

BARTELL

CONCRETE EQUIPMENT

INSTRUCTION MANUAL & PARTS BOOK

TS96 RIDE-ON TROWEL



POWERFUL - EFFICIENT - DEPENDABLE

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TS96 RIDE-ON TROWEL INSTRUCTION MANUAL

SAFETY PRECAUTIONS	
	<p style="text-align: center;"> DANGER</p> <p>EXPLOSION HAZARD Never operate the machine in an explosive atmosphere, near combustible materials or where ventilation does not clear exhaust fumes.</p>
	<p style="text-align: center;"> WARNING</p> <p>BURN HAZARD Never come into contact with the engine or muffler when engine is operating or shortly after it is turned off. Serious burns may occur.</p>
	<p style="text-align: center;"> WARNING</p> <p>ROTATING HAZARD Never place hands or feet inside safety guard rings. Serious injury will result from contact with rotating blades.</p>
	<p style="text-align: center;"> CAUTION</p> <p>MOVING PARTS Before starting the machine ensure that all guards and safety devices are in place and functioning properly.</p>
	<p style="text-align: center;"> ATTENTION</p> <p>READ OWNERS MANUAL Read and understand operator's manual before using this machine. Failure to follow operating instructions could result in serious injury or death.</p>

TS96 RIDE-ON TROWEL INSTRUCTION MANUAL

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QUALITY ASSURANCE / MACHINE BREAK IN

The Bartell Ride-on Trowel is the product of extensive engineering development designed to give long life and unmatched performance. Once machines are fully assembled, a run-in test is performed to ensure quality standards of the highest level. A series of operational tests are conducted on concrete, incorporating a phase of operations at 1/2 to 3/4 throttle for a minimum of 20 minutes and a final run phase at full throttle for a minimum of 25 minutes.

You can help ensure that your ride-on trowel will perform at top levels by observing a simple routing on first use. Consider that your new Ride-on Trowel is like a new car. Just as you would break in a new car to the road or any new machine to the job, you should start gradually and build up to full use. Learn what your machine can do and how it will respond. Refer to the engine manufacturer's manual for run-in times. Full throttle and control may be used after this time period, as allowed by material. This will serve to further break in the machine on your specific application, as well as provide you with additional practice using the machine.

We thank you for the confidence you have placed in us by purchasing a Bartell Ride-on Trowel and wish you many years of satisfied use.

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RIDE-ON POWER TROWEL WARRANTY

Bartell Morrison Inc. agrees to furnish without charge, F.O.B. our plant, a replacement for any part or portion thereof, comprising the drive train of the Bartell Ride-on Power Trowel, consisting of the drive shaft assembly and the gear case assemblies, save and except drive belts, power units, and/or bearing or electrical controls which prove upon our examination, to be defective in either material or workmanship within a period of twelve (12) months from date of purchase, provided that notice of such defective part or portion thereof is given to Bartell Morrison Inc. within the twelve month warranty period. No further or other guarantee or warranty expressed or implied in connection with the sale of the Ride-on Power Trowel is given and our sole liability consists in replacing defective parts or portions thereof. We shall not be responsible for any special, indirect or consequential damages arising in any manner whatsoever.

This guarantee is for the sole benefit of the original purchaser as end user. Our responsibility under this guarantee ends in the case the original purchaser transfers ownership of the Ride-on Power Trowel, makes any changes or adds any parts or devices not of our manufacture to the Ride-On Power Trowel.

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MAINTENANCE RECORD

PREVENTATIVE MAINTENANCE AND ROUTINE SERVICE PLAN

This Bartell ride-on power trowel has been assembled with care and will provide years of service. Preventative maintenance and routine service are essential to the long life of your Bartell ride-on power trowel. Your dealer is interested in your new trowel and has the desire to help you get the most value from it. After reading through this manual thoroughly you will find that you can do some of the regular maintenance yourself. However, when in need of parts or major service be sure to see your Bartell dealer. For your convenience we have provided this space to record relevant data about your ride-on Trowel. When in need of parts or service be prepared to provide your trowel serial number. Locate the serial number now and record in the space below.

