



# **SWEEPER ASSEMBLIES**

NH TS100-135A

Current as of 6/11/07

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## **PARTS LISTING WITH MOUNTING AND OPERATING INSTRUCTIONS**

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# **FORWARD**

This manual contains information about the many features of the Tiger THS Sweeper operator safety instructions, maintenance, and operating techniques. This manual will also assist you in the proper break-in daily care, and troubleshooting of your new sweeper.

We recommend that you read carefully the entire manual before operating the unit. Also, time spent in becoming fully acquainted with its performance features, adjustments, and maintenance schedules will be repaid in a long and satisfactory life of the equipment.

If at any time, you have a service problem with your sweeper, contact your dealer for your service and parts needs.

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# SAFETY PRECAUTIONS

CAUTION!



This symbol means: CAUTION ! Your safety is at risk !

- Any R.O.P.S. (roll over protective structure) should not be drilled, welded on, or altered in any manner. Any alteration may reduce your protection.
- Do not bypass the tractor neutral safety switch. Jumping or bypassing can cause tractor runaway.
- Do not allow any persons on the equipment except the operator.
- Loose clothing that can catch in moving parts should be avoided.
- Use the hand holds and step-plate provided when mounting and dismounting to prevent injury.
- Keep safety decals clean and replace illegible and damaged decals.
- P.T.O. shield should be in place at all times.
- Make a visual inspection of the tractor and mower components before attempting to start the unit.
- be sure all bystanders are at a safe distance at all times.
- Do not start or operate any controls while standing along side the tractor. Be in the tractor seat.
- Use the parking brake whenever dismounting from the tractor.
- P.T.O. lever should be disengaged before dismounting and when P.T.O. is not being utilized.
- The mower switch should be in the "off" position when not in actual mowing or sweeping position.
- Do not operate tractor in a closed building.
- Do not get off the tractor while still in motion.
- Use your seat belt if unit is equipped with R.O.P.S.
- Sudden uphill turns on steep slopes should be avoided.

## CAUTION!



This symbol means: CAUTION ! Your safety is at risk !

- Reduce speed when turning, taking curves, rough ground, or hillsides to reduce chance of rollover.
- Always keep tractor in gear when traveling downhill to prevent runaway.
- When driving on a road, day or night, use lighting and markings required by local laws.
- Lower equipment when not in use.
- Whenever stopping or leaving the unit you should: stop tractor and equipment, lower equipment, be sure all motion stops, and remove key.
- Become familiar with the controls. Familiarity of controls and functions increases efficiency and decreases hazardous situations.
- Never allow children to operate the sweeper or mower.

## **OPERATIONAL SAFETY PRECAUTIONS**

- Clear sweeping area of all foreign objects. Remove objects that could cause personal injury to the operator or others. Keep other persons, children, and pets out of the work area.
- Always wear the proper apparel such as a long sleeve shirt buttoned to the cuffs and safety glasses, goggles, or a face shield.
- Never operate the unit without all shields and hood in place.
- Plan your work ahead of time to help avoid accidents.
- Keep hands, feet, hair, and loose clothing away from engine, drive line, brush, and other moving parts.
- If the unit is left unattended, even for a very short time, shut off engine, set parking brake, and remove key.
- Never sweep towards people, buildings, vehicles, or other objects that may be damaged by flying debris.
- Dust and debris can be blown back into the operators face if consideration is not given to wind direction. Wear the proper protective apparel.

# OPERATION

Be sure the ball valves on the mower hydraulic tank are OPEN before starting the tractor. Serious damage to the hydraulic system can occur if the valves are not OPEN.

For brush operation: open the high pressure valve located near the pressure port of the pump and close the high pressure valve located near the electrical solenoid. This procedure shuts off the oil flow to the mower.

For mower operation: close the high pressure valve located near the pressure port of the pump and open the high pressure valve located near the electrical solenoid. This procedure shuts off the oil flow to the brush.

Low brush speed and moderate ground speed will clean almost any hard surface of all debris. Do not use high brush speeds or dust may be raised by the aggressive action of the sweeper. Always remember the wind direction and plan your sweeping so it blows at your back or to the direction that the brush head assembly is angled.

It is usually more effective to plan your sweeping for the days when it is overcast and humid or on a day after it has rained. By planning in this manner, your dust will be kept to a minimum.

To sweep gravel, use just enough brush speed to "roll" the gravel and not to throw it.

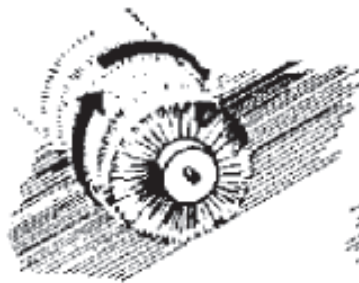
The sweeper is not a bulldozer!! Do not ram into piles trying to move them as a blade would.

