TTR3 TURF RENOVATOR MANUAL

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CONTENTS

Congratulations on your investment in the Tru-Turf Equipment TTR3 Turf Renovator and your move to rapid thatch removal, core harvesting and hi-speed sweeping. The following operation and maintenance manual has been prepared for use with the Tru-Turf Equipment TTR3 Turf Renovator. It is intended as a guide and supplemental updates to the manual may take place at a future date.

This machine has been engineered to be simple to operate and easy to maintain. If you have any questions or concerns that this manual does not address, please feel free to contact your distributor at:

NAME:_____

ADDRESS:_____

_____

TELEPHONE:_____

FACSIMILE:_____

MACHINE INFORMATION

TTR3 TURF RENOVATOR

Serial No. _____

Purchase Date No. _____

SAFETY INFORMATION

Safety is of the utmost importance when operating turf equipment. To ensure safe operation of the Tru-Turf Equipment TTR3 Turf Renovator, please follow the following safety guidelines.

* Always make a pre-operation inspection. If this procedure is not carried out damage to property or personnel may occur.

* Keep children, pets and inexperienced personnel away from the machine. This machine should only be operated by trained and skilled personnel - check with your supervisor if you are unsure.

* Never permit inexperienced operators to use the machine. This machine requires certain knowledge and expertise to operate it; you must be a trained person to use this machine. Unskilled persons can harm themselves and others if they operate this machine.

* When operating, always keep hands and loose clothing away from rollers, pulleys, belts, shafts and blade area. If hair, clothing or loose objects become entangled on a rotating shaft serious bodily injury could occur

OPERATOR, REMEMBER IT IS YOUR RESPONSIBILITY TO BE AWARE OF YOUR SURROUNDINGS.
TO AVOID ACCIDENTS, THINK SAFE AND OPERATE SAFE.

ONE YEAR WARRANTY

Universal Conditions: Tru-Turf Equipment will either repair or replace any item or part of a Tru-Turf Equipment turf maintenance product that is defective in workmanship or material for a period of twelve (12) months from the date of delivery of the new product to the original end user. These items will be repaired or replaced free of charge and freight free.

Products Protected By This Warranty: This Warranty relates to the following products manufactured by Tru-Turf Equipment and parts used to make these products:- GR39 Golf Greens Roller; GR48 Golf Greens Roller; GR7000 Golf Greens Roller; GR11000 Golf Greens Roller; RS48 Roll 'n' Spike Golf Greens Roller; RS48-11 Roll 'n' Spike Golf Greens Roller; RS48-11B Roll "n" Spike Golf Greens Roller; Triplex Roll 'n' Spike Mower Attachment Heads and Brackets; MT2000-S Single Tote for Walk Behind Mowers; MT2000-D Dual Tote for Walk Behind Mowers; Sports Ground Roll 'n' Spike Turf Roller and the TTR3 Turf Renovator.

Parts Warranted By Suppliers To Tru-Turf: Specific component parts supplied to Tru-Turf Equipment are covered by that supplier's Warranty. These parts include Eaton Transmission, Honda Engines and Kohler Engines.

Normal Wear and Tear: Tru-Turf Equipment will not repair or replace parts subject to normal maintenance routines as specified in the products Operator's Manual nor to parts subject to wear and tear during the correct operation of the product. These parts include, but are not limited to, oils, filters, tires, shafts, bearings, blades, spikers, slicers, brakes, belts, hoses and spark plugs.

Other Items Not Covered By This Warranty: Tru-Turf Equipment will not repair or replace free-of-charge any item that has been damaged by accident, lack of reasonable care and protection or lack of suitable storage. We will not cover parts that have been altered or modified by anyone other than Tru-Turf Equipment nor will we cover used parts that are installed in place of failed parts. We will not cover parts that have not been installed correctly by the end user or its agents nor will we cover parts that have not been maintained as per the Operator's Manual. Service calls and overtime labour rates will not be covered. We will not cover freight costs related to the return of the faulty product to Tru-Turf Equipment or its agents. Tru-Turf Equipment will not be liable for any consequential loss or damage or costs caused by or incidental to the failure of any new part supplied with the original purchase or any new part supplied as a replacement for any failed part.

Lodging Warranty Claims: The final purchaser of the new Tru-Turf Equipment product must lodge a Warranty Claim with Tru-Turf Equipment or its agents. The final purchaser must provide written evidence detailing the product's delivery date to that purchaser and the reasons why the purchaser believes that the product or its part is defective in the categories of faulty material or workmanship. The purchaser is to deliver the faulty product or part to Tru-Turf Equipment or its agents at the purchaser's expense. Acceptance or rejection of the Warranty Claim is entirely at the discretion of Tru-Turf Equipment or their Suppliers who warrant their own part(s).

No person or organization has the authority to modify the terms or conditions or limitations of this Warranty without the written consent of Tru-Turf Equipment

OPERATION

Initial Set up

* The scarifier height adjustment is factory set at maximum ground clearance. Adjuster shown in figure 3 Ensure both front rollers are set at the maximum i.e. 10 on scale.

* The broom height adjuster shown in figure 4 is factory set at 12 clear holes, Ensure that broom is set at that height.

* With TTR3 on level ground lower tractor 3pl arms and set the maximum down position such that the arms travel (50-75mm) (2”-3”) lower than the hitch bar on TTR3. This will allow the scarifier to fully float on undulations.

* Attach tractor to the two-point hitch and set anti-sway links on tractor arms.

* The hopper can now be fitted to scarifier with attach pins on figure 1-A. Using “D” shackles provided fit lift chains at point on figure 1-B.

Check the Following Points Before Operating

* The transport position of unit can now be set up in the order as follows:

  Start tractor and lift 3pl arms until front roller is lifted (150-200mm) (6”-8”) clear of ground at this point hopper lift chains should be tight.

  If chain was tight before this height was obtained or still loose at this point it will require adjusting using the row of holes provided. Lower machine to ground and adjust as necessary.

  Correct adjustment is obtained when chain is tight as in step one. Lift 3pl further until rear roller is (75mm) (3”) clear of ground. (Figure 2)

  Set the up stop on the 3pl control so that no further upward movement of 3pl arms is possible. This is extremely important for when P.T.O shaft is fitted, over travel upward can damage P.T.O. shaft.

  Lower machine to ground and fit P.T.O. shaft ensuring in the full down position it still has approximately (50mm) (2”) free travel to full in position.

  After P.T.O. is fitted lift machine to travel position and check P.T.O. shaft is well clear of hitch.

Caution ensure up stop on 3pl is set and locked correctly.

* Thread hopper hydraulic hoses through loops provided on machine front covers and plug in to tractor hydraulics'. (Red cap is pressure line) (Green cap is return.)

* The hydraulic circuit is fitted with a non-return valve to protect the hopper from reverse operation.

* Start tractor and run floor chains to test operation. The discharge door is held in closed position by gravity and will open when pushed on by material being expelled by floor scraper bars.

* Lift TTR3 to transport position and drive to grassed area where the machine can be set up for the scarifying / sweeping operation.

Before running machine check all covers are securely fitted and that the P.T.O. shaft is properly fitted and locked with it's safety cover chains secured.

Always engage P.T.O. only with scarifier lifted clear of ground and at a low tractor R.P.M.

* For initial run to see the result of scarifying set front roller adjuster's to #7 position. (Figure 3)

* Start tractor. Lift machine slightly off ground. Select a forward gear medium speed (2-12 mph) (3-17kph) with tractor R.P.M. low engage P.T.O. (540 only) Rev up tractor to obtain 540 P.T.O. speeds. Start to drive forward, lowering machine to ground. After a short run lift front of machine slightly off the ground and continue driving forward (1-2 metres) (1-2 Yds) Turn off P.T.O. and lift machine to transport position, stop tractor, turn engine off and examine the result achieved.

* Raise or lower front roller's until desired result is achieved.

* The broom height at this point can be fine-tuned:

Broom Adjustment

* If fine material is left on surface broom may need to be lowered.

* If no material is left on surface broom may be set either too low (scuffing of the surface may appear) or be correctly adjusted, (a clean path left)

* If broom is set too low premature broom wear can result. Set broom higher until some material is left on surface then lower until the result required is achieved. (See figure 4 for graphic representation of adjuster's.)

To Adjust.

* Lift machine to transport position.

* Note number of holes clear of machine.

* Broom height varies (1/8th) (3mm) per hole.
Less holes showing, broom lowered.
More holes showing, broom raised.

* To adjust turn handle (A) to clear lock (B) and pull out ward. Handle will automatically stay in unlocked position. Proceed to other adjuster on opposite side of machine. Unlock other adjuster. Roller assembly is now free to pivot, on pivot bolt (C). Roller can now be placed in desired position and lock pins reset in lock position.

* The rear roller is adjusted as a unit in this way to ensure that roller stay's parallel to broom and scarifier rotor. Therefore always lock both sides and be certain that adjustment is the same on both sides.

* With machine now set to correct settings, scarifier operations can now be carried out until hopper is full. In transport position with P.T.O. off drive to dump site. Turn on hopper floor and observe dump through the hopper inlet. When floor is clear door will automatically close.

Operational Tips.

* Only turn in gentle curves when scarifying as sharp turns may damage turf.

* At the end of a scarifying run practise lifting front roller only slightly continuing on (1-2 Metres) (1-2 Yds) before lifting machine to transport position. This allows the broom to sweep up the last scarifying.

