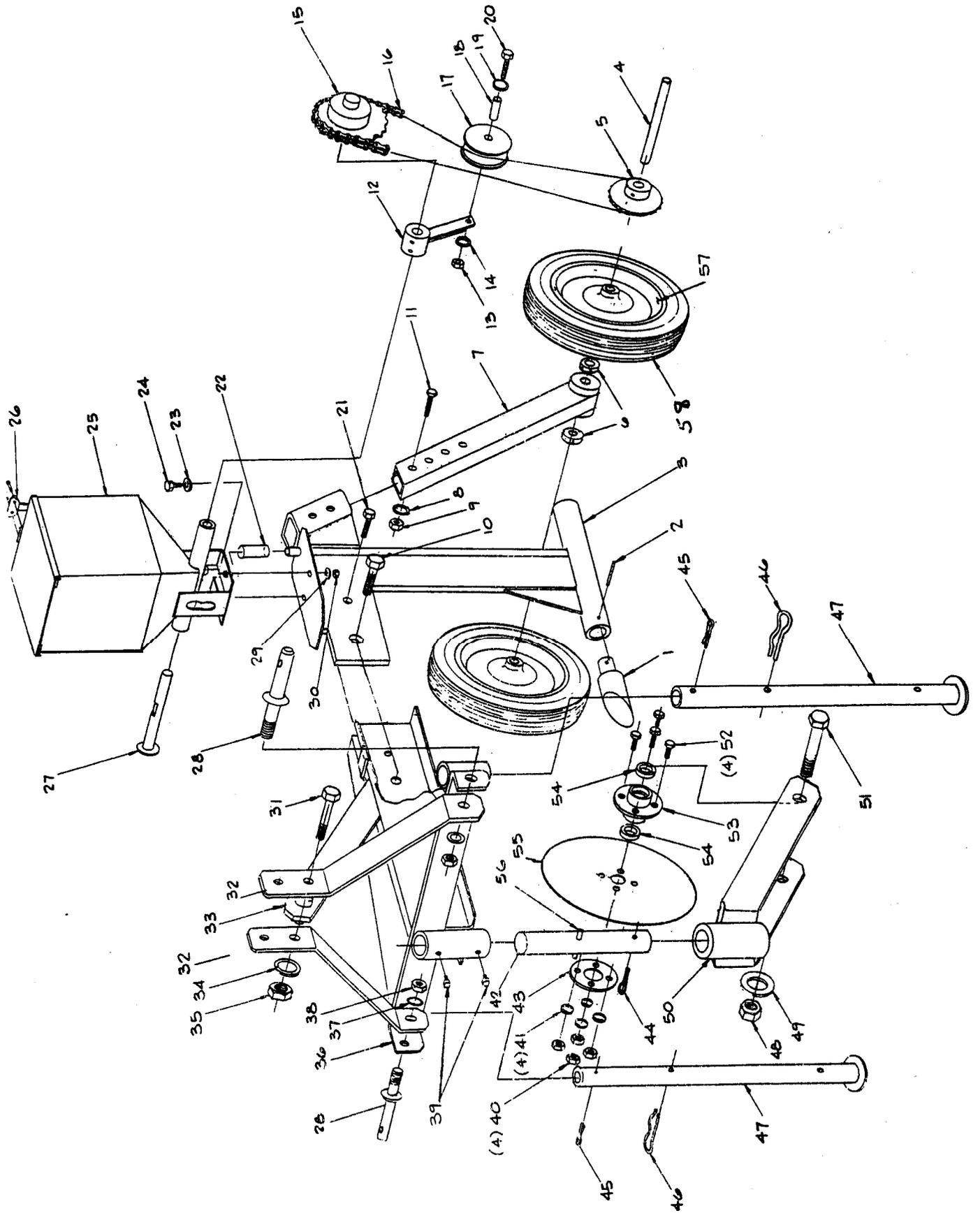
### MAINTENANCE SAFETY

1. Follow ALL the operating, maintenance and safety information in the manual.
2. Support the machine with blocks or safety stands when working beneath it.
3. Follow good shop practices

Keep service area clean and dry.  
Be sure electrical outlets and tools are properly grounded.  
Use adequate light for the job at hand.