Remember, the sweeper sweeps with the tips of the broom, not with the sides like a mop. Adjust the spring - chain assembly accordingly.

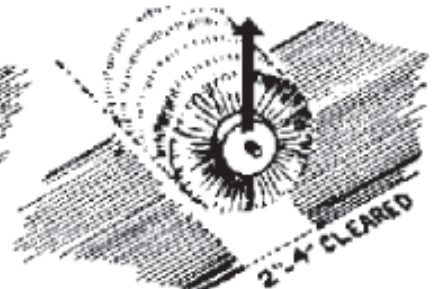
High brush speeds and low ground speeds are needed to do a good job in snow. Start with about 3/4 throttle for wetter and deeper snow. This will help to keep the snow from packing up inside the brush hood.

Just about any amount of snow can be thrown by the sweeper if enough patience and consideration of the wind direction are used. In deep snow more than one pass may have to be made to get down to a clean surface.

All Tiger Sweepers are equipped with adjustable spring assemblies to limit down pressure. Too often these springs are removed and thrown away or ignored. Proper down pressure should be as pictured to the right. Check and be sure you are using the spring assembly. If it is lost or missing, please order another from the dealer or factory. If it is on, make sure you understand and adjust it for proper usage.



Brush on ground rotating at normal operating speed machine stationary.



When lifted, leaves a 2" to 4" clean spot on ground.

CORRECT SWEEPING PATTERN

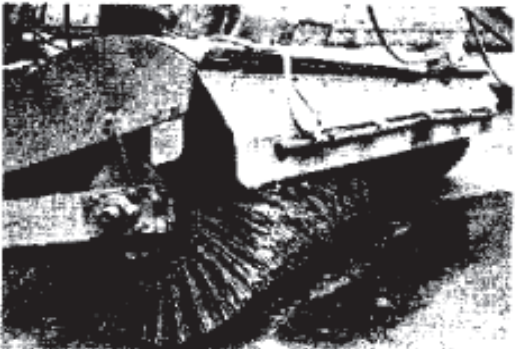
**UNLEVEL BRUSH – (UNEVEN BRUSH WEAR)**



**A brush starts like this!**



**When it's worn out it should look like this!**



**Too often it looks like this!**

It is very possible to cut brush life by 50% if the frame is not level. Running an unlevel brush is just like throwing money out the window. The small amount of time spent leveling a brush before sweeping is paid back many times over in longer brush life.

As a general rule brush level should be checked every day before operating.

Uneven brush wear can also be caused by discharging material to the same side of the brush all the time. Flipping the brush core end - for - end a couple of times during the course of the brush life can help alleviate this.

Improper ground speed not only damages the brush but also cores, chains, sprockets, drive lines and even frames.

A rotary sweeper sweeps with the flicking action of the bristle. The brush can sweep material up to 1/2 the diameter of the brush. If the ground speed of the vehicle is too fast the material piles in front of the brush because it cannot be discharged. This plow effect is caused by bulldozing with the sweeper instead of sweeping, this will cause a side thrust on the brush, core and frame components.

This sideward thrust causes the bristles to flex against the steel ring holding them. Eventually this flexing will break the bristles off at the ring.

Always sweep at a high enough brush speed and low enough ground speed to effectively discharge the material being swept.

# TIGER SWEEPER

## MODELS THS - 72CC & THS - 96C

### IMPORTANT INSTRUCTIONS

1. Do not store sweeper polypropylene brushes in direct sunlight!

Direct sunlight will cause the bristles to deteriorate, causing the bristles to become brittle. If the broom is to be stored for any length of time, store it in the shade, inside, or cover the brush with a tarp to protect it from the sun.

2. Do not store the sweeper power broom with the weight on the bristles!

Storing the sweeper power broom with the weight on the bristles will permanently deform the bristles, destroying the sweeping effectiveness of the brush. Block the brush up off the ground.

WITH PROPER CARE, YOUR POLYPROPYLENE BRUSH WILL GIVE LONG HOURS OF TROUBLE FREE SERVICE, WITH EXCEPTIONALLY LOW WEAR ON BRUSH.

3. How do you get longer brush life?

Three factors can be controlled to give longer brush life. Brush down pressure, brush level (uneven brush wear), ground speed.

**BRUSH DOWN PRESSURE:** more down pressure does not give a better sweep. A brush gets its sweeping action by the flicking action of the bristles. This is most effectively done with the tips of the bristles.



A brush sweeps with the bristle ends!  
A mop works with the bristle sides!

When too much down pressure is used the brush is working with the sides of the bristles, not just the tips. This mopping action not only decreases the efficiency of the brush but also causes 1/2" to 1 1/2" of bristle to be worn off at once. Improper down pressure, depending on the amount, can decrease brush life 5% to 95%.

# MOUNTING INSTRUCTIONS

Please read and understand the instructions and schematics completely before beginning assembly.