Sweeping

* With the scarifier set clear of ground the TTR3 become's an extremely effective sweeper. The scarifier rotor being just clear of ground does most of the sweeping. Storm damage leave's, twig's, cores are easily swept up at very fast speed's. In the sweeper mode machine can be left on ground for turning.

Caution

* After operating machine in wet conditions clean mud from interior surfaces around broom. (See Fig 6. (A) (B).) Inspection holes at point (A) give access for a hose. A hose can be used through the discharge outlet for cleaning at (B). If mud is left to accumulate and dry in these positions the broom will be damaged with premature wear.

Further Operating Information

Figure 6 shows the basic operational principle of the TTR3. This system will operate effectively in any weather conditions, Scarifying sweeper vac operations can be carried out in the rain with standing water on the turf. Because of this feature it is often preferable to water the area to be renovated so that dust is kept to a minimum for both the comfort of the operator and those close to the operations. This has the further benefit of needing less horsepower so saving on fuel, and less wear and tear on blades and broom.

* Experience has also shown us that running type grasses tend to run in the direction of play on golf courses i.e. from the tee to green.

Therefore:

* Scarifying from tee to green tends to comb the runners.

* Scarifying from green to tee removes much more material lifting out long runners.

* Scarifying across the fairway removes large amounts of material and creates the most leaf nodules.

* For the protection of the tractor P.T.O. gear train and the TTR drive train a P.T.O shaft fitted with a friction clutch is supplied. For greater protection the clutch spring tension bolts can be backed off until slippage occurs under normal operating conditions then retention slightly to give normal operation with no slippage.

* For loading the machine attached to a tractor up ramps onto a truck or trailer the P.T.O. shaft should be removed. This enables machine to be lifted as high as is necessary for loading without damage.
* Similarly if machine is to be transported on a road behind a tractor it should be lifted higher than the normal transport to dump setting to ensure that the rear roller does not impact on the road. This may necessitate the removal of the P.T.O. shaft also.

Daily Maintenance

* Check all covers are securely in place.
* Check P.T.O. shaft for signs of wear in universal joints and that covers are operational.
* Inspect interior of machine is clear of mud or obstructions.
* Check condition of brooms and blades.
* Check hopper attach points are secure.
* Check hopper tires for correct inflation. (20 PSI)

Every 50-100 hours

* Grease P.T.O shaft universal joints and shaft engagement tubes.
* Remove belt covers from machine and grease bearings 8 points.
* Inspect belts for wear and tear and adjustment.
* Replace all covers securely.
* Grease 3 points under front of hopper. Floor chain idler sprocket bushes.
* Open hopper door swing up onto roof and secure with safety chains.
* Inspect floor chains for adjustment and condition of scraper bars. Close hopper door.
* Inspect hydraulic lines for damage. Leaks, Etc.

Belt Adjustment

Scarifier Drive Belt. (Polychain)

* Correct adjustment is obtained when pushing with one hand on the centre of the belt on the drive side deflects the belt (10mm, 3/8”). To tighten belt loosen nut slightly that holds jockey pulley in place. Then using a piece of wood or plastic as a drift and a hammer strike the support post until correct adjustment is obtained. Retighten jockey pulley nut.

Broom Drive Triple Belts

* Using the same procedure as above tighten belts until only a small deflection (5mm, 3/16”) on the drive side of belts can be achieved with hand pressure.

Lift Rotor Timing Belt

* Using the same procedure as above correct adjustment is obtained when the drive side of the belt can be twisted with the thumb and forefinger no greater than 90 degrees.

Hopper Floor chain adjustment

* With door open and locked with safety chains reach in approximately (600mm, 2 ft) from drive sprocket’s and lift each chain in turn, correct adjustment is approximately (75mm, 3”) slack at this point with chains being all the same.

To Adjust Chains

* Loosen nuts locking bearings on drive shaft both sides. Loosen bolt securing chain case to chassis directly below bearing bolt’s inside chassis. (Chain case does not have to be disturbed as bolts are anchored internally). Loosen lock nuts on jacking screws under floor behind the plastic centre bearings. Then using the adjuster bolt’s on chassis end to move outer bearings and jacking screws on centre bearing bring chains to correct adjustment. Retighten all bolts and lock nuts.

Internal Broom Adjustment

* Experience in operation has shown that internal adjustment is not critical so can be left until broom wear is very noticeable i.e. (15-20mm, 1/2-3/4”).

Front Deflector

* Adjustment is achieved by loosening two bolts on either side of machine and moving shield until broom is just clearing the top half of deflector shield.

Rear Deflector

* Loosen bolt C (Shown in figure 4) on both sides of machine and adjust shield D inward and upward until just clear of broom. (See below)

Timing

* For maximum efficiency the broom rotor (A) and lift rotor (B) as shown in figure 6 are timed to align every ¼ turn as shown. Timing belt (C) shown in figure 5 is used to set the timing. Timing can be checked through inspection panel (D) shown dotted in figure 5 located on other side of machine.

