FORM NO. 92-0260

TORO®

MODEL NO. 41400-30101 & UP
MODEL NO. 41403-30101 & UP
MODEL NO. 41152-30101 & UP
MODEL NO. 41150-30101 & UP

SET-UP AND PARTS LIST

SKID SPREADER

Refer to the illustrated Parts Lists for the details of parts used in assembling the Spreader Mounting Kit and the Flow Control Kit.

"Right" and "Left" as used in the following instructions, refer to the operator's right and left when operating the transport Vehicle. Likewise, "Front" and "Rear" as seen from the operator's position.

The Flow Control Kit (Model No. 41403) is an optional accessory. Instructions for the installation of the Kit are included herein, but may be disregarded if Kit is not to be used. The Spreader is operable without the addition of the Flow Control Kit.

SPREADER MOUNTING KIT:

The Spreader Mounting Kit must be modified when used to mount the PA-17 Spreader onto the Spreader Skid as follows:

1. Loosen the nut on the back of the Gear Reducer Mounting Plate to remove the Pivoting Belt Guide, the Idler Pulley and Clutch Cable, as shown in Figure 1.

2. Relocate the Pivoting Belt Guide as shown in Detail A. Secure the Guide with the bolt and nut holding the Gear Reducer Mounting Plate to the Frame Assembly.

The final position of the Pivoting Belt Guide, in relation to the Idler Pulley, is described on page 6.

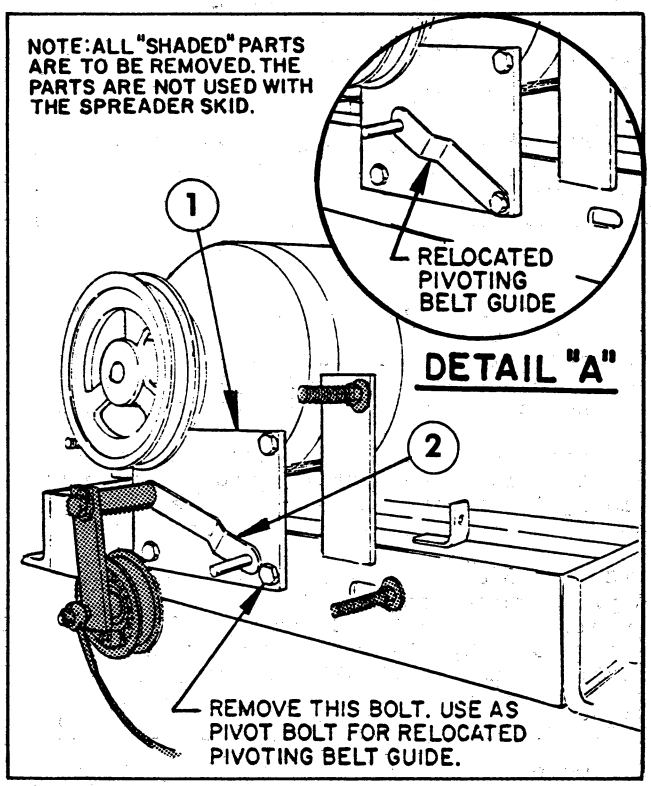


Figure 1
1. Gear Reducer Mounting Plate
2. Pivoting Belt Guide

FRAME ASSEMBLY:

IMPORTANT! Note the position of the Engine Mounting Frame on the plates of the Skid's upright Engine Mounts. These plates must be as far toward the REAR of the Skid as the fasteners will allow. See Figure 2.

1. Remove the four 5/16" screws to remove the Spreader Mounting Kit's Drive Cover and set the Cover aside.

2. Remove five 1/4" screws and remove the Belt Shield from the Skid frame and set the Belt Shield aside.

DANGER

ROTATING MEMBERS CAN CAUSE SERIOUS INJURY!
NEVER OPERATE THE SPREADER WITH THE DRIVE SHAFT COVER, THE BELT COVER OR THE BELT SHIELD REMOVED!

3. Install the Engine Pulley and square key onto the Engine shaft. Secure the Pulley to the shaft with the Tapered Bushing. NOTE: The Pulley, square key and Tapered Bushing are included in the Spreader Mounting Kit.

4. Place the Spreader Mounting Frame onto the Skid Frame and lock it into position by sliding it forward and hooking the lugs under the cross member of the Skid Frame.

NOTE: To hold the Spreader Mounting Frame in place while the Spreader Assembly is installed, we recommend the use of "C" clamps to clamp the front corners of the Mounting Frame to the Skid Frame.

OPTIONAL FLOW CONTROL INSTALLATION (PART 1):

1. Remove the Actuator Mounting Angle from the Flow Control Kit.

2. Loosen the two bolts holding the Spreader Mounting casting to the Spreader Mounting Frame. Remove and discard the two nuts and lock washers.

3. Slide the Actuator Mounting Angle into the opening in the Spreader Mounting casting as shown in shown in Detail "B". Screw the two bolts into the nuts welded to the top of the Mounting Angle.

4. Re-install the Actuator Assembly between the front straps on the Mounting Angle as shown in Figure 3. Secure the Actuator to the Straps with a 1/2 x 1-1/2" screw, lock washer and nut.

5. Insert the Pivot Spacer into the hole at the rear of the Mounting Angle and secure the two Actuator Straps with the 1/2 x 1-1/2" 1-1/2" screw, lock washer and nut.

IMPORTANT! FOR THE SAKE OF CLARITY, THE SAFETY SHIELDS HAVE BEEN REMOVED IN THIS ILLUSTRATION. NEVER OPERATE THE SPREADER WITH THE DRIVE SHAFT COVER, BELT COVER OR BELT SHIELD REMOVED!