Parts and drawings may vary slightly due to the variety of tractor makes and models. The mounting kit you receive should be correct for your application. If questions arise please contact your local dealer or Tiger Service as needed.

Lay out all loose parts on a clean surface for easy identification. Part numbers and descriptions can be found in this manual and other information received with your particular unit. Any shortages should be reported immediately.

The following assembly instructions are based on the assumption a Tiger mower is already mounted on the tractor. Variations may occur in parts and assembly onto other makes and models.

1. Mount the control valve stand within easy access of the operator (usually mounted to the existing mower control valve stand).
2. Mount the two - spool control valve onto the control valve stand. Install the 1/2" pressure and return hoses as shown on the schematic. This will maintain oil containment until assembly is complete. Note: (If your tractor has a closed center hydraulic system, it will be necessary to a closed center plug in the control valve). Use teflon tape on all N.P.T. fitting and joints.
3. Mount the sweeper mounting frame onto the front of the tractor. Secure the frame using lockwashers and capscrews provided. Be sure to use loctite on mount bolts.
4. Position the swing assembly in front of the mounting frame as shown in the parts breakdown section of this manual.
5. Turn the leveling bolts "A" and "B" all the way in, see figure A.
6. Remove the two 7/8" x 3" pins from the swing assembly mounting ears. Raise the swing assembly and align the holes in the swing assembly mounting ears with the holes in the tractor frame mounting ears.
7. Insert 7/8" x 3" pins and secure with cotter pins.
8. Position the brush head assembly in front of the swing assembly as shown in the parts breakdown section.
9. Remove the nuts and washers from the mounting bolts in the front plate of the swing assembly.
10. Raise the back of the brush head frame and align the center bolt holes. Insert the center hex head bolt and secure with the lockwasher and nut. Align the slotted hole on each side of the center bolt, insert carriage bolts and secure with flatwasher, lockwasher, and nut. These three brush head mounting bolts must be left loose enough to allow for leveling.



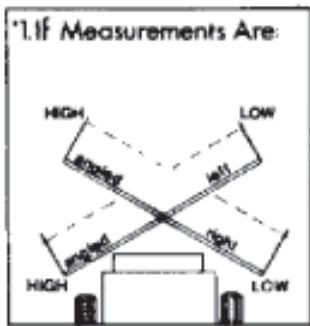
11. The spring - chain assemblies are used to help support the weight of the brush head assembly when in the sweeping position. Hook on spring to each of the outside holes in the top plate of the brushhead upright. The chains are connected to the outside slots in the chain holder on the spring - chain assembly. The spring - chain assemblies will require adjustment after installation is complete.
12. Connect a 1/4" hydraulic hose from the lift cylinder to the left front port of the control valve on the control valve stand. Note: (quick coupler end to valve).
13. Connect the 1/4" hydraulic hoses from the swing cylinder to the control valve. The hose connected to the swing cylinder at the rod end is connected to the right front port of the control valve. The hose connected to the anchored end of the swing cylinder is connected to the right rear port of the control valve. Note: (quick coupler end to valve).
14. Connect the two 1" Hydraulic hoses to the tees on the brush head. Short hose routes from pressure side of pump to top tee. Long hose routes from the bottom tee to return side of solenoid valve. See brush feedline assembly schematic.
15. To connect the lift chain for the brush head, push the lift control forward and at the same time pull out the lift bracket which is pinned to the lift cylinder of the swing assembly. Drop the lift chain into the slot in the lift bracket. It may be necessary to try two or three different chain links to find the one that gives the best and smoothest lift. Do not make the lift chain so short that the brush head upright hits the lift bracket on the swing assembly when the brush head is raised.
16. You are now ready to level the brush head.

# LEVELING INSTRUCTIONS

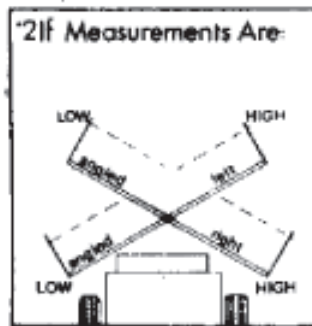
The sweeper must be leveled to maintain even brush wear and to produce efficient sweeping action. If the broom is not leveled at first and periodically after that, then it will put stress on certain parts causing excessive wear. The broom is easily leveled if these steps are followed.

1. Drive the assembled broom onto a level paved area. Swing the brush head assembly to the straight position. Lower the brush into the sweeping position with the weight of the brush head assembly resting on the ground.