Date Purchased:		Type of Machine:	
Dealer Name:		Model:	
Dealer Phone:		Serial Number:	

REPLACEMENT PARTS USED				MAINTENANCE LOG	
PART NO.	QUANTITY	COST	DATE	DATE	OPERATION

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Routine Service Intervals		Each use	After 1.5 months or 50 hrs	Each 3 months or 100 hrs	Each 6 months or 200 hrs	Each 9 months or 300 hrs	Each 12 months or 400 hrs
General Inspection:							
Operation of lights	Check		o	o	o	o	o
Battery	Clean & Check			o	o	o	o
	Recharge			o	o	o	o
	Replace						2 yrs
Guards	Check	o	o	o	o	o	o
Warning stickers	Check		o	o	o	o	o
Test run:	Check operation		o	o	o	o	o
Controls:							
Dead-man switch operation	Check	o	o	o	o	o	o
Throttle pedal operation	Check	o	o	o	o	o	o
Steering linkages	Check	o	o	o	o	o	o
	Lubricate		o	o	o	o	o
	Replace						As req'd
Pitch control levers	Check	o	o	o	o	o	o
	Lubricate		o	o	o	o	o
Joystick controls	Check	o					
Hydraulic system	Check levels			o	o	o	o
	Check hoses			o	o	o	o
	Replace hoses						2 yrs
Engine:							
Fuel pipes & clamps	Check		o	o	o	o	o
	Replace						2 yrs
Engine oil	Check Level	o	o	o	o	o	o
	Change		o		o		o
Engine oil filter	Replace				o		o
Oil cooler	Clean			o	o	o	o
Cooling Fins	Clean		o	o	o	o	o
Air cleaner	Check - clean	o	o	o	o	o	o
	Replace						o
Air Intake Line	Check				o		
	Replace						2 yrs
Fan Belt	Check tightness				o		o
	Replace						500 hrs
Valve clearance	Check-adjust				o		o
Fuel filter	Check & Clean			o	o	o	o
	Replace				o		o
Fuel Tank	Clean						500 hrs
Fuel Injection Nozzles	Check pressure						500 hrs
Fuel Injection Timer	Check						500 hrs
Injection Pump	Check						500 hrs
Engine wiring	Check						o

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Routine Service Intervals - Continued -		Each use	After 1.5 months or 50 hrs	Each 3 months or 100 hrs	Each 6 months or 200 hrs	Each 9 months or 300 hrs	Each 12 months or 400 hrs
Drive Train:							
Bearings	Lubricate	o	o	o	o	o	o
Universal couplings	Lubricate			o	o	o	o
Belt tension / Condition	Check	o	o	o	o	o	o
Clutch / Pulley operation	Check	o	o	o	o	o	o
LH spider plate ass'm	Check	o		o	o	o	o
	Lubricate	o	o	o	o	o	o
RH spider plate ass'm	Check	o		o	o	o	o
	Lubricate	o	o	o	o	o	o
Gearboxes:							
LH Gearbox oil	Check Level	o	o	o	o	o	o
	Change	o			o		o
RH Gearbox oil	Check Level	o	o	o	o	o	o
	Change	o			o		o
Gearbox breathers	Check operation			o	o	o	o
Retardant Spray System:							
Water pump operation	Check	o	o	o	o	o	o
Spray nozzles	Clean	o					
Retardant Fluid	Check levels	o					

Due to the nature and environment of use, power trowels are exposed to severe operating conditions. Some general maintenance guidelines will extend the useful life of your trowel.

- The initial service for your power trowel should be performed after 25 hours of use, at which time your mechanic (or authorized repair shop) should complete all of the recommended checks in the schedule above. The chart on page 6 (six) is handy for keeping a record of the maintenance performed and the parts used for servicing your trowel.
- Regular service according to the schedule above will prolong the life of the power trowel and prevent expensive repairs.
- Keeping your power trowel clean and free from concrete residue is the single most important regular maintenance operation, over and above the checks in the service schedule above, that can be performed. Components such as oil seals, belts, drive line parts and bearings are prone to premature wear from exposure to concrete residue. Using a spray-on non-stick coating on your power trowel before each use will make clean-up after use easy and extend the time between replacement of most of the wearing components of the machine.
- After each use your power trowel should be cleaned to remove any concrete residue from the undercarriage and surrounding components. Use of a power washer will make clean up quick and easy, especially if a non-stick coating was applied prior to use.
- In the Service Schedule above, items that should be checked, replaced or adjusted are indicated by "o" in the appropriate column. Not all power trowel models include the same features and options and as such not all service operations may have to be performed. For ease of recording place a checkmark (✓) through the "o" when the item is complete. If an item is not required or not completed place an "x" through the "o" in the box.
- For all fuel-line powered trowels the governed speed of the engine is 2000 to 3600 rpm. See engine manufacturer's manual for exact specifications. Care should be used when making any adjustments to the power trowel not to change the governed speed. Increasing the governed speed of the engine may lead to premature failure and void the manufacturer's warranty.
- Failure to have your power trowel regularly serviced and properly maintained in accordance with the manufacturer's instructions will lead to premature failure and void the warranty.