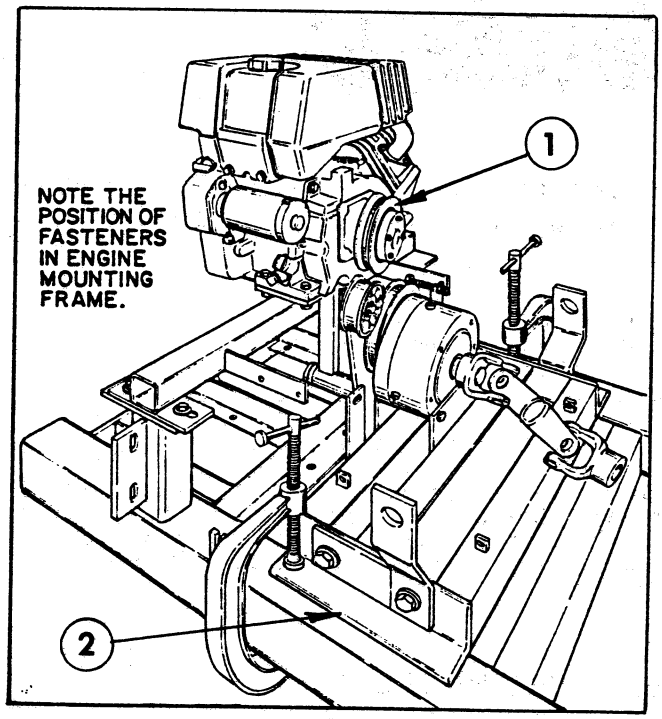


Figure 2

1. Engine Pulley 2. Spreader Mounting Frame

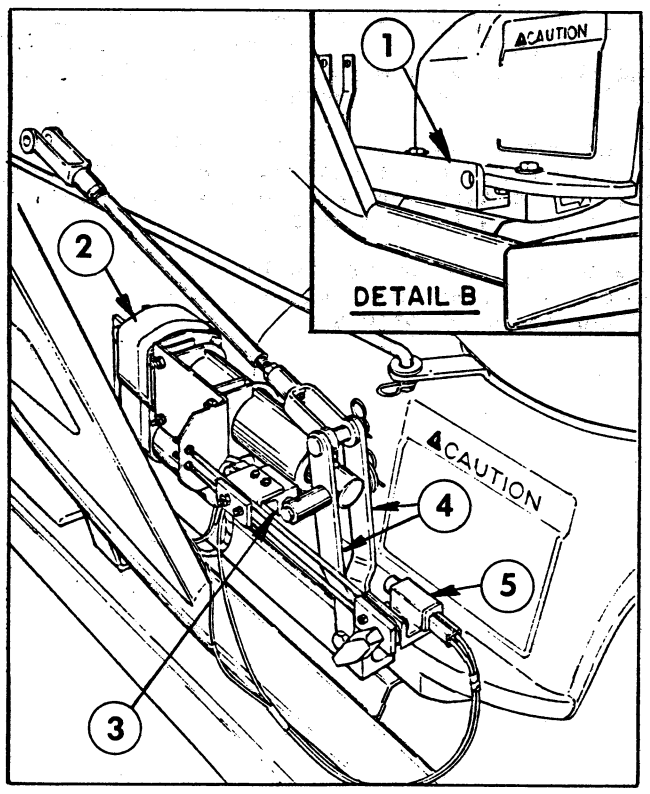


Figure 3

1. Actuator Mounting Angle
2. Actuator Assembly
3. Front Limit Switch
4. Actuator Straps
5. Rear Limit Switch

SPREADER INSTALLATION:

1. Place the Spreader Assembly onto the Skid Frame. Use laquer thinner to remove the rust preventive coating from the Spreader's in-put shaft and keyway. Insert the 1/4" square key into the in-put shaft.

2. Align the Spreader in-put shaft with the End Yoke and slide the Spreader Assembly forward until the End Yoke is fully engaged on the in-put shaft. DO NOT TIGHTEN the set screw at this time. See Figure 4.

3. Align the Spreader's rear mounting plate as shown in Figure 5 and secure it to the Skid with a 5/8 x 2" bolt, four washers and a hex nut.

4. Secure the Spreader Assembly to the two Mounting Frame uprights with two 5/8 x 2-1/2" bolts, eight washers and two hex nuts. NOTE: If necessary, loosen the bolts holding the uprights to the Mounting Frame, in order to align the holes in the uprights with the holes in the lugs on the Hopper.

When the alignment of the Spreader Assembly with the Mounting Frame is complete:

5. Tighten all fasteners at the uprights and at the rear mounting plate securely.

6. Apply loctite and tighten the set screw in the End Yoke. Make sure the set screw is above the keyway in the Spreader's in-put shaft.

7. Remove the "C" Clamps.

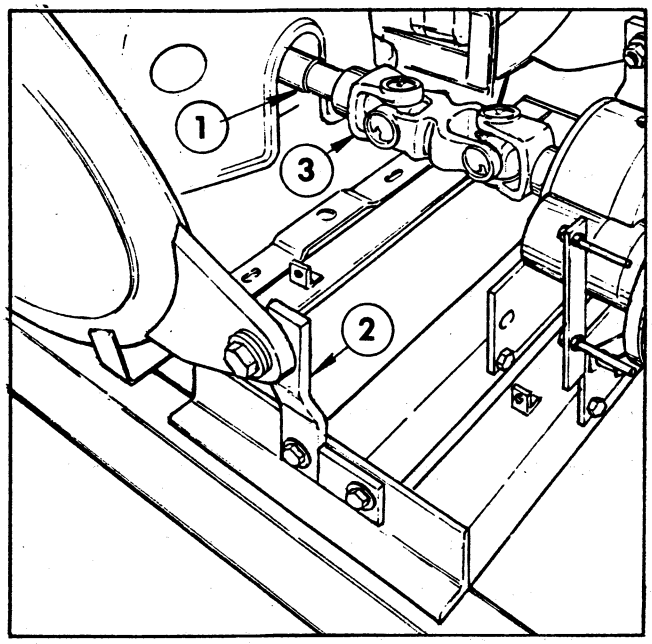


Figure 4

1. Spreader In-Put Shaft
2. Mounting Frame Upright
3. End Yoke

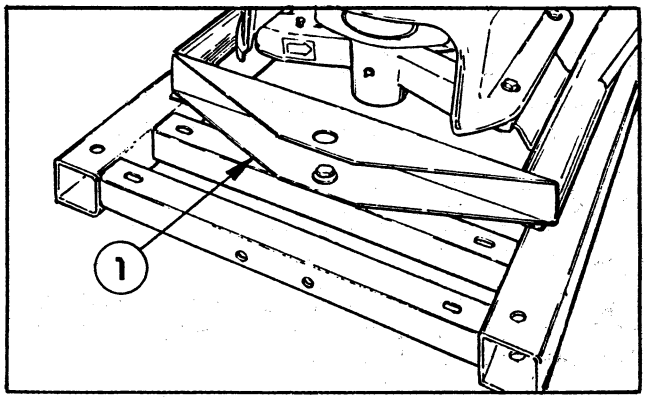


Figure 5

1. Spreader Rear Mounting Plate

OPTIONAL ELECTRICAL INSTALLATION;

1. Connect the Wiring Harness to the Actuator Assembly as shown in Figure 6.

The Magnet used to mount the Control Box must be attached to a metal surface and if none is available, a metal mounting bracket will have to be fabricated.

1. Determine the most convenient location for the Control Box, as that will effect the point at which the red and black wires of the Wiring Harness will be connected to the power source (Battery)

2. If necessary, the two battery wires can be pulled from the split conduit to bring them closer to your Battery. Measure very carefully, being sure to allow plenty of wire for the connections, and cut off the excess wire.

3. Crimp the ring terminals to the red and black wires and connect the red wire to the Battery's positive (+) post and the black wire to the negative (-) post.

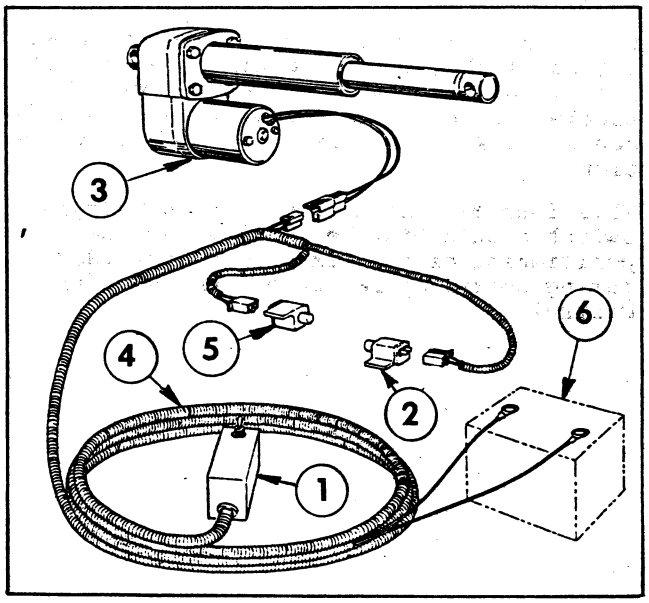


Figure 6

1. Control Box
2. Rear Limit Switch
3. Actuator Assembly
4. Wiring Harness
5. Front Limit Switch
6. Battery

OPTIONAL FLOW CONTROL INSTALLATION (PART 2):

1. Attach the Adjustable Clevis on the Actuator Rod to the Flow Regulator Handle (see Figure 7) as follows:

2. Have the Regulator Handle at the "O" position on the Flow Regulator scale and the Actuator retracted...just short of "ratcheting".