4. Use only tools, jacks and hoists of sufficient capacity for the job.
5. Make sure all guards are in place and properly secured when maintenance work is completed.
6. Keep hands, feet, hair and clothing away from moving or rotating parts.
7. Clear the area of bystanders, especially small children, when carrying out any maintenance and repairs or making any adjustments.



# Parts List

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1	1001	PlowPoint	46	1046	Hair Pin - 1/4" x 4-1/2"
2	1002	Roil Pin - 3/8" x 2-1/2"	47	1047	Jack Stand
3	1003	Rear Frame Assembly	48	1048	Nut - 1/2" N.C.
4	1004	Axle Shaft	49	1049	Lock Washer - 1/2"
5	1005	Lower Sprocket 32T	50	1050	Coulter Yoke
6	1006	Bearing, Wheel	51	1051	Bolt - 1/2" x 6" N.C.
7	1007	Wheel Support Tube	52	1052	Bolt - 5/16" x -1/4" N.C.
8	1008	Lock Washer - 1/2"	53	1053	Couiter Hub
9	1009	Nut - 1/2"	54	1054	Bearing, Hub
10	1010	Bolt - 3/4" x 2" N.C.	55	1055	Couiter Blade - 18"
11	1011	Bolt - 1/2" x 3-1/2" N.C.	56	1056	Roil Pin - 3/8"
12	1012	Chain Tightener Brkt.	57	1057	Rim - 8"
13	1013	Nut - 5/16"	58	1058	Tire - 480/400-8 2 ply
14	1014	Lock Washer - 5/16"			
15	1015	Upper Sprocket 32T			
16	1016	Chain Assembly 35P			
17	1017	Pulley, idler			
18	1018	Spacer, idler			
19	1019	Fiat Washer - 5/16"			
20	1020	Bolt - 5/16" x 2-1/4" N.C.			
21	1021	Bolt - 1/2" x 2-1/2" N.C.			
22	1022	Sight Tube			
23	1023	Fiat Washer - 7/16"			
24	1024	Bolt - 7/16" x 1 -1/4" N.C.			
25	1025	Hopper Assembly			
26	1026	Lid Latch Assembly			
27	1027	Metering Shaft			
28	1028	Cat.   Hitch Pin			
29	1029	Lock Washer - 7/16"			
30	1030	Nut - 7/16" N.C.			
31	1031	Bolt - 3/4" x 4" N.C.			
32	1032	A Frame Bracket			
33	1033	A Frame Brace			
34	1034	Lock Washer - 3/4"			
35	1035	Nut - 3/4" N.C.			
36	1036	Front Frame Assembly			
37	1037	Lock Washer - 7/8"			
38	1038	Nut - 7/8" N.F.			
39	1039	Set Screw - 1/2"			
40	1040	Nut - 5/16" N.C.			
41	1041	Lock Washer - 5/16"			
42	1042	Coulter Yoke Shaft			
43	1043	Hub Flange			
44	1044	Cotter Pin - 5/16 x 2-1/2"			
45	1045	Cotter Pin - 1/4" x 2"			

## TRANSPORT SAFETY



### TRANSPORT SAFETY

1. Make sure you are in compliance with all local regulations regarding transporting equipment on public roads and highways.
2. Make sure the SMV (Stow Moving Vehicle) emblem and all the lights and reflectors that are required by the local highway and transport authorities are in place, are clean and can be seen clearly by all overtaking and oncoming traffic.
3. Do not allow anyone to ride on the Gopher Killer or tractor during transport.
4. Do not exceed 20 mph (32 kph). Reduce speed on rough roads and surfaces.
5. Use retainers on the mounting pins when attaching.
6. Always use hazard flashers on the tractor when transporting unless prohibited by law.

## STORAGE SAFETY



### STORAGE SAFETY

1. Store the unit in an area away from human activity.
2. Do not permit children to play on or around the stored machine.
3. Store the unit in a dry, level area. Support the frame with planks if required\_

## OPERATION



### **OPERATING SAFETY**

**It is the responsibility of the owner or operator to read this manual and to train all other operators before they start working with the machine. Follow all safety instructions exactly. Safety is everyone's business. By following recommended procedures, a safe working environment is provided for the operator, bystanders and the area around the worksite. Untrained operators are not qualified to operate the machine.**

Many features incorporated into this machine are the result of suggestions made by customers like you. Read this manual carefully to learn how to operate the machine safely and how to set it to provide maximum field efficiency. By following the operating instructions in conjunction with a good maintenance program, your Solex Gopher Killer will provide many years of trouble-free service.