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FOREWORD

It is important that the following be read carefully in order that the operational performance of the Bartell RIDE-ON Trowel be fully understood. Proper maintenance procedures will ensure long life and top performance of the unit.

SAFETY PRECAUTIONS

- Always keep unauthorized, inexperienced, untrained people away from this machine.
- Rotating and moving parts will cause injury if contacted. Make sure guards are in place. Keep hands and feet away from moving parts.
- Fuel the machine only when the engine is stopped, using all necessary safety precautions.
- The engine must always be stopped before attempting any repair or adjustments. Ignition key should be off. **Danger: Never operate the machine in an explosive atmosphere, near combustible materials or where ventilation does not clear exhaust fumes. Repair fuel leaks immediately. Refer to your engine owner's manual for more safety instructions.**
- Be careful not to come in contact with the muffler when the engine is hot, serious burns may result!
- Always operate the machine in a seated position to maintain machine balance.
- **The transporter is designed for moving the unit around the job site only. It is not to be used for towing the Ride-On unit off-site.**
- When starting the trowel, do not exceed the 1/4 throttle position as recommended. A higher setting could cause the centrifugal clutch to engage, activation the trowel blades.
- Be careful with the trowel around stub pipes or other obstructions on the floor. Should the machine catch, or hit such an obstruction, serious damage may result to the machine, or operator may be thrown from the machine.
- Excess surface water may result in sudden loss of control of steering.
- Disconnect battery before attempting any electrical maintenance.
- Ensure that the electrical dead-man switch, located under the left foot pedal is operating. Placing your left foot flat on the pedal will engage the safety switch. Removing your foot from the pedal will disengage the safety switch and stop the engine. The engine will not start unless the safety switch is depressed. This safety feature must be used as designed.

ASSEMBLY INSTRUCTIONS

Your new Bartell Ride-On Trowel has been shipped to you partially disassembled. To prepare for operation use the following instructions:

1. BATTERY – SHIPPED DRY – NO ACID

Connect and secure the battery cables before attempting starting procedures.

2. STEERING HANDLE ASSEMBLY

The steering handles are shipped ready to connect. Position the handles over the handle sleeves so that the set-screws (2 per handle) are lined up with the tapped holes on the sleeves. Tighten the set-screws and test the mobility of the handles.

3. PITCH CONTROL ASSEMBLY

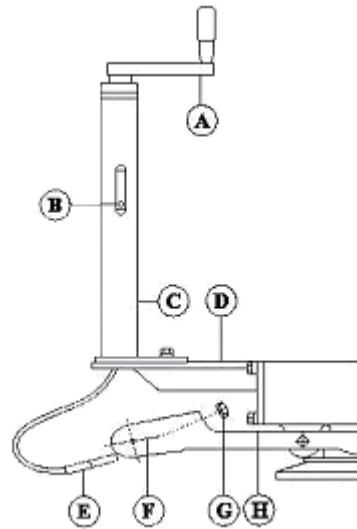


Figure 1a.

Bolt pitch control tube (C) to pitch control bracket (D) with bolts provided. Put cable end (E) through yoke arm (F) and secure with nylon insert locknut (G). For proper cable adjustment, turn crank (A) counter-clockwise to the stop position. Tighten nut (G) until all slack in the cable is removed. If more than 2 or 3 threads show through the nut, it should be turned back and the guide screw (B) moved to the next lower hole. Tension in the cable should then be readjusted. After adjusting tension, turn hand crank full clockwise (ABOUT 24 TURNS) and check for clearance between the yoke arm (F) and the gear box at point (H). There should be enough space to pass a business card through but not more than 1/8 inch.