If the Rod length is too short to allow the alignment:

■ Loosen the jam nut, turn the Adjustable Clevis to lengthen the effective length of the Rod and re-tighten the jam nut.

If the Rod length is too long to allow the alignment:

■ Loosen the jam nut, turn the Adjustable Clevis to shorten the effective length of the Rod and re-tighten the jam nut.

3. Insert the 1/2 x 2" clevis pin inside the 1/2 x 3/8" spacer and secure the Adjustable Clevis to the Handle with 3-washers and a hairpin cotter.

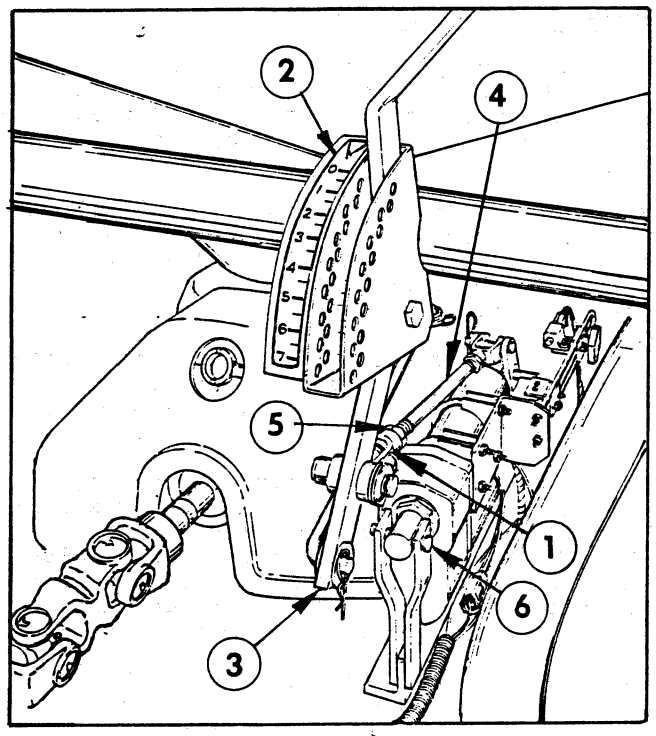


Figure 7

1. Adjustable Clevis
2. Flow Regulator Scale
3. Flow Regulator Handle
4. Actuator Rod
5. Jam Nut
6. Clevis Pin

CONTROL BOX OPERATION:

The toggle switch on the Control Box is used to control the Actuator action.

■ When the toggle switch is positioned at "OPEN", as designated by the decal, the Actuator is extended and the regulator disc in the Hopper should open.

■ When the toggle switch is positioned at "CLOSE", the Actuator is retracted and the regulator disc should close.

■ When the toggle switch is in the center or neutral position, the Actuator action is stopped.

NOTE: In order to achieve a slow, gradual action of the Actuator during the positioning of the two Limit Switches, move the toggle switch intermittently, away from the center, toward the "OPEN" or "CLOSE" position.

This intermittent movement of the toggle switch should ONLY be used during the positioning of the Limit Switches...NOT during normal operation of the Spreader Control.

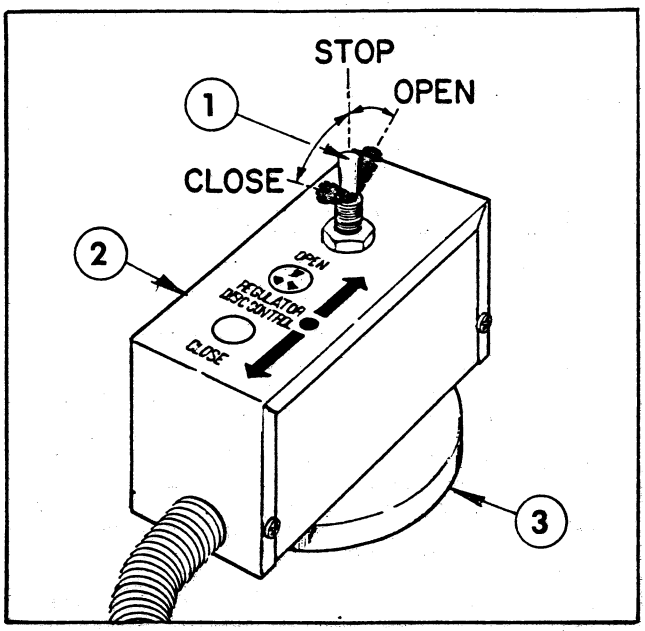


Figure 8

1. Toggle Switch
2. Control Box
3. Magnet

IMPORTANT! When the optional Flow Control Kit is installed; the Stop Pin, which is chained to the Flow Regulator, is NOT used in the operation of this unit. Using it as a "stop" for the Regulator Handle will damage the Spreader.

The two Limit Switches control the length of the Actuator's extension or retraction and will have to be adjusted to match the Actuator's action to the Flow Regulator.

IMPORTANT! The Limit Switches must be set to prevent the Actuator's action from exceeding the range of the Flow Regulator Handle (as indicated by a "ratcheting" sound). To exceed that range will cause serious damage to the Regulator.

ADJUSTING THE REAR LIMIT SWITCH:

1. Move the toggle switch on the Control Box toward "OPEN", to SLOWLY extend the Actuator, until the front edge of the Flow Regulator Handle is at the "7" position on the Regulator's scale.

2. Loosen the jam nuts on the Switch Guide and slide it forward until the button on the rear Limit Switch is depressed approx. 1/8 " by the Actuator Pin. Re-tighten the jam nuts.

ADJUSTING THE FRONT LIMIT SWITCH:

1. Move the toggle switch toward "CLOSE", to SLOWLY retract the Actuator, until the front edge of the Flow Regulator Handle is at the "0" position on the Regulator's scale.

2. Loosen the nut on the front Limit Swich Plate and slide the Switch and Plate toward the rear until the button on the Switch is depressed approx. 1/8" by the Actuator Pin. Re-tighten the nut to secure the Limit Switch on the Switch Guide.

NOTE: After positioning the Limit Switches for a full "OPEN" and a full "CLOSE" disc opening, as described above, the front Limit Switch should not need to be adjusted again. However, the rear Limit Switch must be re-adjusted to achieve any of the other "rate of flow" settings indicated on the Regulator Scale, as follows:

1. Use the toggle switch on the Control Box to extend or retract the Acuator until the front edge of the Flow Regulator Handle is at the selected number on the Regulator Scale

2. Loosen the Knob on the rear Limit Switch and slide the Switch along the Switch Guide until the button on the rear Limit Switch is depressed approx. 1/8" by the Actuator Pin. Re-tighten the Knob and check the operation.