The best way to eradicate gophers is with poison bait. Poison milo or barley coated with **0.3%** to **0.5%** strychnine alkaloid applied at approximately two to three pounds per acre seems to be the most effective. Where large acreages are heavily infested with gophers, the best method is to apply the bait with a tractor pulled poison bait applicator which makes an artificial burrow and deposits a small amount of bait at regular intervals. Depth of the artificial burrow is adjustable and a rear pair of rubber tired press wheels closes the furrow made by the applicator subsoiler standard with it cylindrical burrow opener. Soil must be damp. Hard and dry soil does not make a satisfactory artificial burrow. Stony soils could damage the Gopher Killer and should be avoided if possible. Depth is usually set at approximately 6" to 8" deep. Making artificial burrows about 20' apart across the gopher's natural burrows is the most effective means of application.

**CAUTION** should be exercised in the handling and storage of poison grain. Any poison grain left exposed on soil surfaces could be consumed by birds or animals. When storing machine, empty the hopper and clean machine thoroughly. Poison grain is dangerous to humans as well as animals. Go slow, not over 5 mph, and do a good job.

**NOTE:** An animal eating only the flesh of a poisoned gopher will not be affected. However, it is possible for an animal to obtain a lethal dose of strychnine alkaloid by eating poisoned gophers. Often a poisoned gopher will have some of the bait in its cheek pouches or undigested in its stomach. An animal eating these gophers may eat the poison bait also. This type of poisoning is unlikely, but it must be recognized as possible.

## **CALIBRATION**

Your machine is delivered standard with a 32 tooth sprocket driving a 32 tooth sprocket on the distributor shaft.

This ratio will apply 2 lbs. of poison milo per acre when your artificial burrows are 20 feet apart.

Changing to a 20 tooth sprocket on the distributor shaft will increase application to 3.25 lbs. per acre and 4 lbs. per acre can be achieved by placing the artificial burrows at 15 feet apart using the 30/20 ratio.

Lesser applications can be obtained by placing 1" washers on the distributor shaft to slightly close the hole in the hopper bottom.

If the unit is used as standard with the 32/32 ratio, 16 oz. of poison milo will be deposited in the artificial burrow per 1,000 feet of travel.

## **PRO-OPERATION CHECKLIST**

Before operating the machine and each time thereafter, the following areas should be checked off:

1. Use a tractor of less than 50 horsepower on the machine.
2. Check that the machine is properly attached to the tractor. Be sure retainers are used on the mounting pins.
3. Be sure extra weights are mounted on the front of the tractor.
4. Check all nuts, bolts and other fasteners. Tighten to their specified torque level.
5. Lubricate all grease points.

After operating for 5 hours and 10 hours, repeat items 4 and 5.

## **EQUIPMENT MATCHING**

1. **3 Point Hitch** - The Solex Gopher Killer is equipped with a Category I, 3 point hitch. Be sure the tractor 3 point hitch is in the Category I configuration.
2. **Hydraulics** - Many newer tractors are equipped with “Load Sensing” hydraulics. It is the responsibility of the operator to set the tractor hydraulic system to provide draft or position on the 3 point hitch. Refer to the tractor manual for details.
3. The draft feature will automatically raise the 3 point hitch during operation if the tractor is overloaded.

## **ATTACHING/UNHOOKING**

The Gopher Killer should always be located on a level, dry area that is free of debris and other foreign objects. When attaching the machine to a tractor, follow this procedure:

1. Clear the area of bystanders, especially small children.
2. Be sure the tractor 3 point hitch is in the Category I configuration and the lift arms are in the non-sway configuration (See tractor manual).
3. Make sure there is enough room and clearance to safely back up to the machine.
4. While backing up, align the lift arm balls with the mounting pins on the Gopher Killer.

### **NOTE**

It may be necessary to add weight to the 3 point hitch to lower the lift arms.