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4. SEAT ASSEMBLY

Remove protective wrapping from seat. The seat is now ready to secure to the frame using included washers and hex nuts. If the seat adjuster is ordered, the slider bars must be positioned between the seat and the frame using included screws to secure the seat to the sliders, and then securing the sliders to the frame as indicated above.

5. TRANSPORTER ASSEMBLY

The components of the are detailed in the parts drawing within this manual (pg. 34). The assembly of the transporter consists of only the wheel and pin, and the main transporter body. This transporter is shipped with very little assembly required.

CAUTION:

The transporter is designed to be used on the job site only. Do not use the transporter to tow the machine off-site.

OPERATING INSTRUCTIONS

1. STARTING PROCEDURES

* WARM TEMPERATURES

- Prior to starting the trowel, check the engine and gearbox oil levels. Be sure the fuel tank is full. Fuel is not shipped with the unit. Before attempting to start, fill the fuel tank. Check engine and gearbox oil levels. **WARRANTY IS VOID IF RUN WITHOUT OIL.** Fill tank with safety approved fuel containers. **DO NOT MIX OIL WITH FUEL.**
- Maintain left foot pressure on the dead-man safety switch. Engine will disengage and stop if safety switch is released. Do not tape, tie-down, or otherwise attempt to bypass safety device.
- Turn ignition key all the way. Allow engine to warm up before proceeding with full trowel operation.

2. STARTING PROCEDURES

* COLD TEMPERATURES

Follow same procedure as above but allow for a longer warm up period 3-5 min. (In cold weather oil is much heavier to move. Extra time is required to heat the oil.)

3. TO STOP ENGINE

- Bring throttle to low idle, wait a few seconds.
- Remove left foot from dead-man safety switch.
- Turn off ignition key.

4. STEERING

Guiding the machine on the slab is quite simple but does require some familiarity before actually working with the machine. The controls respond as shown in *figure 2a* below. Test the machine on a finished section of the floor, with the blades in a flat position, and the engine at a low revolution to gain the necessary feel for the steering.

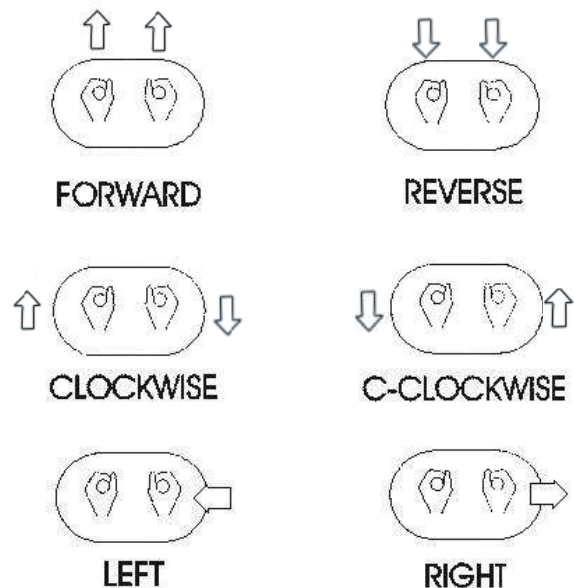


Figure 2a.

For straight line movement, move both handles as one in the direction you wish to travel. Move the handles in opposite directions to produce rotation on the machines axis. Left handle forward, right handle backward for clockwise rotation. Left handle backward, right handle forward, for counter-clockwise rotation. Sideways direction is achieved by sideways movement of the right handle in the required direction of travel.

WARNING:

SERIOUS INJURY OR PROPERTY DAMAGE MAY RESULT DUE TO TEMPORARY LOSS OF CONTROL IF OPERATED WITH FRESH WATER ON THE CONCRETE SURFACE.