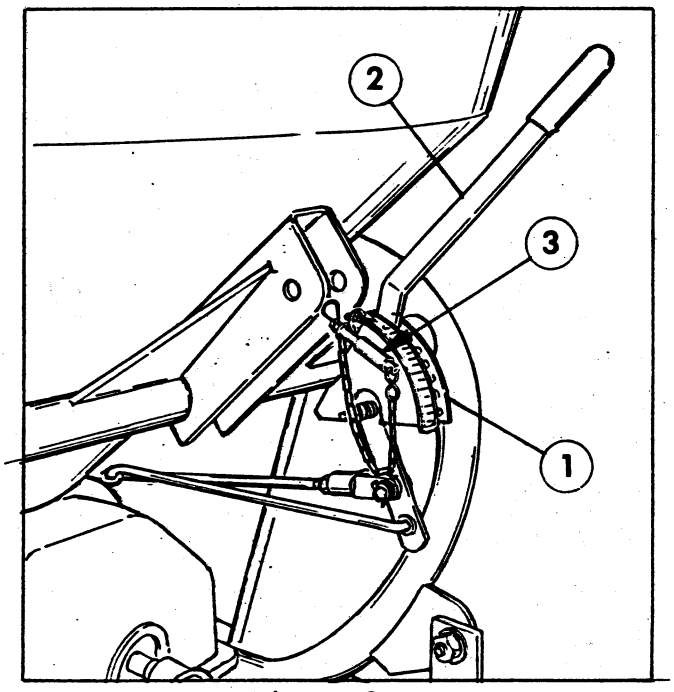


Figure 9

1. Flow Regulator
2. Flow Regulator Handle
3. Stop Pin

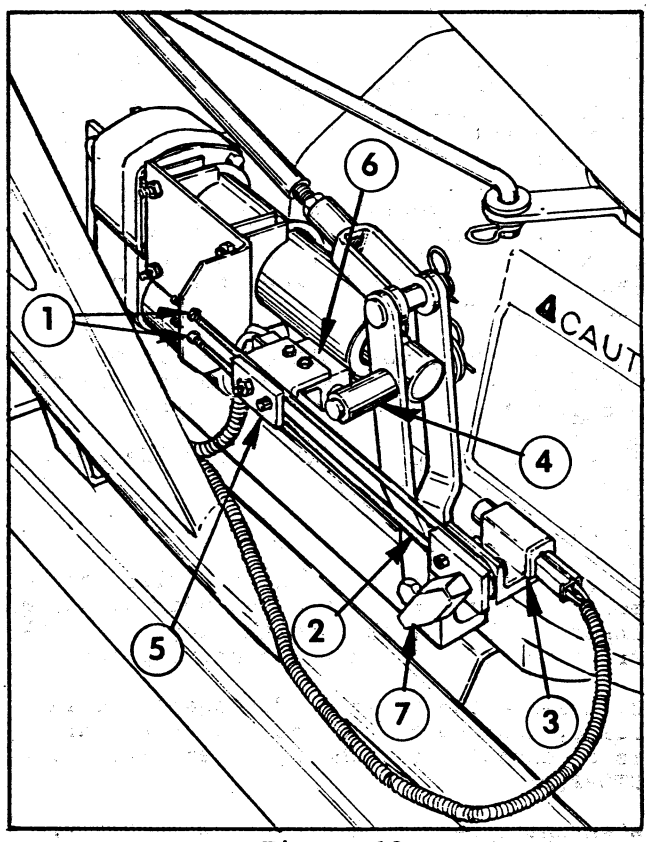


Figure 10

1. Jam Nuts
2. Switch Guide
3. Rear Limit Switch
4. Actuator Pin
5. Limit Switch Plate
6. Front Limit Switch
7. Knob

BELT DRIVE INSTALLATION:

1. Install the Drive Belt. The Belt Diagram in Figure 11 illustrates the correct relationship between the Pulleys and the Belt-to-Belt Guide clearances. Adjust if necessary, as described below.

WITH THE ENGINE TURNED OFF!!

2. Pull the Idler Engagement Chain to bring the Idler Pulley into a position which will exert force on the Drive Belt. At the point of resistance by the Drive Belt, pull the Chain the distance of another two links and insert the chain link into the lug on the Skid Frame.

3. Check to see that the Idler Pulley is approximately centered between the Engine and Spreader Pulleys as shown in Figure 11.

The Idler Pulley should approach, but not make contact with, the Spreader Pulley on the Gear Multiplier. If it is making contact, proceed as follows:

1. Loosen the four lower bolts in the two mounting plates and slide the Gear Multiplier to the right, away from the Engine Pulley.

2. Re-tighten the mounting bolts and check the position of the Idler Pulley. Also check the position of the "pivoting" Belt Guide in relation to the Spreader Pulley and Belt.

Adjust the "pivoting" Belt Guide so that there is approximately 1/16 inch clearance between it and the Drive Belt, when the Belt is drawn tight between the Spreader and Engine Pulleys.

3. Loosen the pivot bolt and apply pressure to the Belt to draw the bottom portion of the Belt tight inside the Pulleys.

4. Adjust the "pivoting" Belt Guide and retighten the bolt.

OPERATION CHECK:

1. Start the Engine, pull the Idler Engagement Chain to engage the Spreader drive, and insert a chain link into the lug on the Skid frame to hold the Idler in drive position.

2. Release the Chain to disengage the Idler Pulley and check to be sure that the drive is disengaging and the Spreader action is STOPPED!

When the Spreader is operating properly;

1. Replace the Drive Cover. Have the safety decal on the Cover toward the engine.

2. Replace the Belt Shield on the Belt Cover (mpunted to the Engine Mounting Frame).

3. Tighten all fasteners securely.

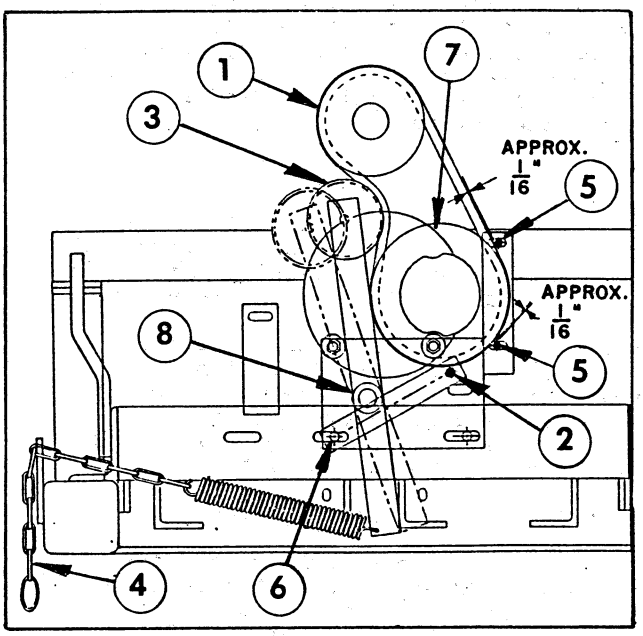


Figure 11

1. Engine Pulley
2. Pivoting Belt Guide
3. Idler Pulley (engaged)
4. Idler Engagement Chain
5. Belt Guide
6. Pivot Bolt
7. Spreader Pulley
8. Idler Arm Pivot

IMPORTANT! FOR THE SAKE OF CLARITY, THE SAFETY SHIELDS HAVE BEEN REMOVED IN THIS ILLUSTRATION. NEVER OPERATE THE SPREADER WITH THE DRIVE SHAFT COVER, BELT COVER OR BELT SHIELD REMOVED!