Figure 1

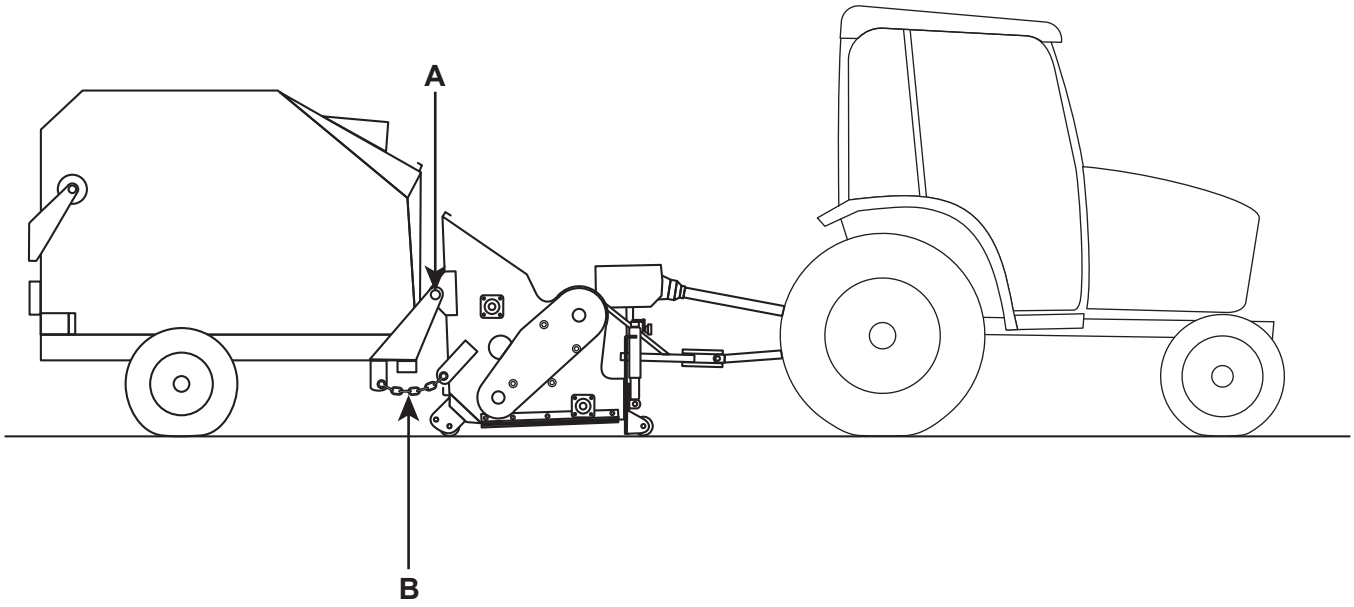


Figure 2

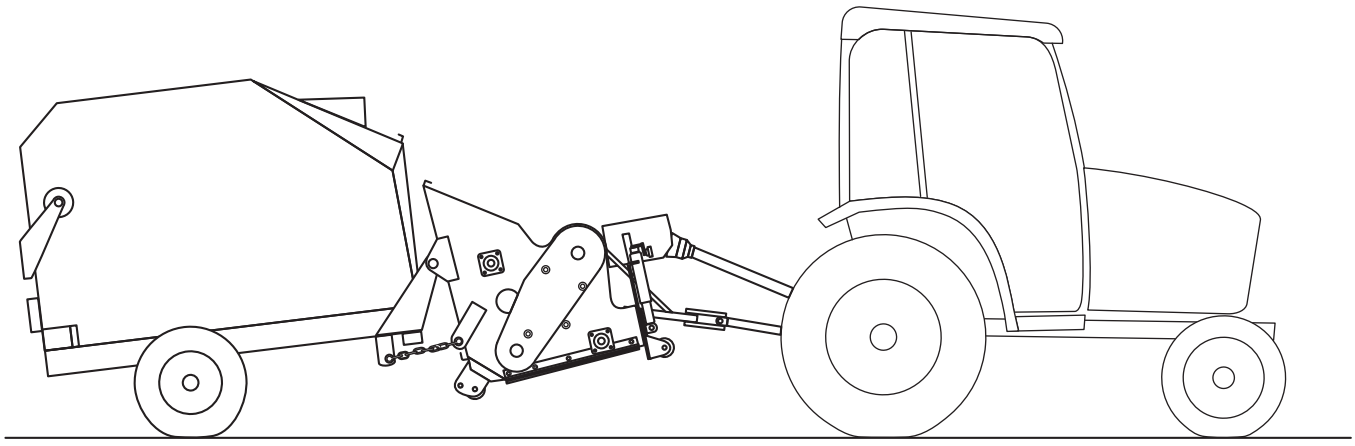


Figure 3

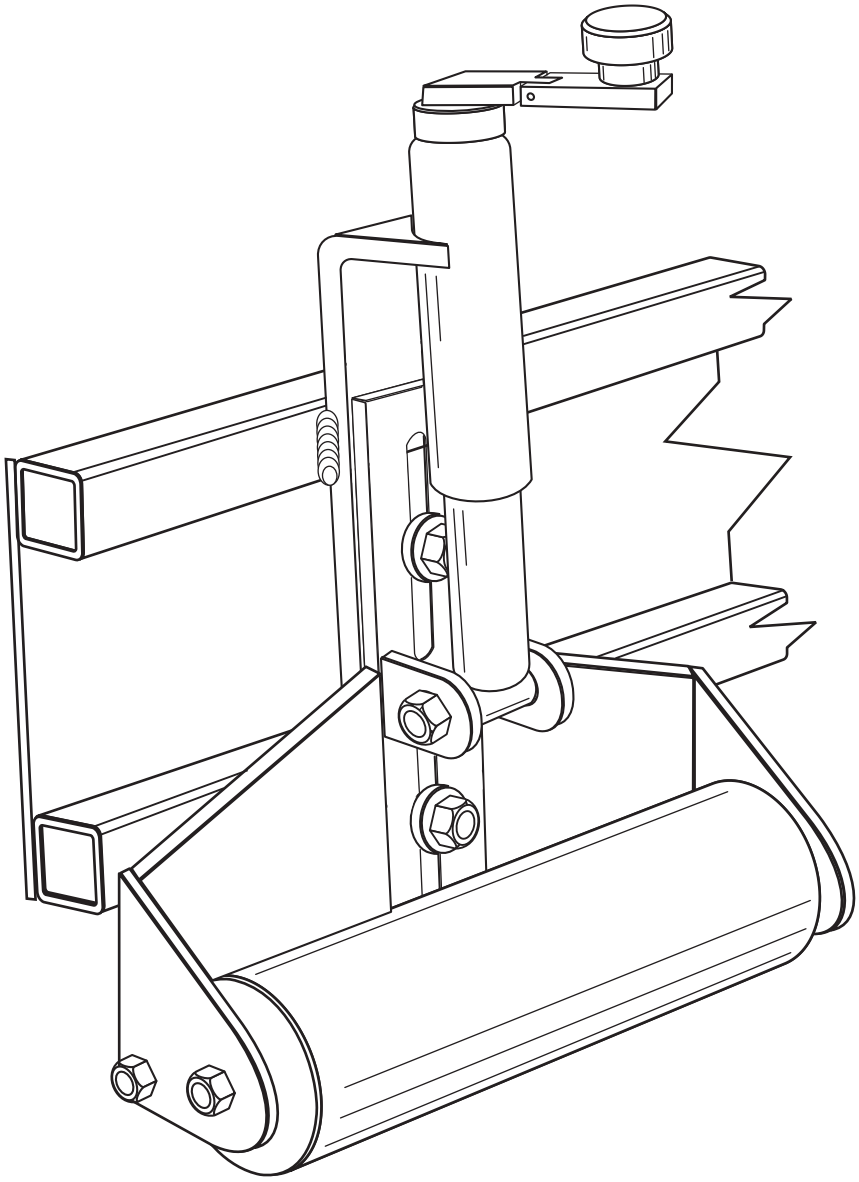


Figure 4

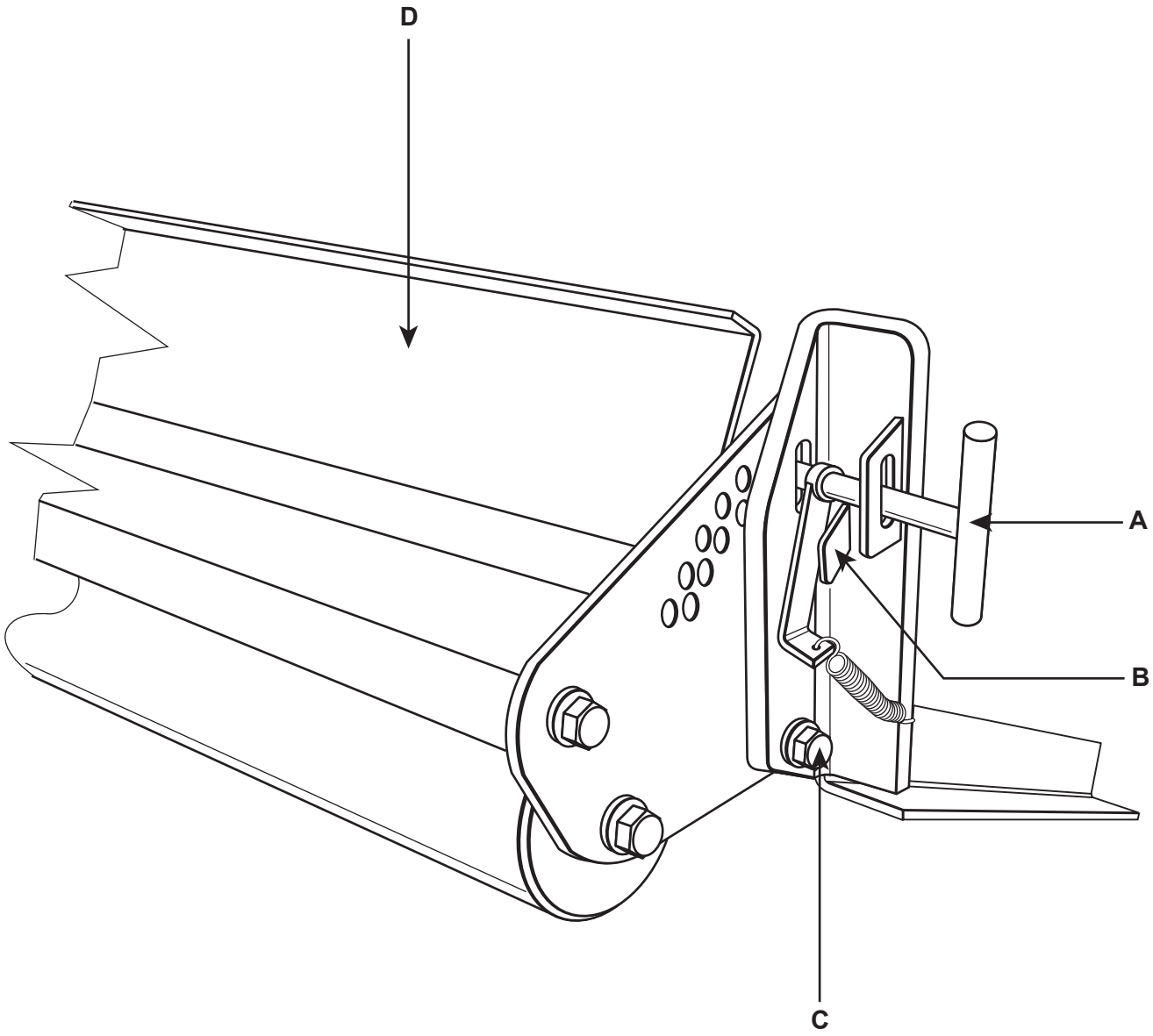


Figure 5

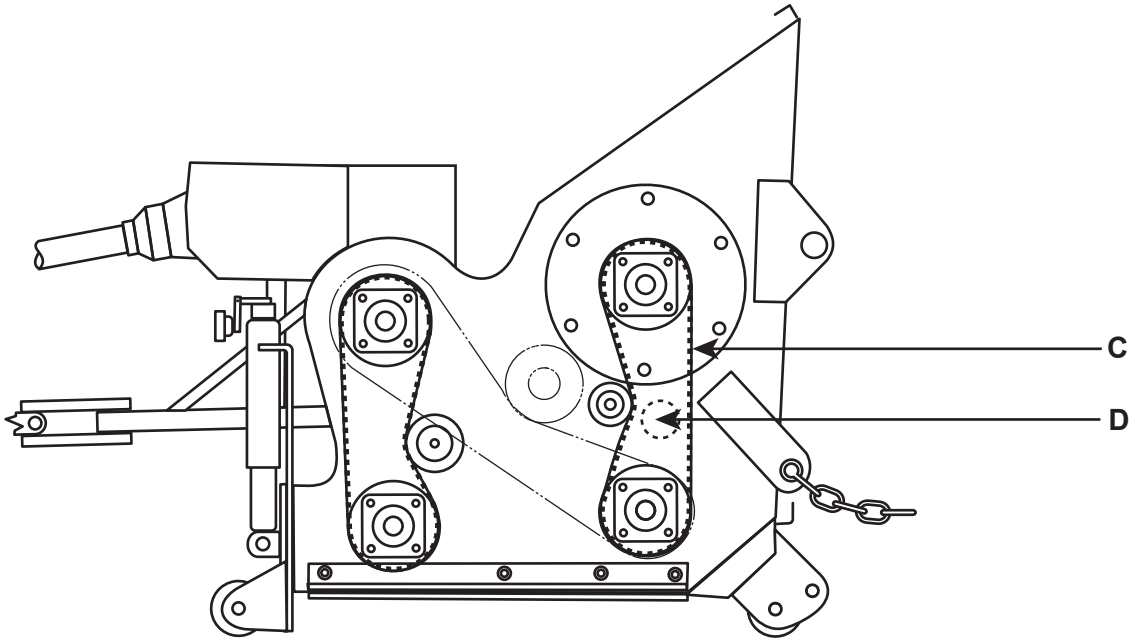
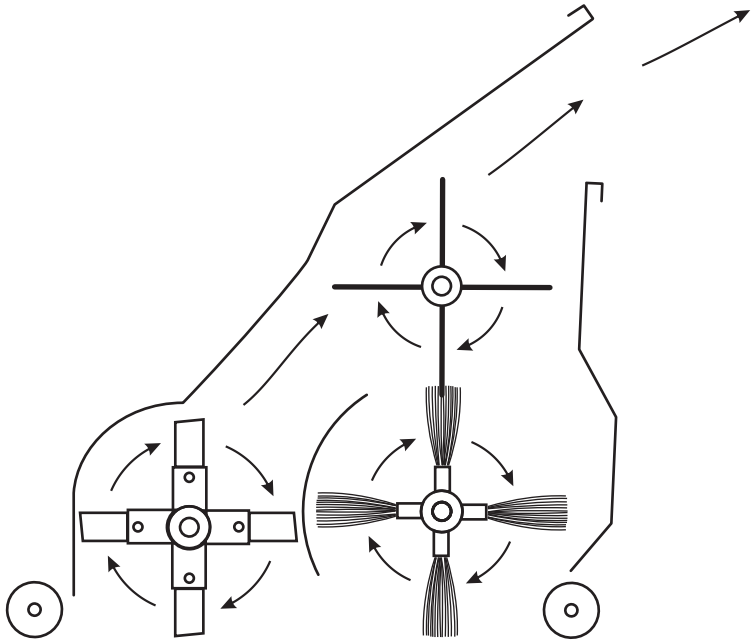


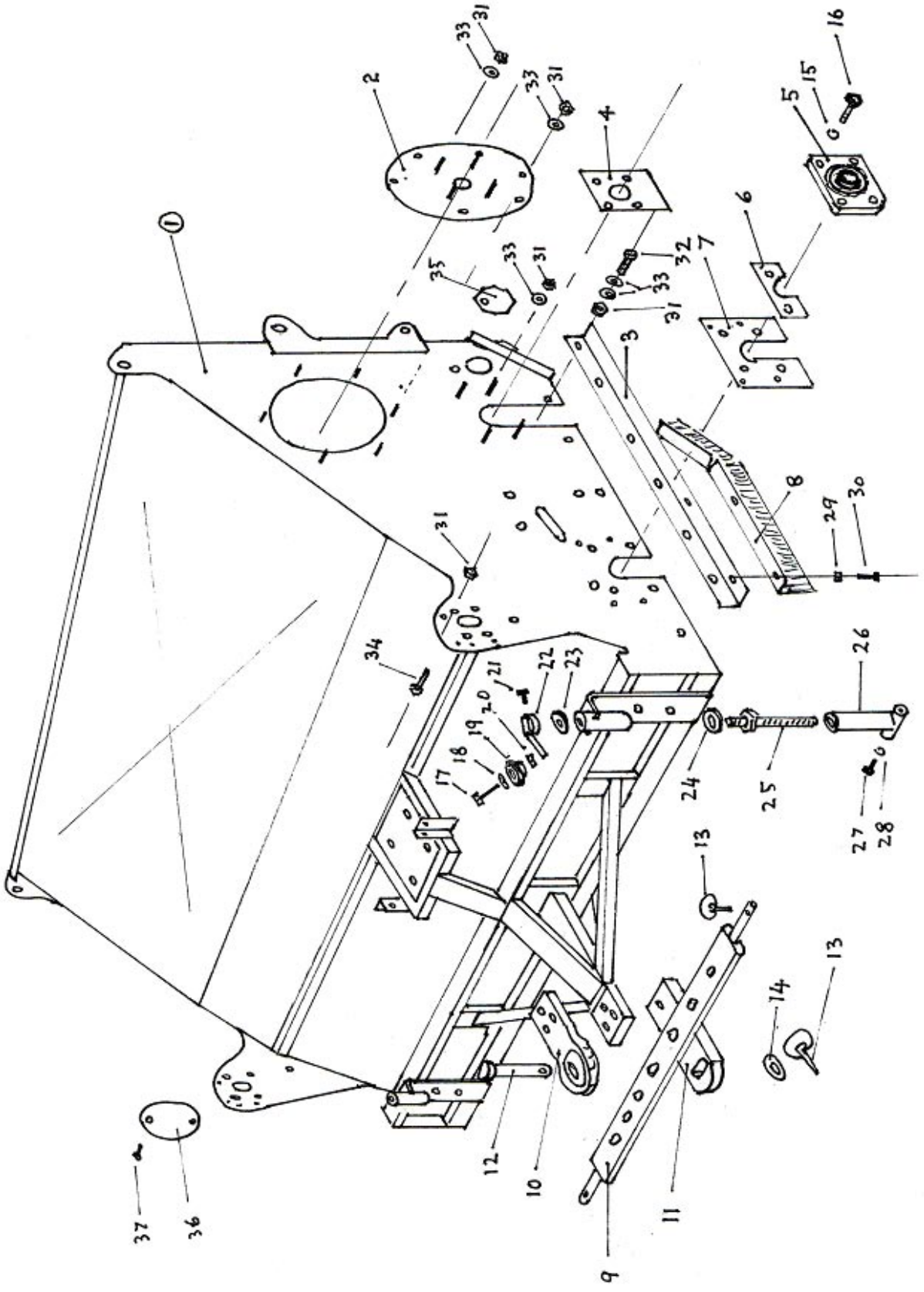
Figure 6



TTR3 Chassis Components

	Chassis Components	Quantity	Part #
1	Chassis	1	STT 100
2	Lift Rotor Loading Panel	1	STT 101
3	Chassis Tie Angle L.H.	1	STT 102
3a	Chassis Tie Angle R.H.	1	STT 103
4	Bearing Doubler Broom	1	STT 104
5	Bearing	8	STT 105
6	Rotor Bearing Doubler	2	STT 106
7	Rotor Bearing Anchor Nut Plate	2	STT 107
8	Broom Strip L.H.	1	STT 108
8a	Broom Strip R.H.	1	STT 109
9	Two Point Hitch Bar	1	STT 110
10	Upper Hitch Attach Assembly	1	STT 111