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5. FLOAT/TROWEL PITCH SETTING

Once you are familiar with the steering functions on a flat floor, you are ready to combine the steering with float/trowel pitch settings to produce the finish you require. The pitch adjustment feature of the Ride-on Trowel permits quick and accurate pitch changes of the finishing/float blades, without having to stop the machine. Turning the adjustment crank-handle at the end of the pitch control tubes enables you to change the pitch whenever necessary to allow for varying conditions over the slab surface. Each spider plate is adjusted independently. The pitch setting will affect the steering of your unit. Experiment with the settings as you test drive so you will know what to expect.

CAUTION:

Do not let the machine stand in one spot on the soft cement; This may place unnecessary strain on the clutch to break it free of the cement. If the unit has been sitting for any length of time, break it free from the concrete before attempting operation.

CAUTION:

When finishing concrete above grade, erect a situation barrier along the edge of the slab as a protective measure. The barrier should be such that it will stop the trowel from riding over the edge of the slab in case of loss of control.

6. BLADE SYNCHRONIZATION (SPECIALLY MODIFIED UNITS ONLY)

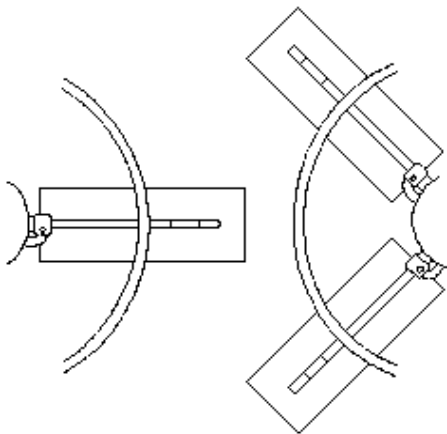


Figure 3a.

To avoid blades hitting, make sure spider plates are positioned as shown with respect to each other after performing any maintenance.

7. TRANSPORTER USE

CAUTION:

The transporter is designed to be used on the job site only, Do not use it to tow the machine off-site.

The transporter has pick-up brackets located on the inside of the wheels which should be positioned under the pick-up points on the frame. Before connection, the handle will be pointing upwards at approximately a 45 degree angle. Pull the handle down, engaging the transporter and secure the bracket and transporter to the frame by locking the handle bracket in the frame lock by means of the hitch pin. Using the handle as a lever, the ride-on may now be moved. To disconnect the transporter, follow the above steps in reverse.

MAINTENANCE INSTRUCTIONS

1. GENERAL

- Keep engine oil clean. Change according to engine manufacturer's specifications.
- Maintain the oil levels in the engine and gearbox assemblies. Change as required.
- Use only clean fuel in the engine.
- Check for loose nuts and bolts on the trowel and tighten as necessary.
- Check "V" belts for wear, replace if worn.
- Grease all fittings daily. See diagram.
- Clean the unit after every use to prevent hardening of sludge. Hard concrete is very difficult to remove, greatly increases weight and reduces efficient subsequent operation of unit.
- Check clutch linings regularly for wear. Linings should be changed when $\frac{3}{4}$ worn. Do not allow metal to metal contact as this will damage the clutch drum. (New lining is 8mm.)

2. AIR CLEANER

Maintaining a clean engine will extend engine life. Keep air filter clean at all times. Clean air filter using the recommended solvent daily. See engine manual for proper cleaning procedure. Let the filter dry before reinstalling.

3. SPARK PLUG

Check and clean spark plugs regularly. A fouled, dirty spark plug caused hard starting and poor engine performance. Set spark plug gap to recommended clearance. Refer to engine manual.

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4. BELT CHANGE PROCEDURE

Remove belt cover from the machine to expose the drive components. To change the primary (CVT) drive belt, the driven pulley width can be opened manually using a M6-1.0 screw with 30 to 35mm long thread inserted into the screw hole at position 11 marked on the face of the driven pulley. The belt can then be slipped off the driven pulley.

5. BELT TENSIONING SPECIFICATIONS

NOTE:
Belts may become slightly loose after the first few hours of operation. It is important to re-tension the belts and use the table given as reference.

Belt Section	Span (in/mm)	Deflection (in/mm)	Force (lbs/kg)
Secondary	8.65/219.5	0.135/3.4	3/1.4

The primary belt drive uses the CVT (Continuously Variable Transmission) technology and does not have any tensioning requirements.

LUBRICATION

1. ENGINE OIL

The long life and successful operation of any piece of machinery is dependent on frequent and thorough lubrication.