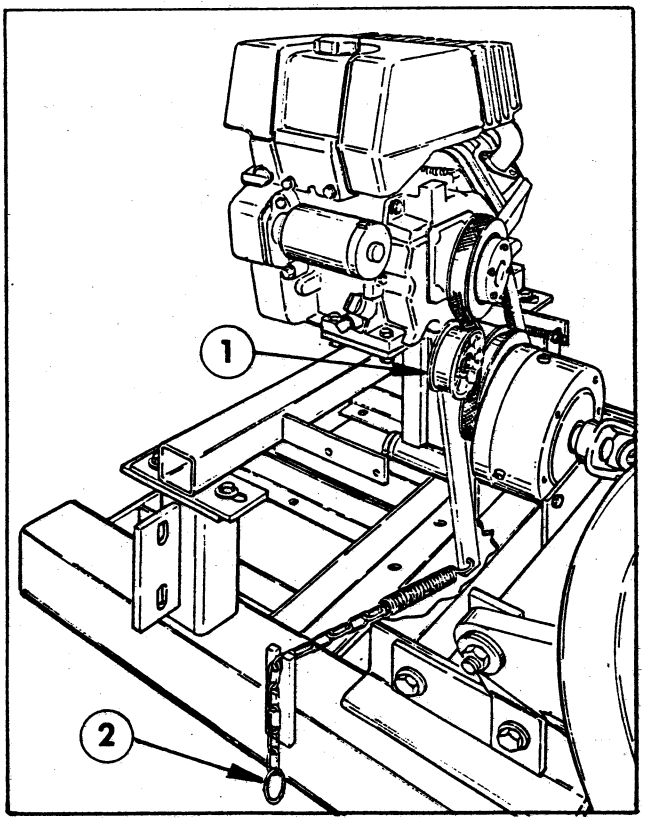


Figure 12

1. Idler Pulley 2. Idler Engagement Chain

INSTALLING THE SPREADER SKID ON A TRANSPORT VEHICLE

Position the Skid in the location that is best suited for the operation of the Spreader, while meeting all of the safety requirements listed below.

1. Remove one of the bolts which hold the three square tube Spacers to the Skid.

2. Using the bolt hole as a template, center punch the vehicle bed and replace the bolt. Repeat the procedure at allsix hole locations.

3. Drill six over-size holes in the vehicle bed and secure the Skid to the vehicle bed with 3/8 NC bolts, of a length determined by the material thickness of the vehicle bed. See Figure 13.

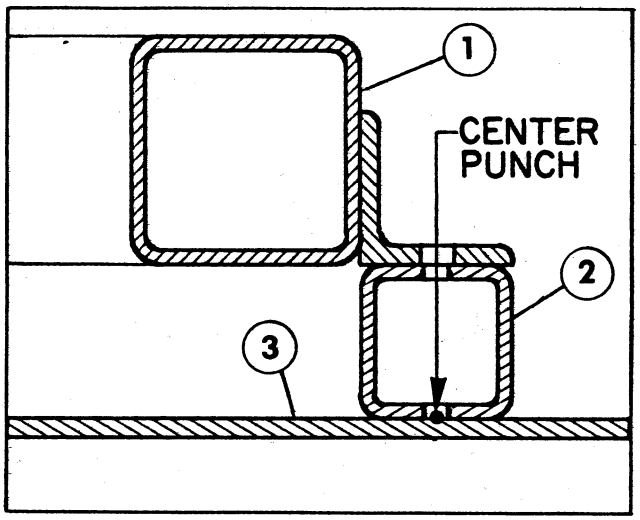
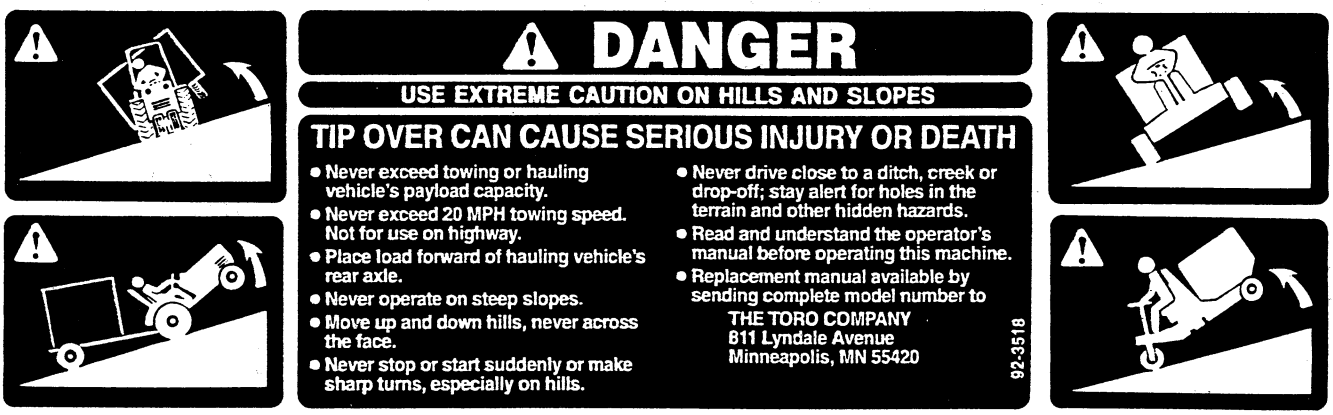
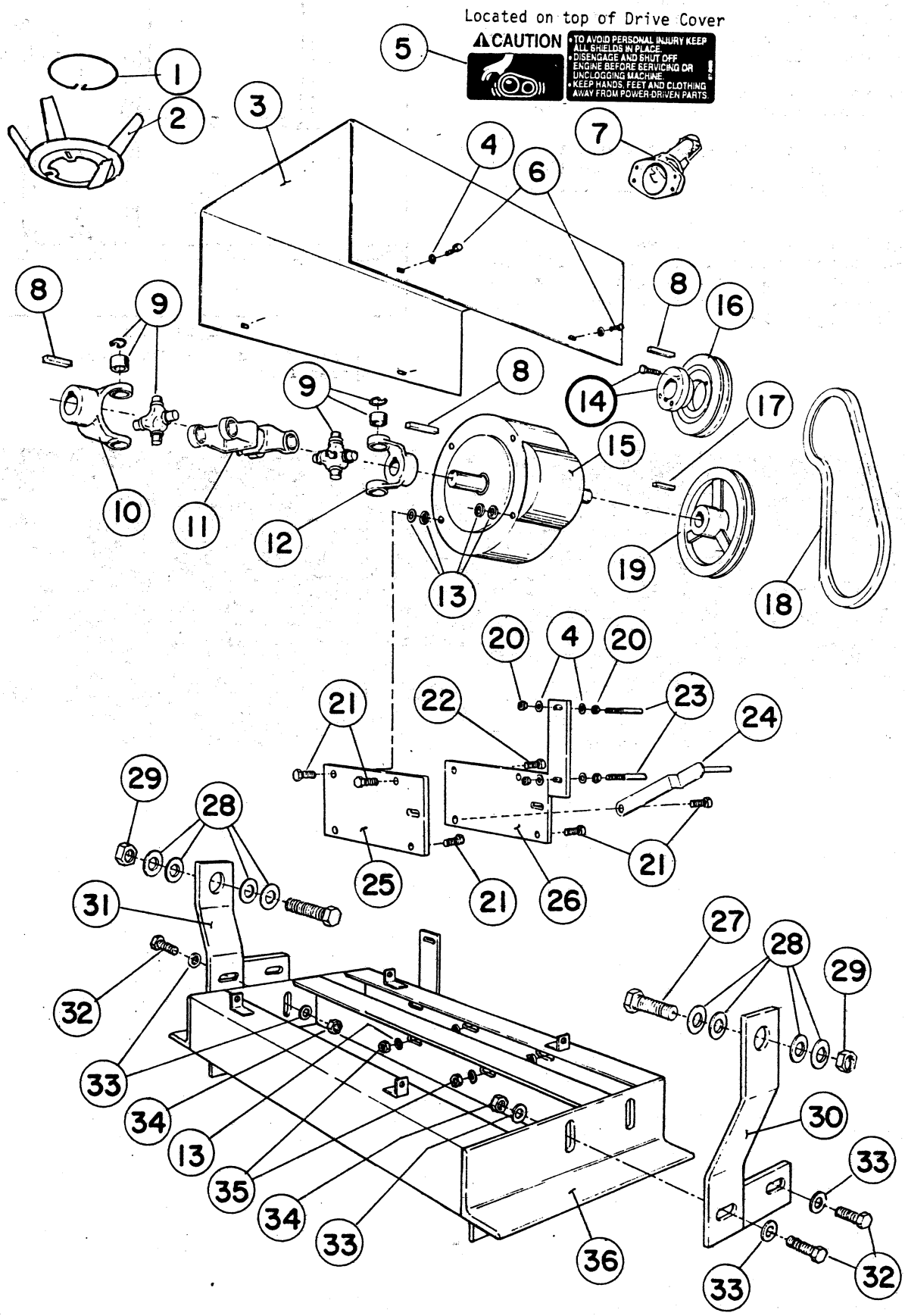