11	Lower Hitch Attach plate	1	STT 112
12	Hitch Pivot Pin	1	STT 113
13	Lynch Pin	3	STT 114
14	Hitch Pin Washer	1	STT 115
15	Spring Washer	8	STT 116
16	Rotor Bearing Bolt M10 x 30	8	STT 117
17	Bolt	2	STT 118
18	Washer	4	STT 119
19	Knob	2	STT 120
20	Lock Nut	2	STT 121
21	Handle Lock Screw	2	STT 122
22	Adjuster handle	2	STT 123
23	Nylon Thrust Washer Upper	2	STT 124
24	Nylon Thrust Washer Lower	2	STT 125
25	Jacking Screw	2	STT 126
26	Roller Adjustment Jack	2	STT 127
27	Bolt	4	STT 128
28	Washer	4	STT 129
29	Nyloc Nut 1/4	4	STT 130
30	Bolt 1/4 UNC x 5/8	4	STT 131
31	Nyloc Nut M10		STT 132
32	Bolt M10 x 20		STT 133
33	Washer M10		STT 134
34	Bolt M10 x 35		STT 135
35	Wash Down Access Cover	2	STT 136
36	Rotor Timing Inspection Cover	1	STT 137
37	Bolt 1/4 UNC x 1/2	2	STT 138