Before using the trowel, always check your engine for oil. Use proper engine oil as recommended in the engine manufacturer's manual. Fill crankcase to levels as recommended.

2. SPIDER PLATE

There are 10 (ten) grease fittings on the spider plates, 5 (five) on each must be greased daily. **SPIDER PLATES MUST BE GREASED EVERY TIME MACHINE IS USED.**

3. GEARBOX

Check the oil level sight plugs on both gearboxes daily to ensure the oil is half way on the site glass. Top up with Chevron HiPerSYN ISO 320 gear oil only. Gearbox capacity on the TS96 is 67oz./2000ml.

4. TO CHANGE GEARBOX OIL

Place a pan beneath the drain plug to catch the oil. Remove the drain plug and the filler plug from the gearbox. After the oil has drained completely, replace the drain plug and tighten. Fill the gearbox through the filler plug with 67oz./2000ml of Chevron HiPerSYN ISO 320 oil or equivalent gear oil. Replace the filler plug and tighten.

5. GREASE FITTINGS

There are 12 bearings in total. Grease all bearings to ensure adequate supply of lubricant. They are located above the gearboxes (2 per gearbox), 4 located in the secondary drive system, and 4 in the steering linkages.

TROWEL ARM ADJUSTMENT FIXTURE

PART #20801

Unit 46"

- 1) 14161 – Trowel arm
- 2) 14163 – Lift lever
- 3) 10808 – Jam nut
- 4) 10809 – Set screw
- 5) 10824 – Block top
- 6) 10507 – Bolt
- 7) 10905 – Washer
- 8) 10807 – Carriage bolt
- 9) 10832 – Adjustment bar
- 10) 10507 – Bolt

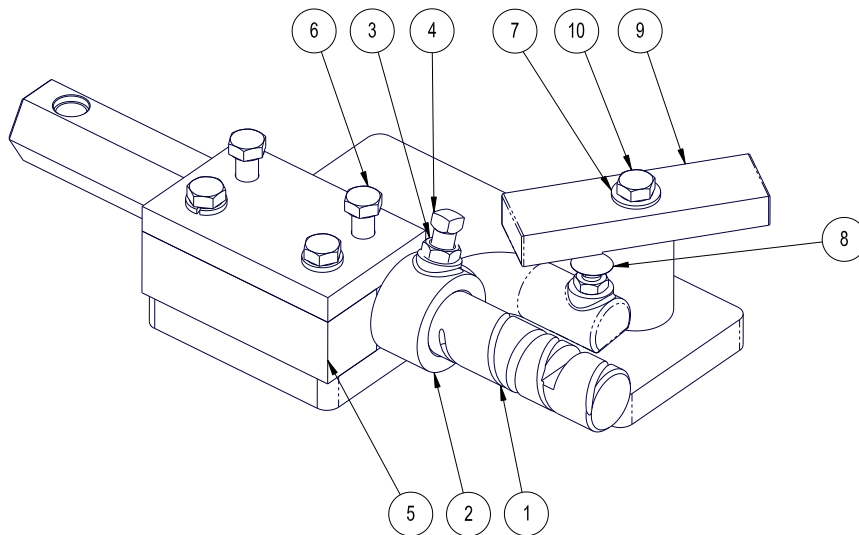


Figure 5a.

The trowel arm adjustment fixture (20801) is reversible. By rotating the arm clamping fixture and the ring bolt, both left hand and right hand trowel arms may be adjusted. Before attempting adjustment, determine whether the trowel arm is right handed or left handed. When adjusting left hand trowel arms use the side of the fixture marked “L”. When adjusting right hand trowels arms use the opposite side. The adjustment bar will be set on “36” for the TS96 trowel arm.

ADJUSTMENT PROCEDURE

1. Remove all trowel arm assemblies (1 & 2 arm and attached lift lever) from suspected maladjusted spider plate.
2. Remove lift lever (2) from trowel arm (1) by first loosening jam nut (3) then square head screw (4). If upon inspection (method left to discretion of serviceman) any trowel arm (1) is found to be in a bent condition, it must either be brought back to its original straight condition (method left to the serviceman’s discretion) or replaced with new part.
3. Replace lift levers (2) on new or straightened arms (1) by reversing procedure as described above.