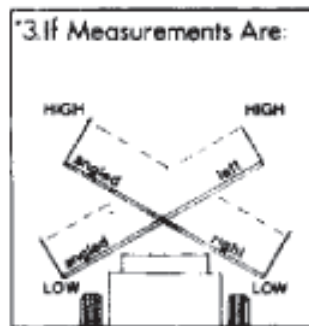
NOTE: all adjustments for leveling are made with bolts "A", "B", "C" and "D".  
See illustrations below:



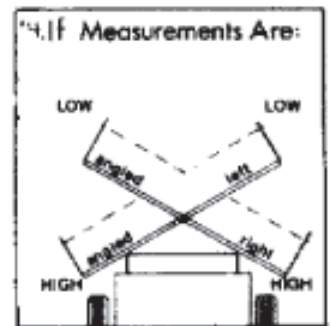
Adjust bolt "C" in



Adjust bolt "D" in



Adjust bolts "A" & "B" in



Adjust bolts "A" & "B" out

2. Adjust bolts "A" and "B" so both are turned out an equal distance and support an equal amount of weight. From this point on, bolt "A" and "B" must both be turned in or out equal amounts to equalize the weight of the head.
3. Adjust bolt "A" and "B" in or out equally as required to level the swing assembly from front to rear.
4. Raise the brush head assembly about two inches off the ground and angle it fully to the right. Measure the distance from the ground up to the brush head frame at both ends. See illustration below:

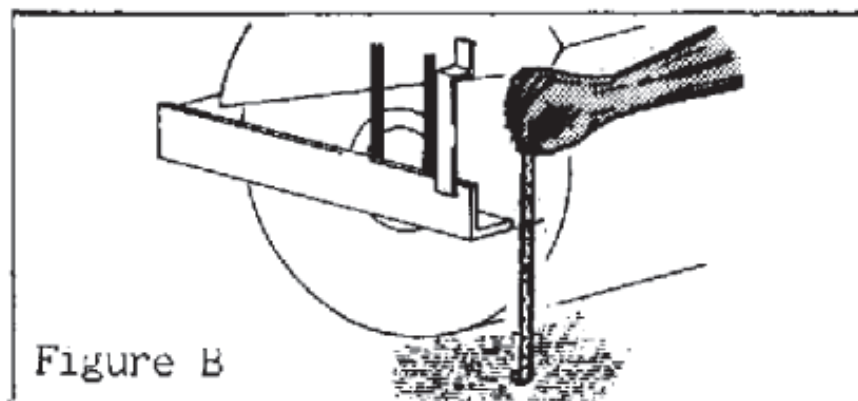
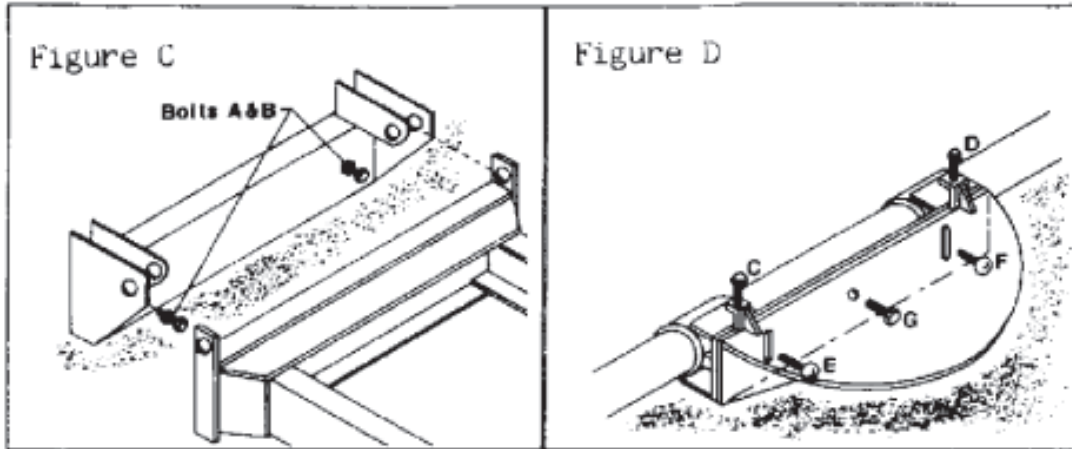


Figure B

## LEVELING INSTRUCTIONS CONTINUED

Make a note of the measurements. Swing the brush head assembly to the left and take the same measurements. If the measurements are not equal, refer to previous leveling steps and illustrations for adjustments.