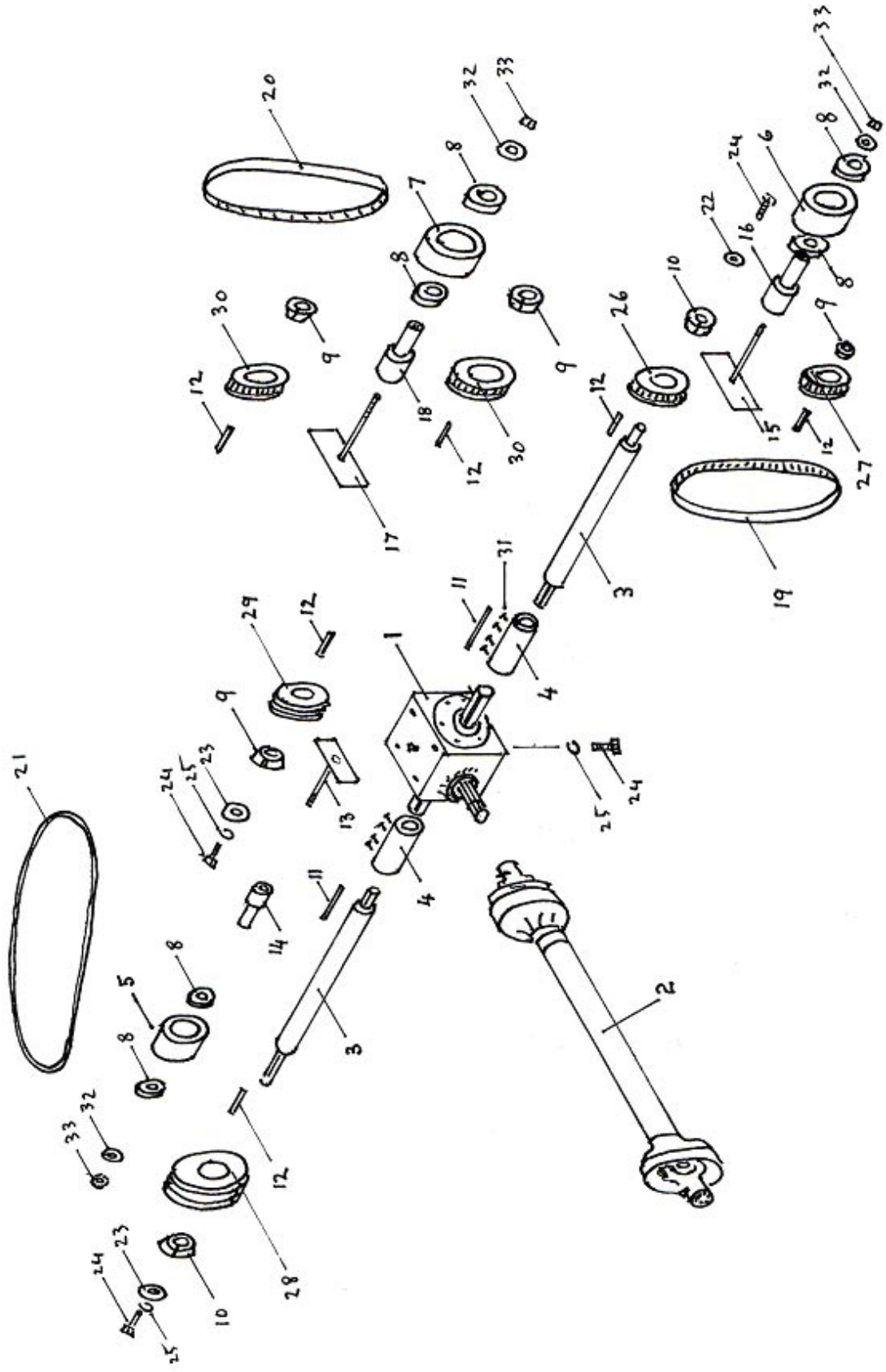
TTR3 Chassis Components



Rotor Drive Chain Components

	Rotor Drive Train Components	Quantity	Part #
1	Gear Box	1	STT 150
2	P.T.O. Shaft With Clutch	1	STT 151
3	Jack Shaft	2	STT 152
4	Drive Sleeve	2	STT 153
5	Broom Drive Tensioning Pulley	1	STT 154
6	Rotor Drive Tensioning Pulley	1	STT 155
7	Lift Rotor Tensioning Pulley	1	STT 156
8	Bearing	8	STT 157
9	Cone Lock	4	STT 158
10	Cone Lock	2	STT 159
11	Drive Key	2	STT 160
12	Key	6	STT 161
13	Broom Adjuster Slide Plate	1	STT 162
14	Support Post	1	STT 163
15	Rotor Adjuster Slide Plate	1	STT 164
16	Support Post	1	STT 165
17	Lift Rotor Adjuster Slide Plate	1	STT 166
18	Support Post	1	STT 167
19	Poly Chain	1	STT 168
20	Timing Belt	1	STT 169
21	“V” Belt	3	STT 170
22	Retainer Washer	2	STT 171
23	Retainer Washer	2	STT 172
24	Bolt M12 x 25 x 8.8	8	STT 173
25	Spring Washer M12	8	STT 174
26	Rotor Drive Pulley	1	STT 175
27	Rotor Pulley	1	STT 176
28	Broom Drive Pulley	1	STT 177
29	Broom Pulley	1	STT 178
30	Timing Pulley	2	STT 179
31	Lock Screw	8	STT 180
32	Retainer Washer	3	STT 181
33	Nyloc Nut M12	3	STT 182

Rotor Drive Chain Components



Scarifying, Broom and Assembly Parts

	Scarifying / Dethatch Rotor Parts	Quantity	Part #
1	Bare Scarifying Rotor	1	STT 001
2	Replaceable Weld On Blade Holder	54	STT 002
3	3mm Tungsten Tipped Scarifying Blade	54	STT 003
4	Blade Bolt	54	STT 173
5	M12 Nyloc nut	54	STT 182
6	Drive pulley Spacer	1	STT 004
7	Bare Dethatching Rotor	1	STT 005
8	Blade Disc	51	STT 006
9	Spacer	50	STT 007
10	Retainer Nut	1	STT 008
11	Blade Bolt	408	STT 009
12	Tungsten Tipped Dethatching Blade	204	STT 012
13	Nyloc nut 1/4 UNC	408	STT 130
14	Scarifying Rotor Complete	1	AD 95
15	Dethatching Rotor Complete	1	AD 97

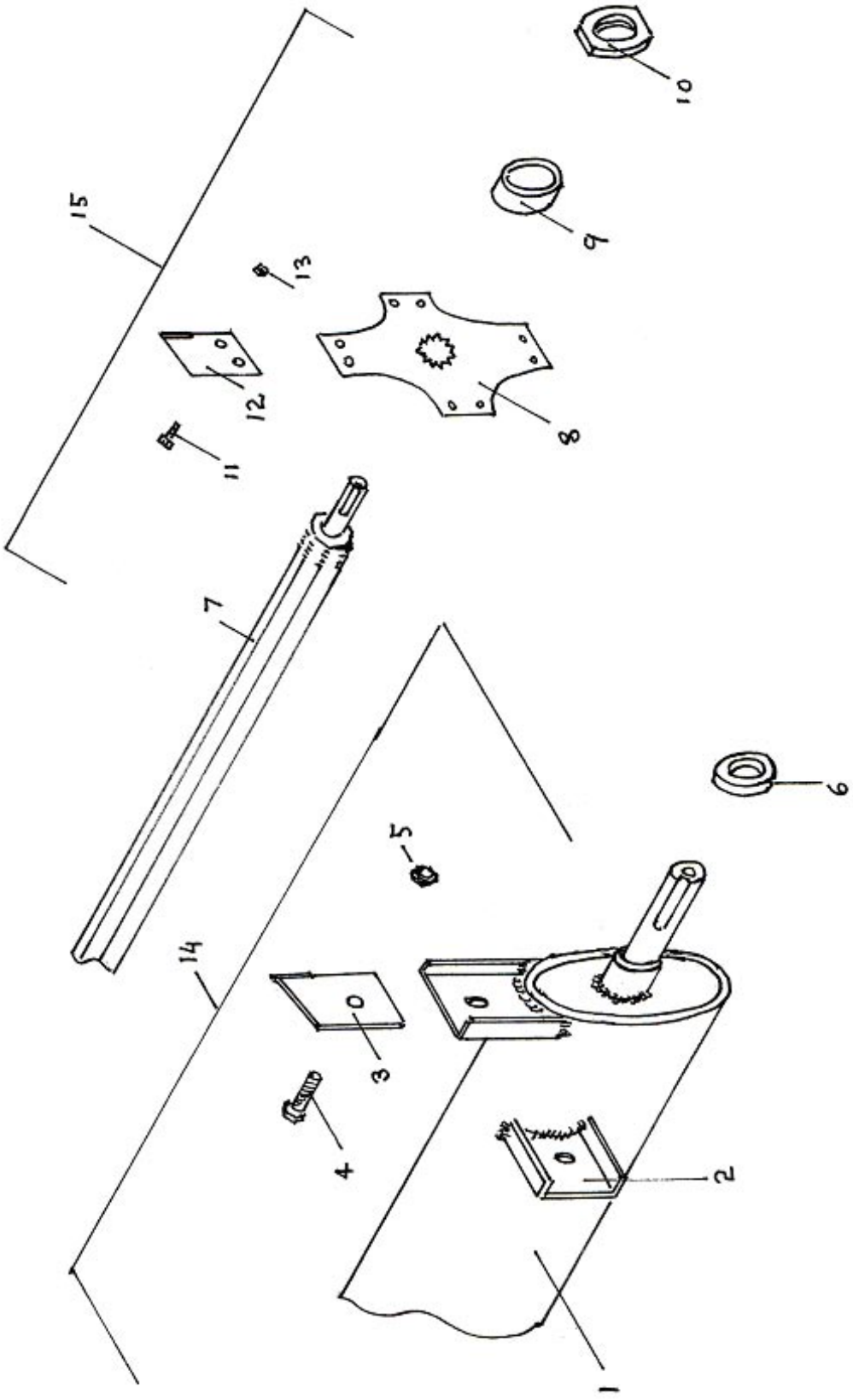
	Broom and Lift Rotor Parts	Quantity	Part #
1	Bare Broom Rotor	1	STT 010
2	Broom	4	STT 011
3	Broom Retainer Bolt	28	STT 013
4	Washer	56	STT 014
5	Nyloc 1/4 UNC	28	STT 130
6	Screw	72	STT 015
7	Bare Lift Rotor	1	STT 016
8	Retainer Strip	4	STT 017
9	Rubber Paddle	4	STT 018