Figure 13

1. Spreader Skid
2. Spacer Tube
3. Transport Vehicle Bed



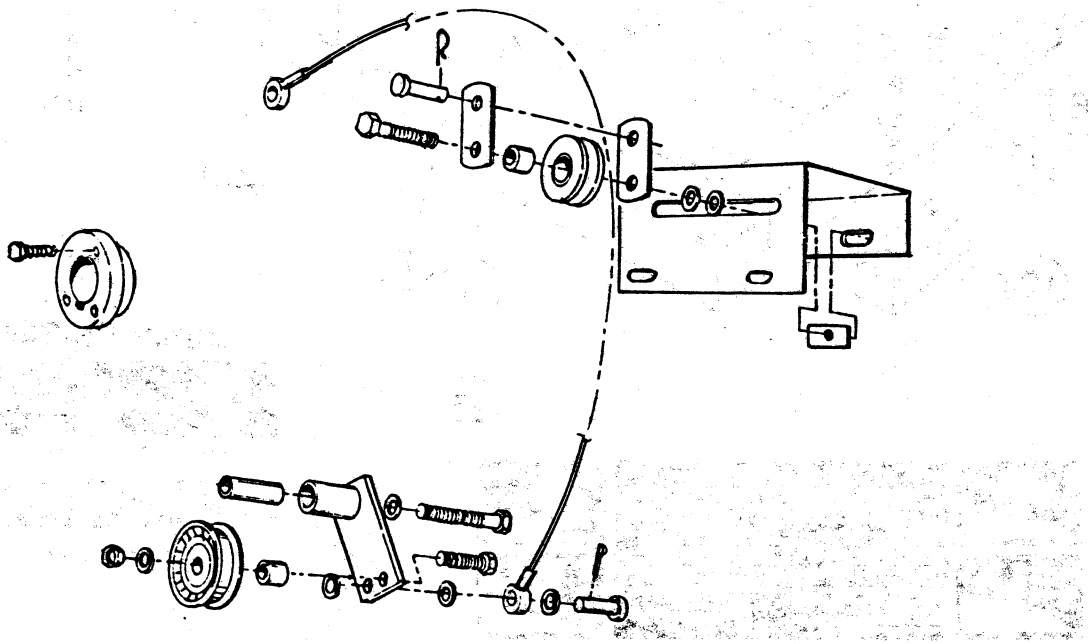

Located on top of Drive Cover
CAUTION
• TO AVOID PERSONAL INJURY KEEP ALL SHIELDS IN PLACE.
• DISENGAGE AND SHUT OFF ENGINE BEFORE SERVICING OR UNCLOGGING MACHINE.
• KEEP HANDS, FEET AND CLOTHING AWAY FROM POWER-DRIVEN PARTS.