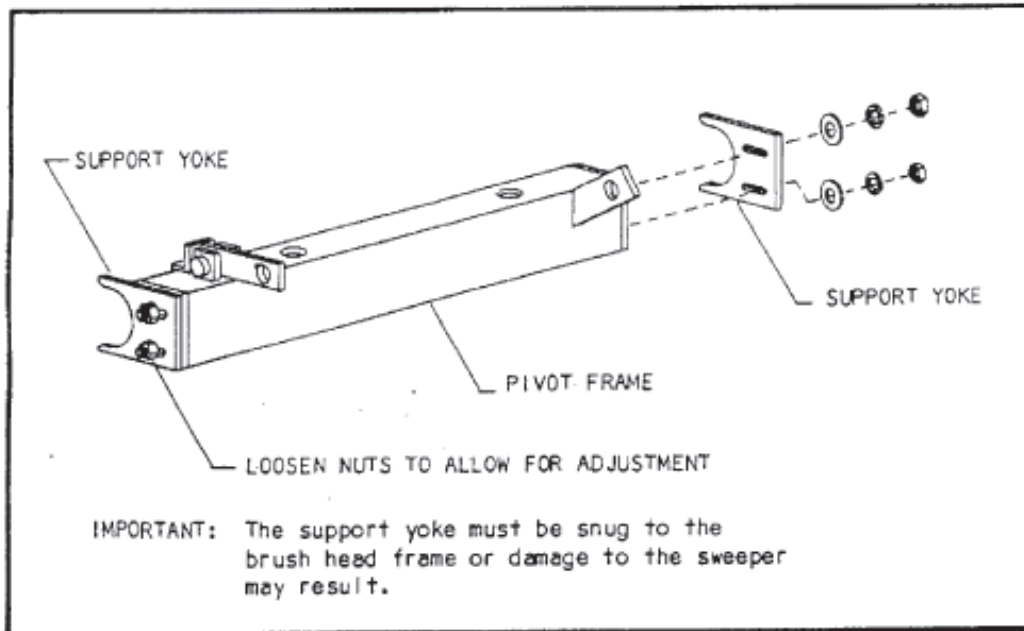


5. After leveling, tighten the brush head mounting bolts E, F and G

## SUPPORT YOKE ADJUSTMENT

NOTE: This section applies only to units with serial number 75146 and above. Units with serial number below 75146 do not have adjustable support yokes. Before operating the sweeper the brush head frame support yokes should be checked and if necessary adjusted as follows:

1. Loosen the two 5/8" carriage bolts in each of the support yokes as shown in the figure below.
2. Swing the brush head assembly fully to the right.
3. Snug the right support yoke around the brush head tube and tighten the two 5/8" bolts.
4. Swing the brush head assembly fully to the left.
5. Snug the left support yoke around the brush head tube and tighten the two 5/8" bolts.
6. Check the brush head assembly for proper leveling. It may be necessary to adjust the support yoke up or down in order to achieve correct leveling of the brush head assembly.



## **BRUSH REPLACEMENT**

1. Disconnect the two hydraulic hoses at both motors. **IMPORTANT:** Tape over the ends of the hydraulic hoses and the hydraulic motor ports to prevent contamination of the hydraulic system.
2. Remove the four bolts holding the hood in place. Lift the hood off the brush and set aside.
3. Remove the two carriage bolts in the motor housing at both ends of the brush head assembly.
4. Slide the brush assembly out of the brush head frame.
5. Place a couple of blocks at either end of the brush assembly. The blocks must be high enough to prevent the hydraulic motor or the hydraulic motor housing from hitting the ground when the brush assembly is stood up on end.
6. Place one block on each side of the hydraulic motor housing. Stand the brush assembly up on end.
7. Remove the end ring from the top end of the brush assembly.
8. Remove the old sections from the core. Follow the instructions enclosed with the new sections to fill the core.
9. With the new sections on the core, replace the end ring and secure with the four allen head screws.
10. Lay the brush assembly on its side.
11. Slide the brush assembly into the brush head frame. Replace the two carriage bolts in each motor housing.
12. To make sure the brush is straight in the brush head frame, measure the distance from the center of the brush head frame tube. Measure this distance on both sides of the brush head assembly. If these measurements are not the same, slide either end in or out until both measurements are equal. Tighten all bolts.
13. Replace the hood and secure with the four bolts. Adjust the front of the hood so it is even across the brush.
14. Remove the tape on the hydraulic motors and hoses. Reconnect the hoses to the motors.