	Roller Assembly Parts	Quantity	Part #
1	Rear Roller	1	STT 019
2	Rear Scraper	1	STT 020
3	Rear Axle	1	STT 021
4	Bearing	4	STT 157
5	Bolt M12 x 25 x 8.8	6	STT 173
6	M12 Spring Washer	6	STT 174
7	Front Roller	2	STT 022
8	Front Axle	2	STT 023
9	Front Scraper	2	STT 024
10	Roller Mount	2	STT 025

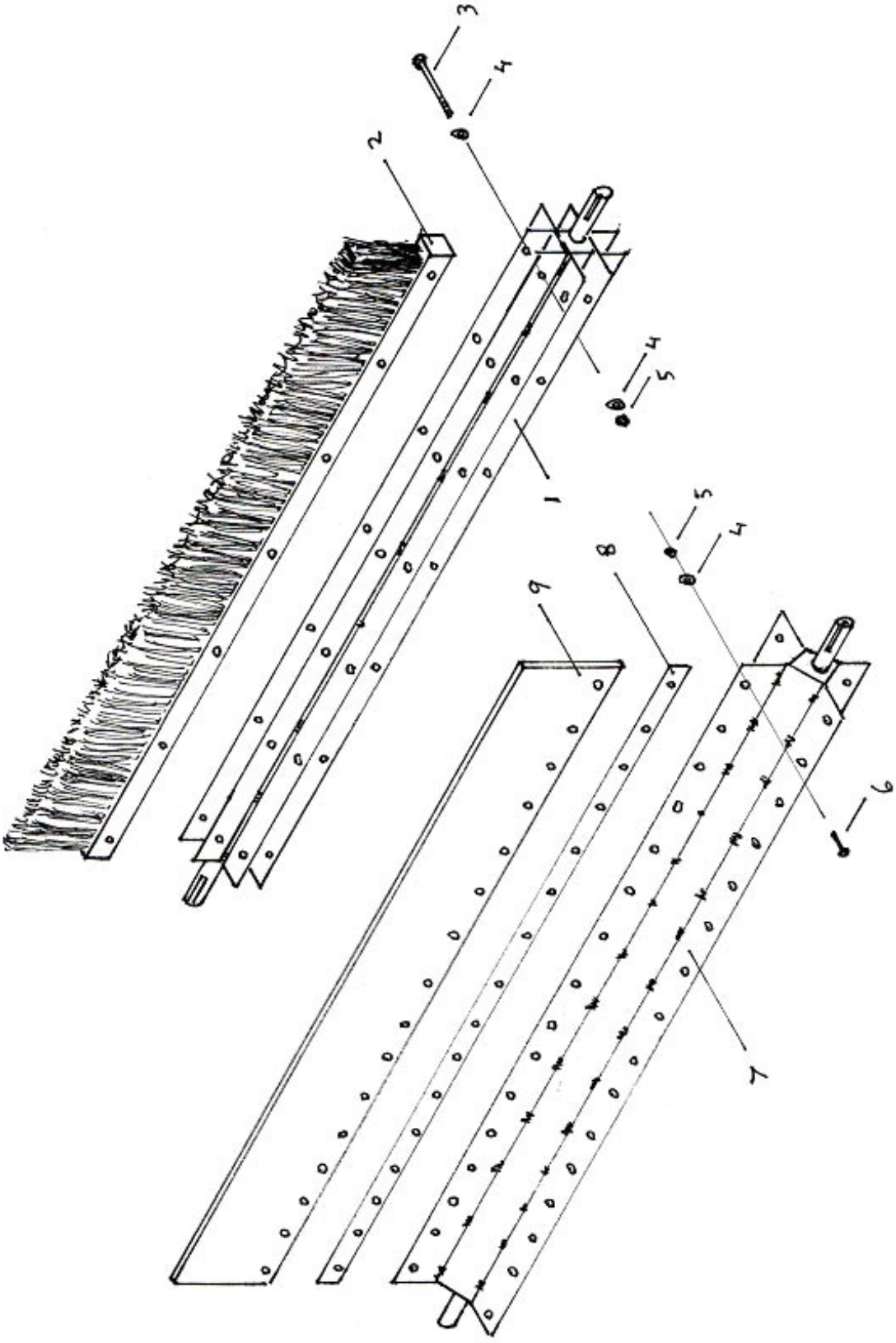
Scarifying, Broom and Assembly Parts Continued

	Chassis Components	Quantity	Part #
11	Nyloc Nut M8	4	STT 026
12	Washer M8 Flat	4	STT 027
13	Retainer Strip Front Seal	2	STT 028
14	Front Strip Seal	1	STT 029
15	Bolt 1/4 x 1/2 UNC	10	STT 030
16	Washer 1/4 Spring	10	STT 031
17	Roller Adjustment Quadrant	2	STT 032
18	Pivot Bush	2	STT 033
19	Pivot Bolt	2	STT 034
20	Adjuster Lock Lever	2	STT 035
21	Grub Screw	2	STT 036
22	Adjuster Handle	2	STT 037
23	Lock Spring	2	STT 038
24	Slide Ferrule	4	STT 049
25	Retainer Washer	4	STT 171
26	Bolt M12 x 35 x 8.8	4	STT 050