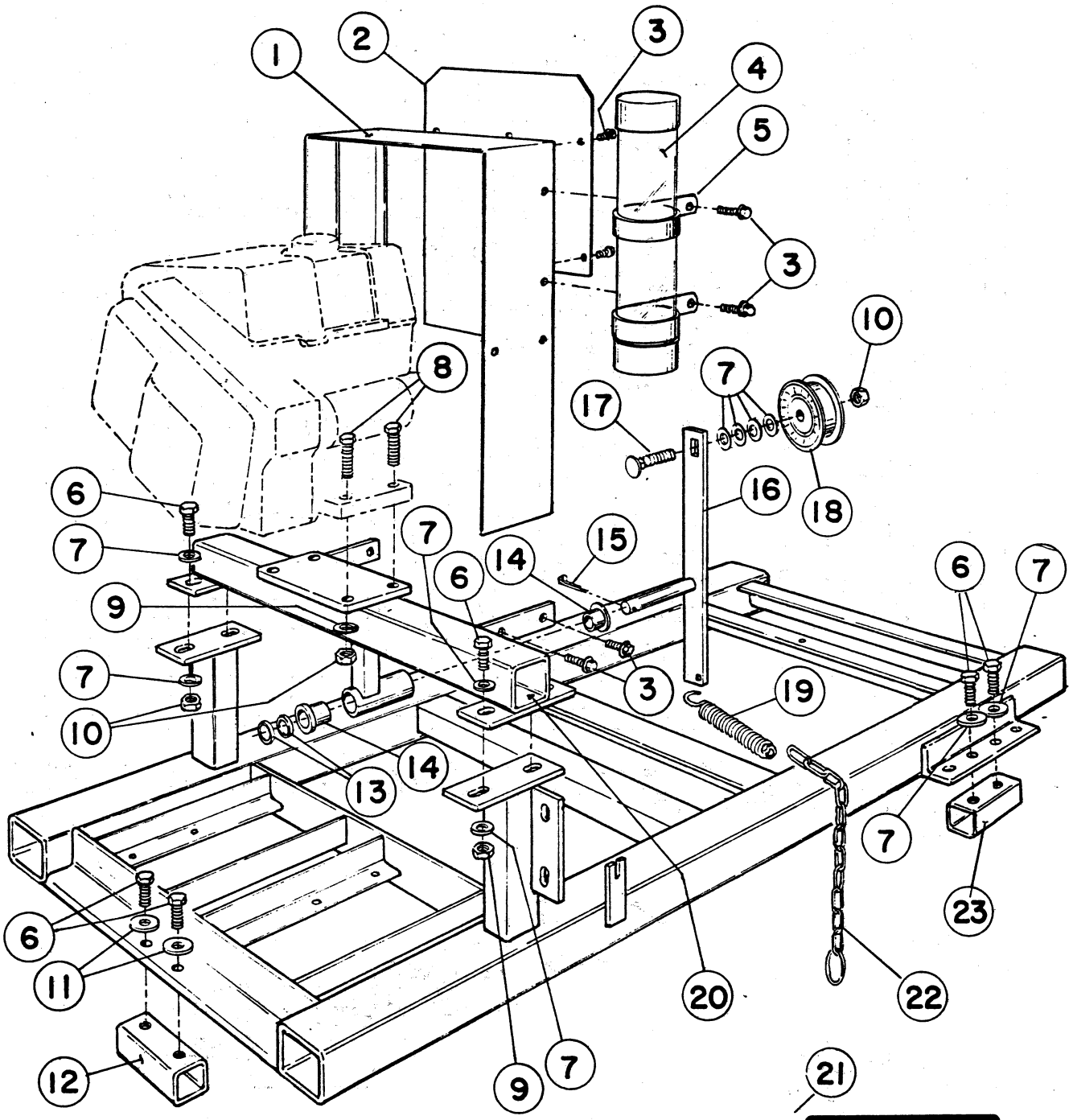
PA-17 SPREADER MOUNTING KIT

MODEL NO. 41152-30101

REF	PART NO.	DESCRIPTION	QTY
1	41579	Agitator Locking Ring	1
2	41578	Agitator Rim	1
3	43040	Drive Cover	1
4	24-10-BD	Flat Washer, 5/16 S.A.E.	8
5	87-0450	Decal	1
6	20-24-AGD	HHCS, 5/16 NC x 3/4" (grade 5)	4
7	41506	Sand Spout	1
8	314233	Square Key, 1/4 x 1-1/2"	3
9	42554	Journal & Bearing	2
10	42552	End Yoke, 1-3/16" (Incls. set screw)	1
11	43004	Double Center Yoke	1
12	42553	End Yoke, 1" (Incls. set screw)	1
13	24-11-AD	Flat Washer, 3/8	8
14	92-0281	Tapered Bushing	1
15	43003	Gear Multiplier (5:1)	1
16	40278	Engine Pulley	1
17	314110	Square Key, 3/16 x 1"	1
18	43006	Drive Belt	1
19	43005	Spreader Pulley	1
20	22-12-AJD	Hex Nut, 5/16 NC	4
21	20-47-AGD	HHCS, 3/8 NC x 1" (grade 5)	6
22	20-51-AGD	HHCS, 3/8 NC x 2" (grade 5)	2
23	43034	Belt Guide Bolt, 5/16 NC x 4"	2
24	43027	Pivoting Belt Guide Assem.	1
25	43043	Gear Reducer Mounting Plate	1
26	43025	Gear Reducer Mounting Plate Assem.	1
27	20-125-AGD	HHCS, 5/8 NC x 2-1/2"	2
28	24-15-AD	Flat Washer, 5/8	12
29	22-17-AJD	Hex Nut, 5/8 NC	3
30	43030	Upright Assembly (R. H.)	1
31	43033	Upright Assembly (L. H.)	1
32	20-87-AGD	HHCS, 1/2 NC x 1-1/2" (grade 5)	4
33	24-13-BD	Flat Washer, 1/2 S.A.E.	8
34	22-15-AJD	Hex Nut, 1/2 NC	4
35	22-13-AJFD	Lock Nut, 3/8 NC	4
36	43017	Frame Assembly	1

THE PARTS SHOWN BELOW ARE INCLUDED WITH THE SPREADER MOUNTING KIT...BUT ARE NOT USED IN THE INSTALLATION OF THE PA-17 SPREADER ON THE SKID SPREADER.





⚠CAUTION

- TO AVOID PERSONAL INJURY KEEP ALL SHIELDS IN PLACE.
- DISENGAGE AND SHUT OFF ENGINE BEFORE SERVICING OR UNCLOGGING MACHINE.
- KEEP HANDS, FEET AND CLOTHING AWAY FROM POWER-DRIVEN PARTS.

Located on top of Belt Guard

READ YOUR OPERATOR'S MANUAL FOR OPERATING AND SAFETY INSTRUCTIONS. TO GET A REPLACEMENT MANUAL, SEND MODEL AND SERIAL NUMBERS TO THE TORO CO. 8111 LYNDALE AVE. S. MPLS. MN 55420

Located on top of Belt Guard

⚠ DANGER

USE EXTREME CAUTION ON HILLS AND SLOPES

TIP OVER CAN CAUSE SERIOUS INJURY OR DEATH

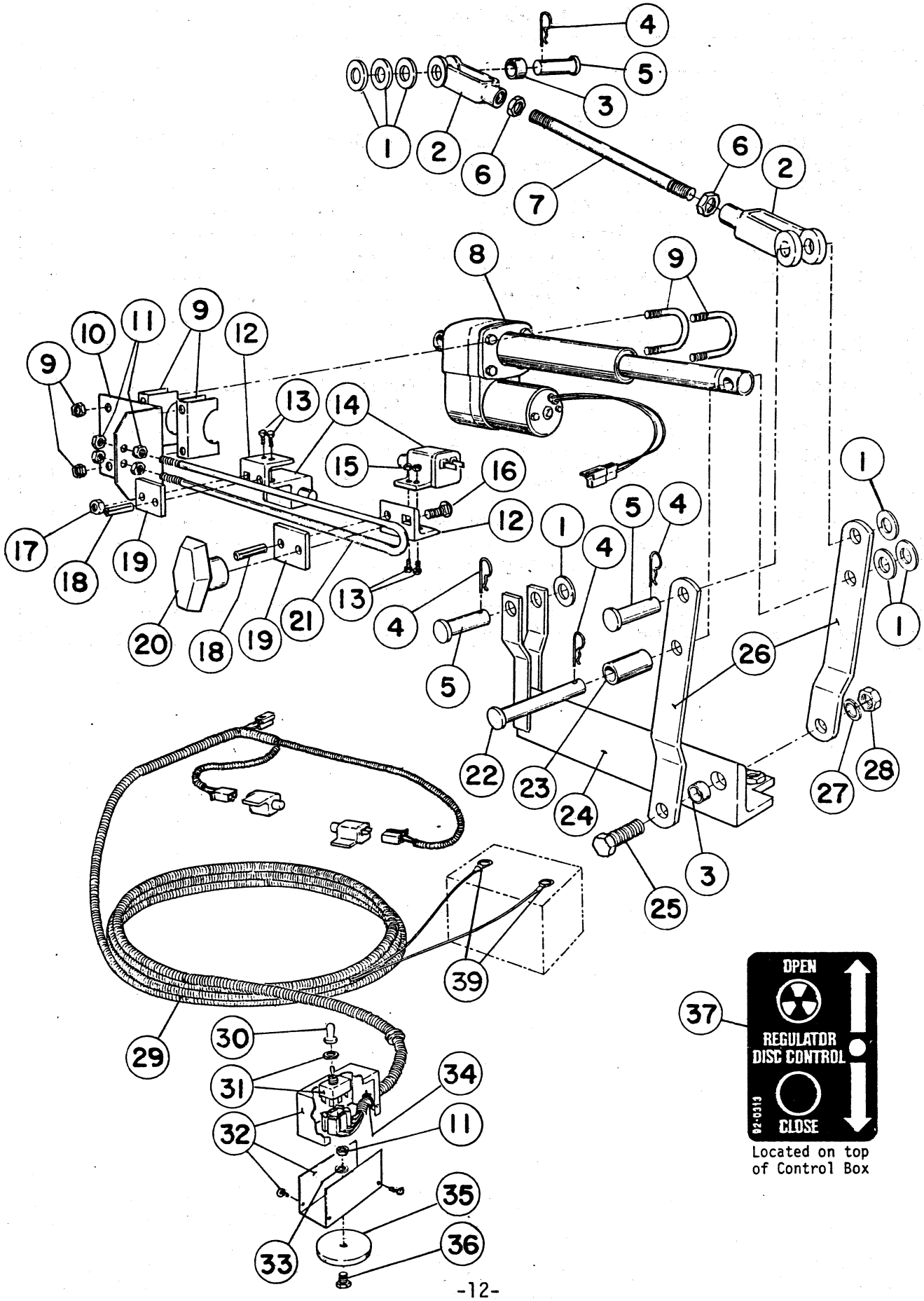
- Never exceed towing or hauling vehicle's payload capacity.
- Never exceed 20 MPH towing speed. Not for use on highway.
- Place load forward of hauling vehicle's rear axle.
- Never operate on steep slopes.
- Move up and down hills, never across the face.
- Never stop or start suddenly or make sharp turns, especially on hills.
- Keep sharp drop-offs, creek or ditches, stay alert for holes in the terrain and other hidden hazards.
- Read and understand the operator's manual before operating this machine.
- Replacement manuals available by sending complete model number to:

THE TORO COMPANY
8111 Lyndale Avenue
Minneapolis, MN 55420

Located on Belt Shield

SKID SPREADER FRAME
MODEL NO. 41400-30101

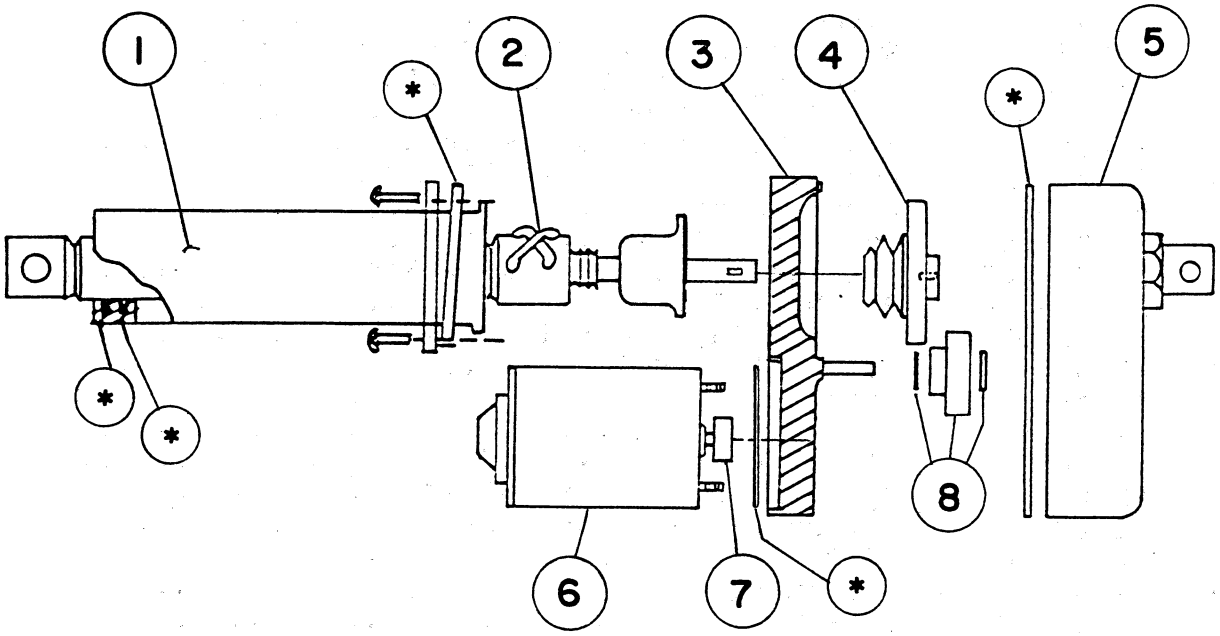
REF	PART NO.	DESCRIPTION	QTY
1	92-0213	Belt Guard Assembly	1
2	92-0218	Belt Shield	1
3	34-140-AMVD	Hex Washer Hd. Self Tap Screw 1/4 NC x 5/8	11
4	42559	Manual Storage Tube	1
5	42560	Storage Tube Mtg Brkt	2
6	20-47-AGD	HHCS, 3/8 NC x 1" e	10
7	24-11-AD	Flat Washer, 3/8	16
8	20-50-AGD	HHCS, 3/8 NC x 1 3/4"	4
9	23-11-GD	Lock Washer, 3/8	4
10	22-13-AJD	Hex Nut, 3/8 NC	9
11	356308	Special Washer	2
12	92-0216	Spacer - Front	1
13	358042	Special Washer	2
14	41347	Flange Bearing (F/W Engine Frame Assy.	2
15	28-19-D	Cotter Pin, 1/8 x 1 1/4"	1
16	92-0208	Idler Arm Assembly	1
17	25-49-AGD	Carriage Bolt, 3/8 NC x 1 3/4"	1
18	41353	Idler Pulley	1
19	41721	Spring	1
20	92-0200	Engine Frame Assembly	1
21	87-0450	Decal - "To avoid personal injury, etc."	1
22	92-0211	Chain Assembly	1
23	92-0217	Spacer - Rear	2
24	65-3090	Decal - "Read your operator's manual, etc."	1
25	92-3518	Decal - "WARNING"	1


OPEN
REGULATOR
DISC CONTROL
CLOSE
Located on top
of Control Box

SPREADER FLOW CONTROL
MODEL NO. 41403-30101

REF	PART NO.	DESCRIPTION	QTY
1	24-13-AD	Flat Washer, 1/2	7
2	92-0302	Adjustable Clevis, 1/2 NF	2
3	92-0303	Pivot Spacer	2
4	328967	Hair Pin Cotter	4
5	42195	Clevis Pin, 1/2 x 2"	3
6	22-15-BJKD	Hev Jam Nut, 1/2 NF	2
7	92-0301	Actuator Rod	1
8	42833	Actuator	1
9	94485	Muffler Clamp (Incls. C-Bolts & Nuts)	2
10	92-0297	Mounting Bracket-Limit Switch	1
11	22-11-AJD	Hex Nut, 1/4 NC	5
12	92-0306	Angle Bracket-Limit Switch	2
13	21-96-BMD	Hex Hd. Mach. Screw, #10 NF x 1/2"	4
14	92-0305	Limit Switch	2
15	22-9-BJD	Hex Nut, #10 NF	4
16	25-25-AGD	Carriage Bolt, 5/16 NC x 3/4"	2
17	22-12-AJD	Hex Nut, 5/16 NC	1
18	29-110-D	Spring Pin, 1/4 x 1"	2
19	92-0307	Plate-Limit Switch	2
20	41446	Knob	1
21	92-0304	Switch Guide	1
22	92-0024	Clevis Pin, 1/2 x 3-1/2"	1
23	92-0299	Spacer, 3/4 O.D. x 1-1/2"	1
24	92-0292	Actuator Mount Assembly	1
25	20-87-AGD	HHCS, 1/2 NC x 1-1/2"	1
26	92-0298	Actuating Strap	2
27	23-13-GD	Lock Washer, 1/2	1
28	22-15-AJD	Hex Nut, 1/2 NC	1
29	92-0311	Wiring Harness	1
30	30955	Boot	1
31	92-0250	Toggle Switch	1
32	92-0202	Control Box	1
33	23-9-GD	Lock Washer, 1/4	1
34	92-0312	Wire Loom Clip	1
35	92-0256	Magnet, 90#	1
36	20-2-AD	HHCS, 1/4 NC x 5/8"	1
37	92-0313	Decal	1
38	92-0281	Tapered Bushing (used on Engine Shaft)	1
39	42313	Ring Terminal, 3/8"	2

42833 ACTUATOR



REF	PART NO	DESCRIPTION	QTY
1	42844	Cover Tube	1
2	42848	Drive Screw Assembly	1
3	42850	Front Housing	1
4	42847	Clutch Assembly	1
5	42845	Rear Housing	1
6	42849	Motor.....	1
7	42852	Motor Pinion Gear.....	1
8	42846	Intermediate Gear.....	1
*	42851	Sealing Kit	AR

MAINTENANCE RECORD

Date								

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