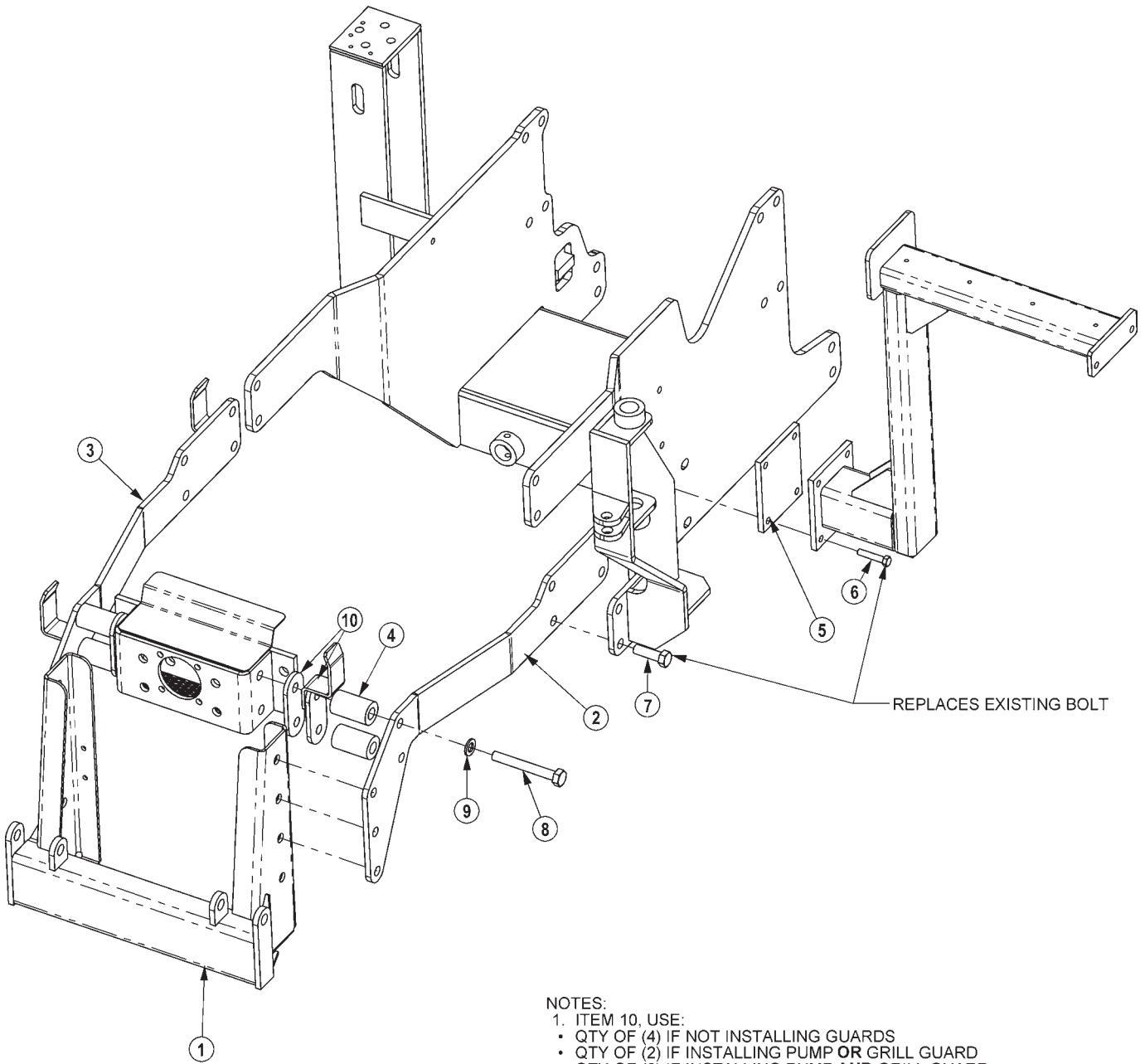
## **MOTOR AND HUB REPLACEMENT**

1. Disconnect the two hydraulic hoses at both motors. **IMPORTANT:** Tape over the ends of the hydraulic hoses and the hydraulic motor ports to prevent contamination of the hydraulic system.
2. Remove the four bolts holding the hood in place. Lift the hood off the brush and set aside.
3. Remove the two carriage bolts in the motor housing at both ends of the brush head assembly.
4. Slide the brush assembly out of the brush head frame.
5. Remove the end ring from the end with the bad motor.
6. Remove the first few sections to expose the motor and hub inside the core.
7. To remove the motor from the core, remove the hairpin and then the nut on the end of the motor shaft which holds the motor to the hub. Pull motor out of the core and make sure the key does not drop out of the shaft.
8. If the motor must be replaced, remove the motor from the housing and place the new one in position.
9. If the hub must be replaced, remove the four bolts which hold it to the core plate and replace it with the new hub.
10. With the new hub and / or motor in place. Slide the motor into the housing, through the core and into the hub. Replace the motor shaft nut and tighten. Secure with hairpin.
11. Replace the sections in the same order as they were removed.
12. Replace the end ring and secure with the four allen head bolts.
13. Slide the brush assembly into the brush head frame. Replace the two carriage bolts in each motor housing.
14. To make sure the brush is straight in the brush head frame, measure the distance from the center of the brush head frame tube. Measure this distance on both sides of the brush head assembly. If these measurements are not the same, slide either end in or out until both measurements are equal. Tighten all bolts.
15. Replace the hood and secure with the four bolts. Adjust the front of the hood so it is even across the brush.
16. Remove the tape on the hydraulic motors and hoses. Reconnect the hoses to the motors.