5. Stop tractor, set park brake, remove ignition key and wait for all moving parts to stop before dismounting.
6. Align the left lower link arm with the mounting pin.
7. Slide the ball over the pin and install the retainer.
8. Use the screw jack on the right lift arm to align the ball with the pin.
9. Slide the ball over the mounting pin and install the retainer.
10. Level the frame and lift arms using the screw jack.
11. Remove retainer and pin from the mast.
12. Align top link using the turnbuckle.
13. Insert pin and install retainer.
14. Set the mast angle using the turnbuckle in the top link.
15. Use the 3 point hitch to raise the machine.
16. Reverse the above procedure when unhooking from the tractor.

## **FIELD OPERATION**

Set the machine:

- a. Level the frame: Use the screw jack on the right lift arm to level the frame from side-to-side.
- b. Use the turnbuckle on the top link to set the mast angle of the Gopher Killer at a vertical position. It may be necessary to adjust the unit with the joint slightly downward to obtain easy penetration

Ground speed should not exceed 5 mph. Lesser speeds are more effective in applying poison bait.

## **TRANSPORTING**

When transporting the machine, review and follow these instructions:

1. Be sure all bystanders are clear of the machine.
2. Be sure that the machine is securely attached to the tractor and all re-tainer pins are installed.
3. Be sure you have installed extra weights on the front of the tractor.
4. Clean the SMV emblem, lights and reflectors and be sure they are working.
5. Be sure you are in compliance with all applicable lighting and marking regulations when transporting. Check with your local authorities.
6. Be sure your machine can clearly be seen by overtaking and oncoming traffic.
7. Keep to the right and yield the right-of-way to allow faster traffic to pass. Drive on the road shoulder if permitted by law.
8. Do not allow riders.
9. Always use hazard flashers on the tractor when transporting unless prohibited by law.
10. Do not exceed 20 mph. Reduce speed on rough roads.

## STORAGE



### STORAGE SAFETY

After the season's use, the machine should be thoroughly inspected and prepared for storage. Repair or replace any worn or damaged components to prevent any unnecessary down time at the start of next season. To insure a long, trouble free life, this procedure should be followed when preparing the unit for storage:

1. Clear the area of bystanders, especially small children.
2. Thoroughly wash the machine using a pressure washer to remove all dirt, mud, debris and residue.
3. Touch up all paint nicks and scratches to prevent rusting.
4. Move to storage area.
5. Select an area that is dry, level and free of debris.
6. Unhook from tractor.
7. If the machine cannot be placed inside, cover with a waterproof tarpaulin and tie securely in place.
6. Store the machine in an area away from human activity.
9. Do not allow children to play on or around the stored machine.

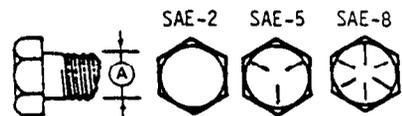
## BOLT TORQUE

### CHECKING BOLT TORQUE

The tables shown below give correct torque values for various bolts and capscrews. Tighten all bolts to the torques specified in chart unless otherwise noted. Check tightness of bolts periodically, using bolt torque chart as a guide. Replace hardware with the same strength bolt.

### ENGLISH TORQUE SPECIFICATIONS

Bolt Di ameter	Bolt Torque*					
	SAE 2		SAE 5		SAE 8	
"A"	N.m	(lb-ft)	N.m	(lb-ft)	N.m	(lb-ft)
1/4"	8	(6)	12	(9)	36	(27)
5/16"	13	(10)	25	(19)	63	(45)
3/8"	27	(20)	45	(33)	100	(75)
7/16"	41	(30)	72	(53)	155	(115)
1/2"	61	(45)	110	(80)	220	(165)
9/16"	95	(70)	155	(115)	305	(220)
5/8"	128	(95)	215	(160)	540	(400)
3/4"	225	(165)	390	(290)	880	(650)
7/8"	230	(170)	570	(420)	1320	(970)
1"	345	(225)	850	(630)		



Torque figures indicated above are valid for non-greased or non-oiled threads and heads unless otherwise specified. Therefore, do not grease or oil bolts or capscrews unless otherwise specified in this manual. When using locking elements, increase torque values by 5%.

\* Torque value for bolts and capscrews are identified by their head markings.