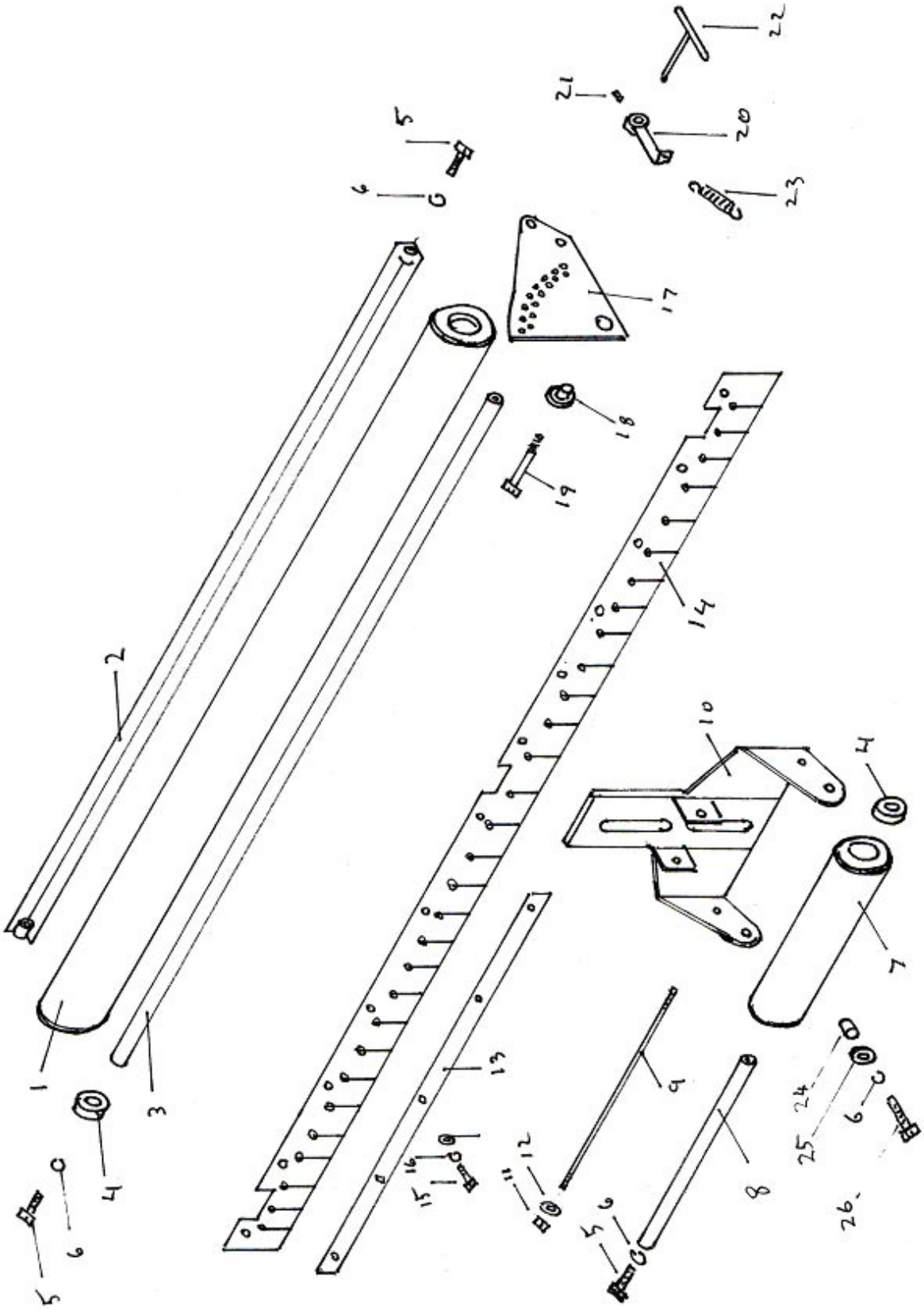
Scarifying and Detach Rotors



Broom and Lift Rotor



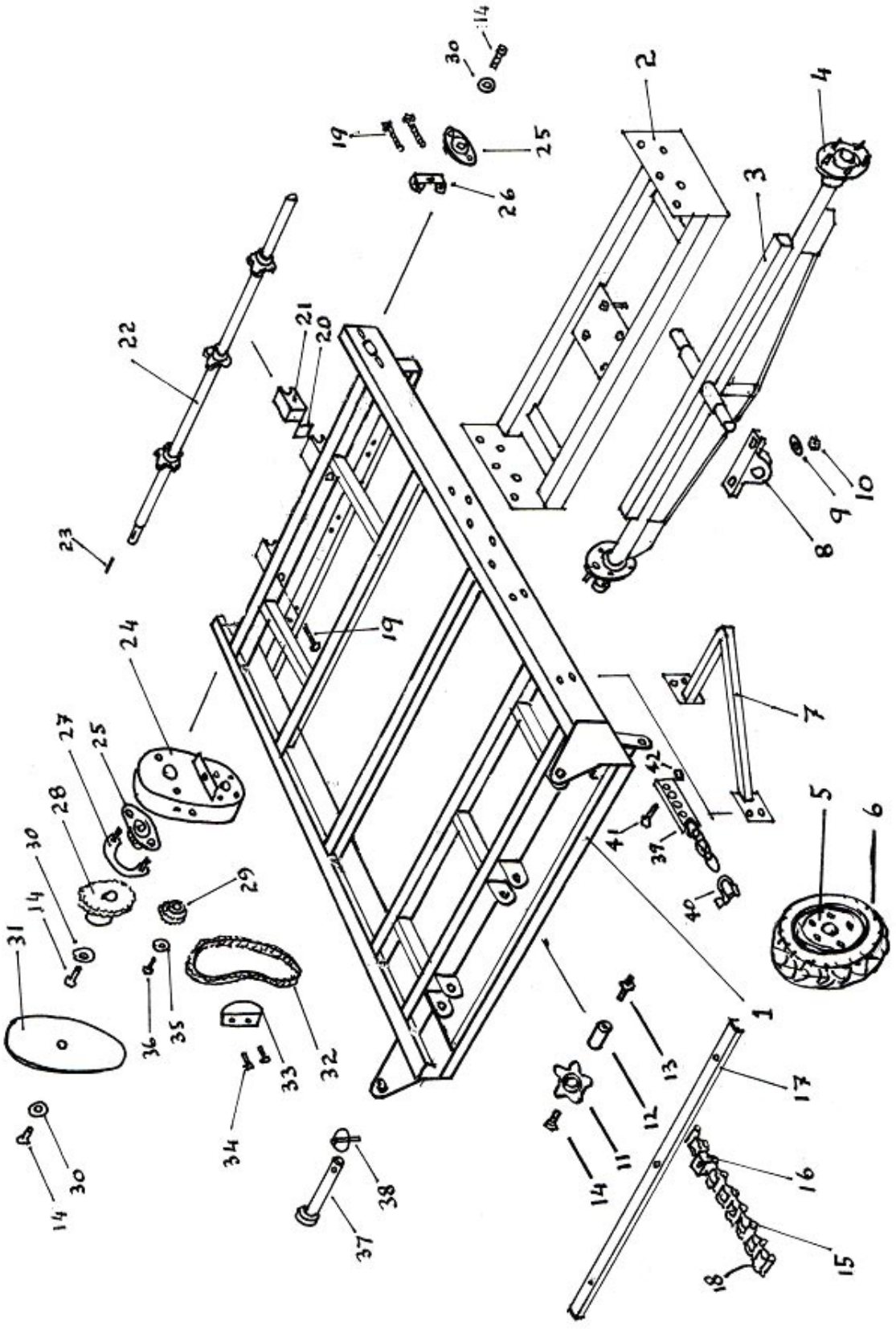
Roller Assemblies



Hopper Chassis Components

	Chassis Components TTR3 with 4 cu. yd. Hopper	Quantity	Part # AD 96
1	Chassis	1	STT 201
2	Axle Mount	1	STT 202
3	Swing Axle	1	STT 203
4	Hub	2	STT 204
5	Wheel	2	STT 205
6	Tire	2	STT 206
7	Bumper	2	STT 207
8	Axel pivot bearing	2	STT 208
9	Retainer Washer	4	STT 209
10	Nut 1/2 UNF Nyloc	4	STT 210
11	Idler Sprocket	3	STT 211
12	Idler Sprocket Shaft	3	STT 212
13	Retainer Bolt with Grease Nipple	3	STT 213
14	Retainer bolt M12 x 25	6	STT 214
15	Floor Chain Complete	3	STT 215
16	Floor Chain Scraper Attach Link	33	STT 216
17	Scraper Bar	11	STT 217
18	Floor Chain Plain Link	246	STT 218
19	Chain Adjusting Screw	6	STT 219
20	Thrust Plate	2	STT 220
21	Thrust Bearing	2	STT 221
22	Drive Shaft Assembly	1	STT 222
23	Drive key	1	STT 223
24	Chain Case	1	STT 224
25	Drive Shaft Bearing	2	STT 225
26	Bearing Adjuster	2	STT 226
27	Bearing Bolt Anchor Plate	1	STT 227
28	Shaft Drive Sprocket	1	STT 228
29	Drive Sprocket	1	STT 229
30	Retainer Washer	3	STT 230
31	Cover	1	STT 231
32	Chain	1	STT 232
33	Tensioner	1	STT 233
34	Bolt	2	STT 234
35	Retainer Washer	1	STT 235
36	Bolt	1	STT 236
37	Hopper Attach Pin	2	STT 237
38	Lynch Pin	2	STT 238
39	Hopper Attach Chain	2	STT 239
40	“D” Shackle	2	STT 240
41	Bolt	2	STT 241
42	Nut	2	STT 242

Hopper Chassis Components



Hopper Panels, Hydraulics, Covers and Shields

	Hopper Panels	Quantity	Part #
	Hopper Complete		**AD 92**
1	Floor Sheet	1	STT 250
2	R.H. Side Sheet	1	STT 251
3	L.H. Side Sheet	1	STT 252
4	Front Roof Sheet	1	STT 253
5	Rear Roof Sheet	1	STT 254
6	Filter mesh	1	STT 255
7	Mesh Cover Strip	2	STT 256
8	Door Panel	1	STT 257
9	Upper Door Seal	1	STT 258
10	Seal Clamp Strip	1	STT 259
11	Lower Door Seal	1	STT 260
12	Seal Clamp Angle	1	STT 261
13	Front Panel	1	STT 262
14	Inlet Chute	1	STT 263
15	Chain Floor Seal	1	STT 264
16	Hinge Pivot	2	STT 265
17	Hinge Arm	2	STT 266
18	Washer	2	STT 267
19	Retainer Washer	2	STT 230
20	Bolt M12 x 25	2	STT 214

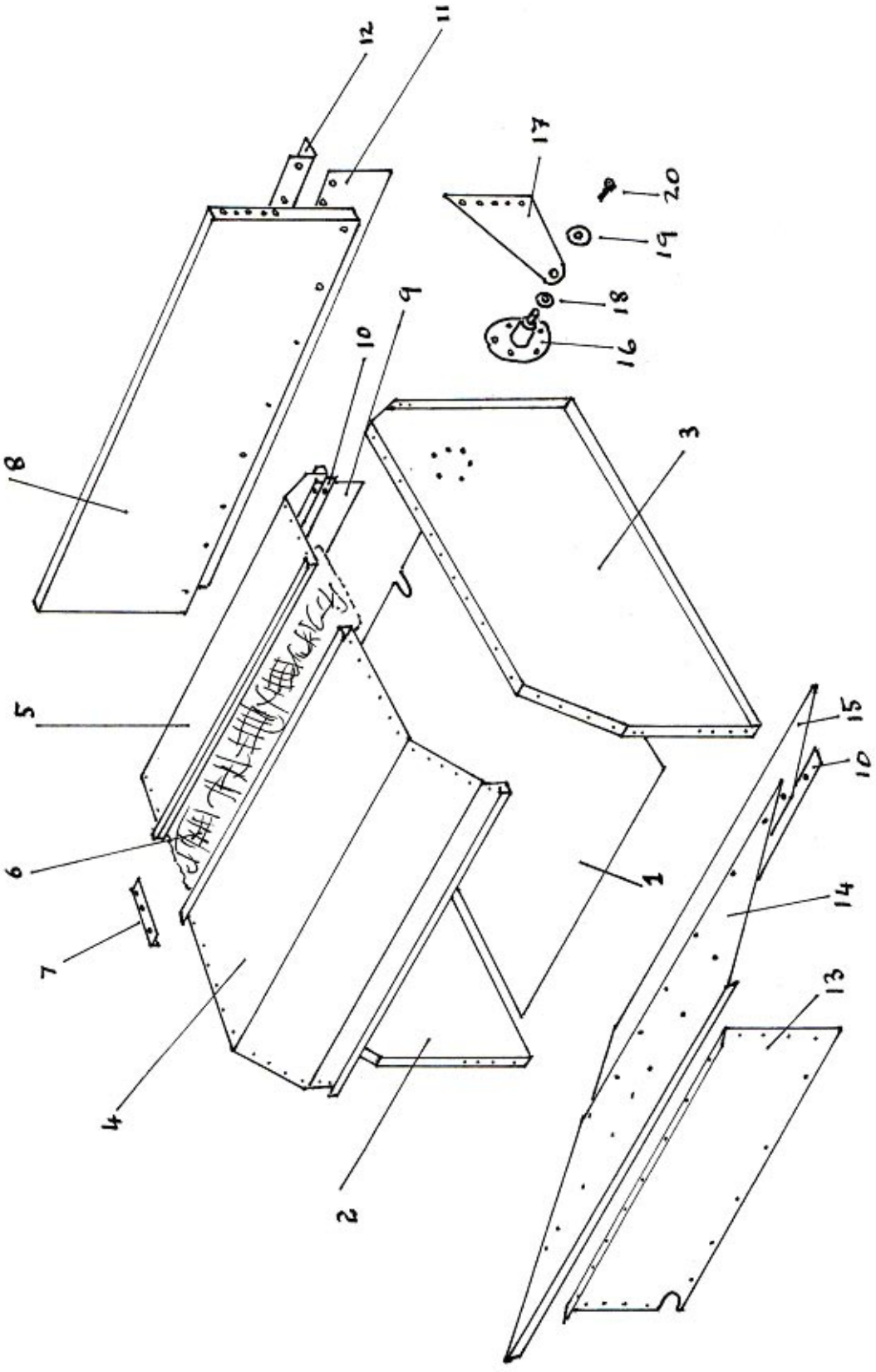
	Hydraulic Components	Quantity	Part #
1	Hydraulic motor	1	STT 270
2	Key	1	STT 271
3	Mount Bolt	4	STT 272
4	Return Fitting	1	STT 273
5	Inlet Fitting	1	STT 274
6	Non Return Valve	1	STT 275
7	Inlet Hose Complete	1	STT 276
8	Return hose Complete	1	STT 277
9	Quick Disconnect	2	STT 278
10	Inlet Dust Cover Red	1	STT 279
11	Return Dust Cover Green	1	STT 280