## LUBRICATION AND MAINTENANCE

INTERVAL	ITEM	CHECK	CLEAN	LUBE	CHANGE	ADJUST	COMMENTS
DAILY OR 10 HOURS	PUMP DRIVE SHAFT			●			
	CRANKSHAFT ADAPTER	●					
	BOLTS	●					
	PIVOT POINTS			●			
	HYDRAULIC FITTINGS	●					
	SWING PLATE			●			
	HYDRAULIC FLUID LEVEL	●					
	BRUSH PATTEN	●					
	LEVEL BRUSH HEAD ASSEMBLY					●	
WEEKLY OR 50 HOURS	IN-LINE HYDRAULIC FLUID FILTER				●		CHANGE AFTER FIRST 50 HRS. THEN EVERY 500 HRS.
SEASONAL OR 500 HOURS	BREATHER				●		
	IN-LINE HYDRAULIC FLUID FILTER				●		
--- NOTES ---							

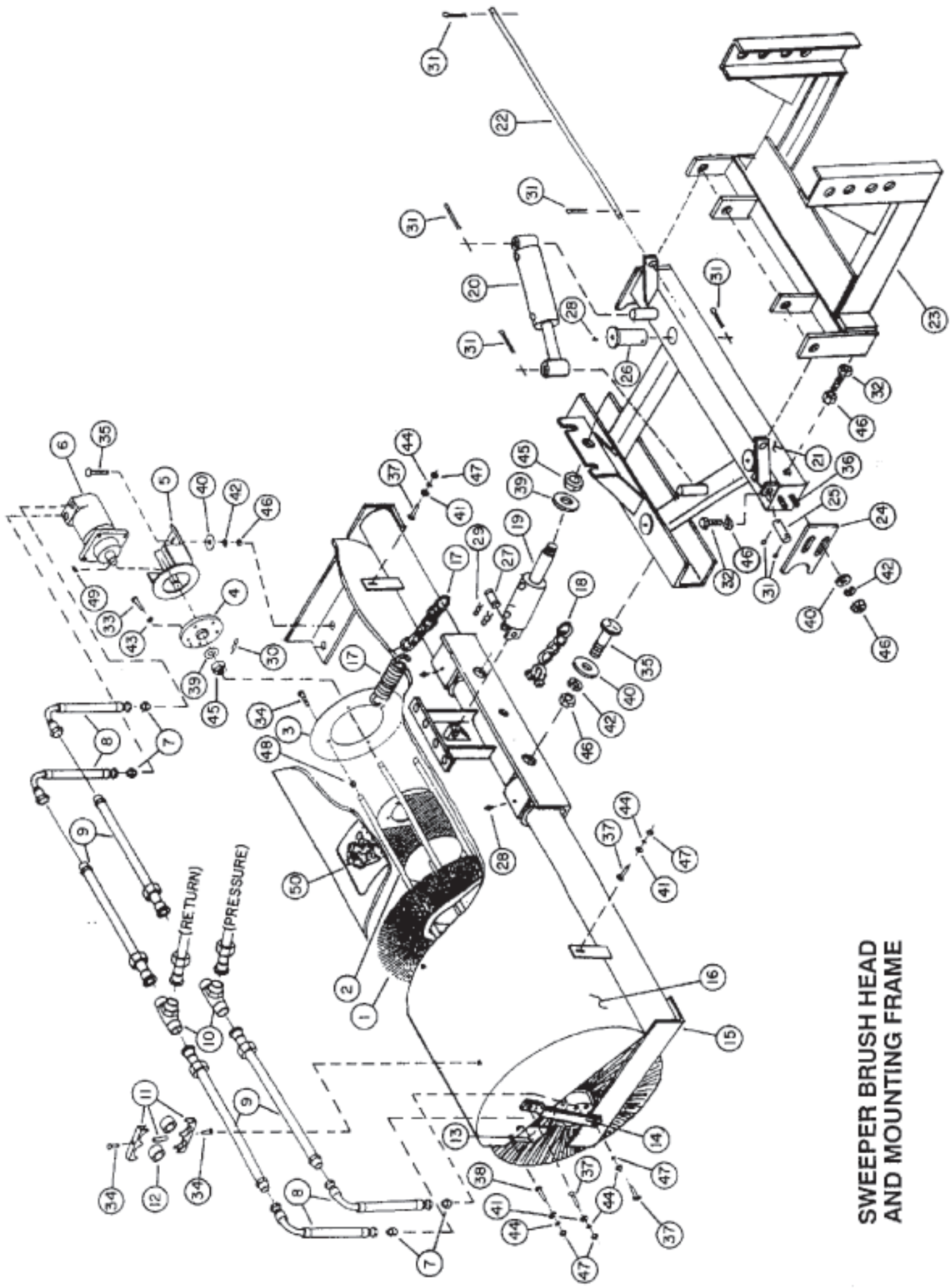
# TRACTOR MOUNT - MAIN FRAME





# TRACTOR MOUNT - MAIN FRAME

ITEM	PART NO.	QTY.	DESCRIPTION
1	34857	1	MTG,THS
2	06410443	1	MNT,LH,SWPR,CNH,TSA
2	06410442	1	MNT,RH,SWPR,CNH,TSA
4	06430049	4	SPACER,2.00x1.00x3.34
5	41644	1	PLATE,ATTACHING
6	21735	4	CAPSCREW,1/2 x 2 1/2,NC
7	24879	4	CAPSCREW , 20MM x 65MM(2.5 PITCH)
8	21843	4	CAPSCREW 3/4" x 6" NC
9	33880	4	FLATWASHER, 3/4",GR 8, SAE
10	06400165	4	SPACER,COOLER,FRONT