NOTE: IT IS IMPORTANT THAT WHEN TIGHTENING SQUARE HEAD NUT (4), IT SEATS ITSELF SECURELY INTO DIMPLE MACHINED IN ARM.

4. Place trowel arm assembly (1 and 2) in fixture (5) with lift lever (2) butting up against fixture. Secure in place with bolts (6).

5. Loosen locknut (7) and screw carriage bold (8) down to full depth allowable. This will provide for ample clearance to swing precision ground adjustment bar (9) over head of carriage bolt. Adjustment bar (9) is stamped for appropriate size of machine. Swing appropriate side directly over carriage bolt (8) and secure in place with bolt (10).
6. Adjust carriage bolt (8) upwards until contact is made with adjustment bar (9); holding carriage bolt in position with one wrench, tighten locknut (7) to secure in position with second wrench.

NOTE: IT IS VITALLY IMPORTANT TO ENSURE THAT ONCE THE CARRIAGE BOLT IS ADJUSTED TO THE CORRECT HEIGHT, IT DOES NOT MOVE BEFORE, OR DURING THE TIGHTENING OF LOCKNUT.

7. This same procedure is to be followed with ALL arms from spider plate assembly, and will ensure correct and exact adjustment.

TROWEL ARM ADJUSTMENT SCREW

When assembling trowel blades to trowel arms, the adjustment screw should NEVER protrude below the under-side surface to a trowel arm except when using for emergency on-site adjustment to level trowel blades. If the adjustment screw is not flush with the underside of the trowel arm, then this will cause the power trowel to bounce and vibrate especially at high speed. This will also cause the trowel blades to leave an uneven finish to the concrete due to the blades not being level to one another. Make certain that the adjusting screw is held firmly in place while tightening the bolt which secures the blade to the trowel arm.

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ASSEMBLY DRAWINGS AND PARTS LIST