	Input Drive Train Covers	Quantity	Part #
1	R.H. Jack Shaft Cover	1	STT 039
2	L.H. Jack Shaft Cover	1	STT 040

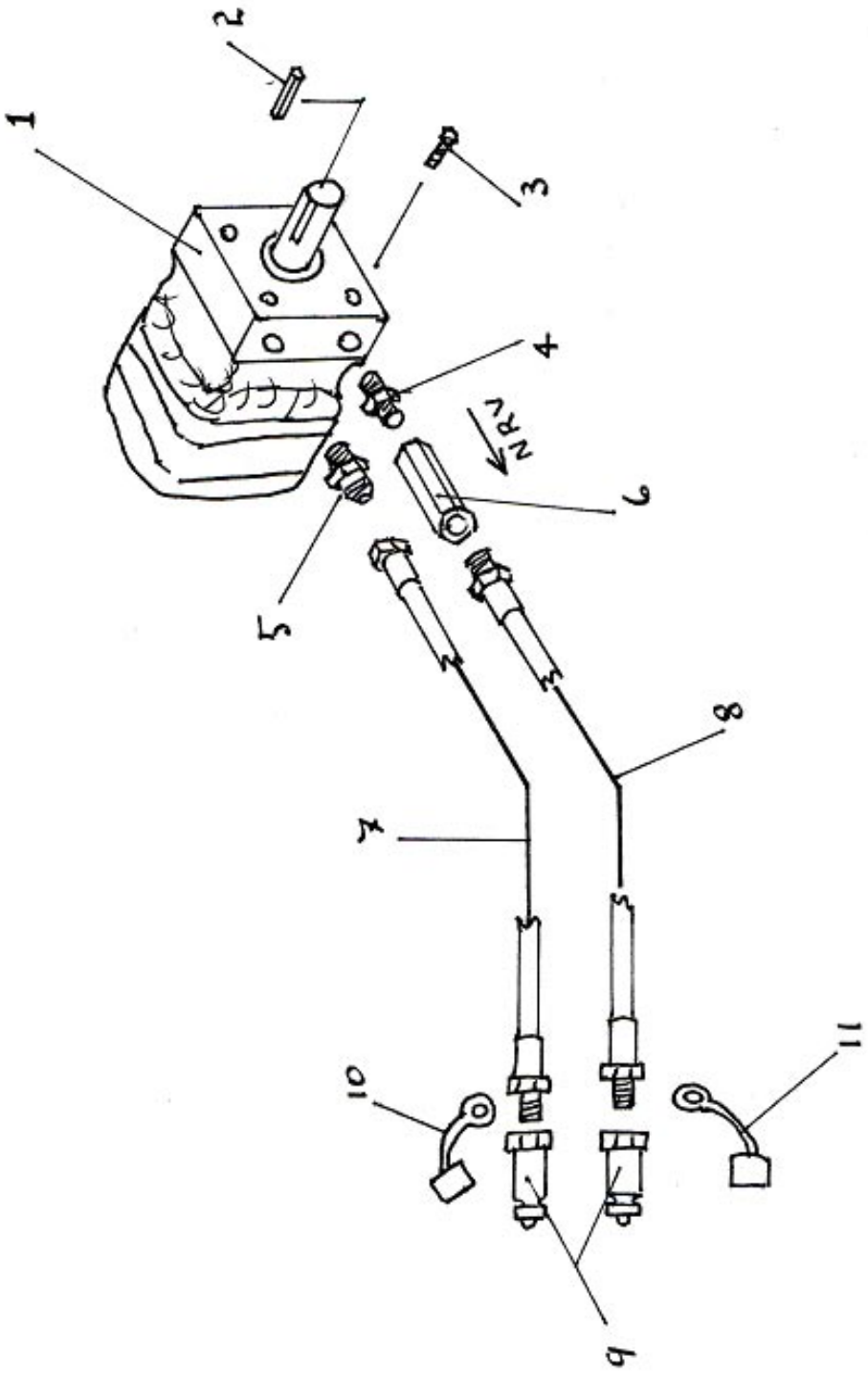
	Input Drive Train Covers	Quantity	Part #
3	P.T.O. Safety Cover	1	STT 041

	Belt Covers and Shields	Quantity	Part #
1	Rear Broom Deflector Shield	1	STT 042
2	Front Broom Deflector Shield	1	STT 043
3	Broom Drive Cover	1	STT 044
4	Rotor Drive Cover	1	STT 045
5	Lift Rotor Drive Cover	1	STT 046
6	Cover Mount Post	5	STT 047
7	Cover Mount Post	3	STT 048
8	Bolt M12 x 25 x 8.8	16	STT 173
9	Spring Washer M12	16	STT 174
10	Retainer Washer		STT 235

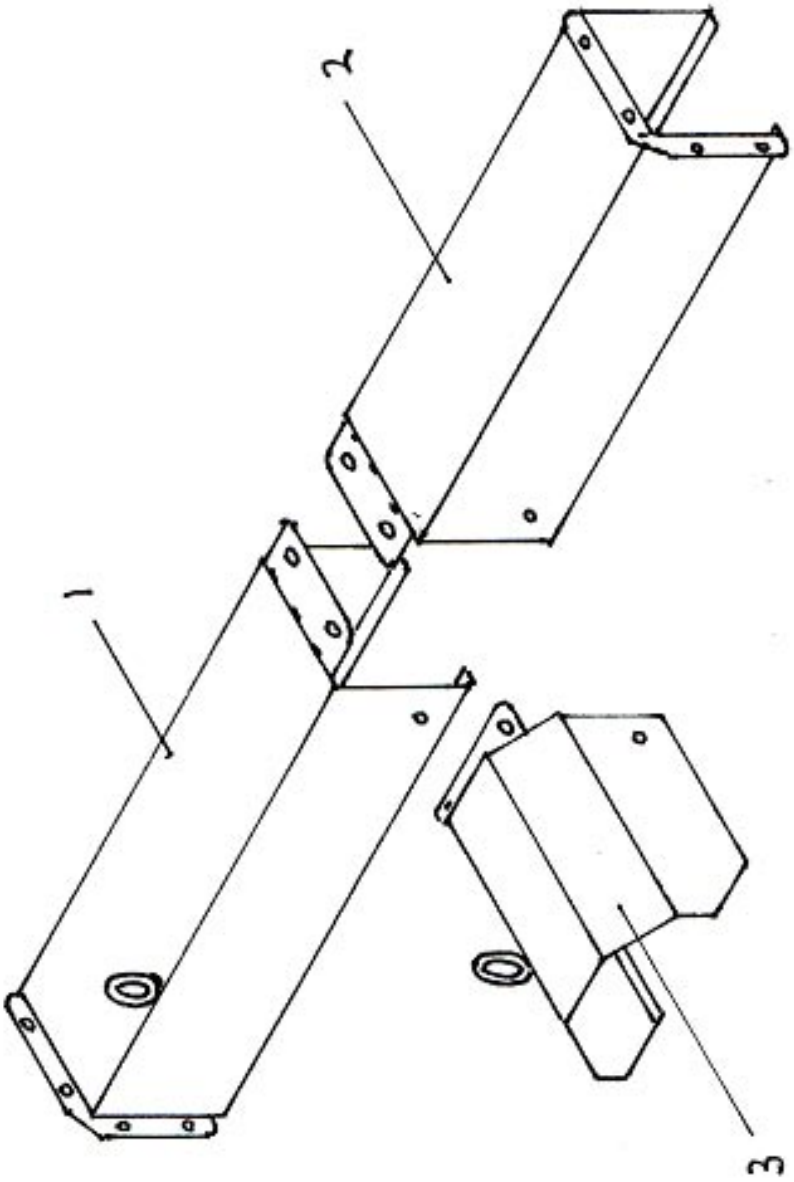
4 Cu Yd Hopper Panels



4 Cu Yd Hopper Hydraulic Components



Covers Input Drive Train



Belt Covers and Shields