**SWEPPER BRUSH HEAD  
AND MOUNTING FRAME**

**SWEEPER BRUSH HEAD  
AND MOUNTING FRAME  
PARTS LIST**

REF. NO.	PARTS DESCRIPTION	NO. REQ.	PART NO.	REF. NO.	PARTS DESCRIPTION	NO. REQ.	PART NO.
1a	BRUSH SET 8' (1/2 POLY - 1/2 WIRE)	1	THS1001	19	LIFT CYLINDER	1	THS1117
1b	BRUSH SET 7' (1/2 POLY - 1/2 WIRE)	1	THS1002	20	SWING CYLINDER	1	THS1116
1c	BRUSH SET 6' (1/2 POLY - 1/2 WIRE)	1	THS1003	21	SWING FRAME	1	THS1100
1d	BRUSH SET 8' (ALL POLY)	1	THS1006	22	CONNECTING ROD	1	THS1105
1e	BRUSH SET 7' (ALL POLY)	1	THS1007	23a	MOUNTING FRAME	1	THS1050
1f	BRUSH SET 6' (ALL POLY)	1	THS1008	23b	MOUNTING FRAME (FORD 7710)	1	24764
1g	BRUSH SET 8' (ALL WIRE)	1	THS1011	24	SUPPORT YOKE	2	25415
1h	BRUSH SET 7' (ALL WIRE)	1	THS1012	25	PIN 7/8" x 3"	1	25416
1j	BRUSH SET 6' (ALL WIRE)	1	THS1013	26	PIN 1-1/4" x 6"	4	25417
2a	CORE 8'	1	25406	27	PIN 1" x 3"	1	25418
2b	CORE 7'	1	25407	28	GREASE ZERK 1/8" x STRAIGHT	6	6T3211
2c	CORE 6'	1	25408	29	HAIR PIN CLIP	2	25425
3	RETAINER RING	1	25410	30	R-CLIP	2	25426
4	CORE HUB	2	25409	31	COTTER PIN 5/32" x 2"	10	22525
5	MOTOR HOUSING	2	25411	32	CAPSCREW 5/8" x 3" NC	3	25424
6	BRUSH MOTOR	2	25412	33	CAPSCREW 7/16" x 1" NF	10	21654
7	FITTING 7/8" - 14 O-RING x MFS	4	25405	34	CAPSCREW 5/16" x 1" NC	12	21580
8	HOSE 5/8" x 16-1/8" FFS	4	25403	35	CARRIAGE BOLT 5/8" x 1-3/4" NC	7	25419
9a	TUBE ASSEMBLY 8'	4	25402	36	CARRIAGE BOLT 5/8" x 1-1/2" NC	4	25420
9b	TUBE ASSEMBLY 7'	4	25401	37	CARRIAGE BOLT 3/8" x 1-1/4" NC	6	25421
9c	TUBE ASSEMBLY 6'	4	25400	38	CARRIAGE BOLT 3/8" x 1" NC	4	6T2283
10	TEE 3/4" FACE SEAL	2	25404	39	FLAT WASHER 1"	3	22023
11	CLAMP ASSEMBLY (WITH NUT)	4	25413	40	FLAT WASHER 5/8"	11	22020
12	BUSHING 3/4" (RUBBER)	8	25414	41	FLAT WASHER 3/8"	8	22016
13	BRISTLE SHIELD	2	THS1203	42	LOCKWASHER 5/8"	11	21992
14	HOOD BRACKET	2	THS1202	43	LOCKWASHER 7/16"	10	21989
15a	BRUSH HEAD FRAME 8'	1	THS1021	44	LOCKWASHER 3/8"	10	21988
15b	BRUSH HEAD FRAME 7'	1	THS1022	45	HEX NUT 1" NF	3	21900
15c	BRUSH HEAD FRAME 6'	1	THS1023	46	HEX NUT 5/8" NC	14	21775
16a	HOOD 8'	1	THS1016	47	HEX NUT 3/8" NC	10	21625
16b	HOOD 7'	1	THS1017	48	CLIP NUT 5/16"	4	25422
16c	HOOD 6'	1	THS1018	49	KEY	2	25423
17	SPRING / CHAIN ASSEMBLY	1	THS1122	50	DECAL "TIGER HEAD"	1	6T3216
18	CHAIN (WITH CLEVIS)	1	THS1121				