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CHASSIS ASSEMBLY

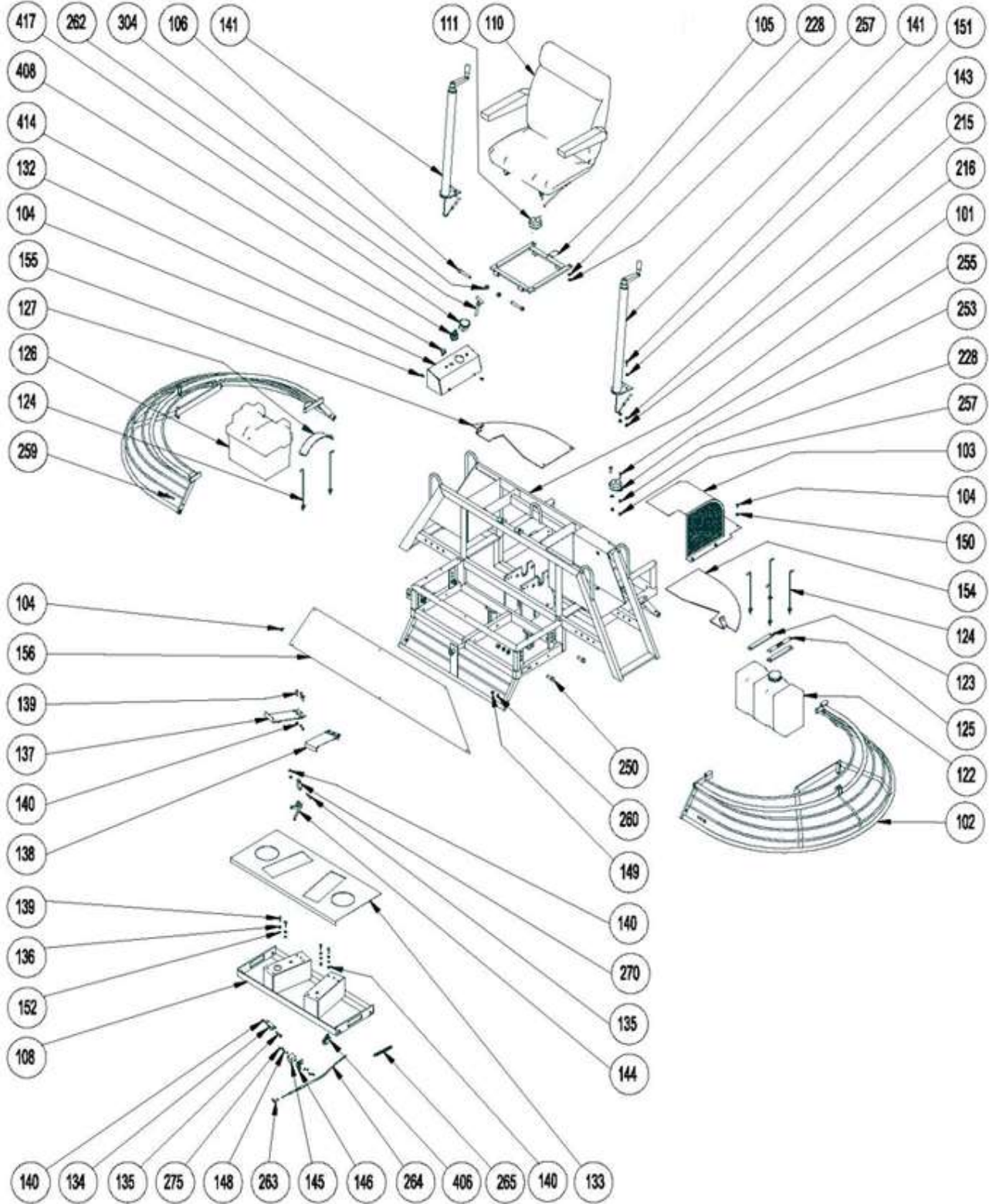


Figure 1 – Complete Chassis

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CUSTOMER PARTS LIST

Assembly # Chassis Assembly

Item #	Part #	Description	Qty	Eff. Date
101	14597	Chassis	1	2/03/06
	14598	Chassis	1	1/10/14
102	14303	Guard Ring, Flip-Up	2	2/03/06
103	14313	Belt Guard	1	2/03/06
104	14596	HWHS, #14x3/4"LG, Slotted	40	2/03/06
105	14414	Seat Hinge	1	2/03/06
106	30012	SHCS, 1/2-20 x 3"LG	2	2/03/06
108	14405	Pedal Frame (Outside Steer)	1	2/03/06
	14685	Pedal Frame (DPS)	1	2/03/06
110	13641	Seat, High Back	1	6/09/13
111	13647	Safety Switch (DPS Only)	1	6/09/13
122	18156	Fuel Tank (complete)	1	2/03/06
122a	18106	Fuel Cap	1	3/19/12
122b	18126	Carbon Canister (not shown)	1	3/19/12
122c	18124	Canister Bracket (not shown)	1	3/19/12
122d	18125	Canister Strap (set of 2) (not shown)	1	3/19/12
123	10192	Tank Hold-down Bar	2	2/03/06
124	13839	Hold-down Bolt	6	2/03/06
125	14480	Decal "FUEL"	1	2/03/06
126	13192	Battery Box	1	2/03/06
127	13595	Battery Clamp	1	2/03/06
132	14422	Control Panel	1	2/03/06
133	14407	Floor Plate (Outside Steer)	1	2/03/06
	14533	Floor Plate (DPS)	1	2/03/06
134	22548	Throttle Bracket	1	2/03/06
135	12532	HHCS, 1/4-20 x 1-1/2"LG, Grade 5	3	2/03/06
136	10581	Hex Nut, 1/4-20UNC	6	2/03/06
137	22546	Gas Pedal	4	2/03/06
138	22547	Safety Pedal (Outside Steer Only)	1	2/03/06
139	50316	HHCS, 1/4-20 x 1"LG, Grade 5	10	2/03/06
140	30141	Nylock Nut, 1/4-20UNC	9	2/03/06
141	23551	Pitch Control	2	2/03/06
143	10317	Nylock Nut, 3/8-16UNC	6	2/03/06
144	14424	Throttle Linkage Arm	1	2/03/06
145	14425	Throttle Link Spacer	1	2/03/06
146	13863	Throttle Cable Clamp	1	2/03/06
148	10703	Lockwasher #10	4	2/03/06
149	10108	Nylock Nut 5/16-18UNC	6	2/03/06
150	11586	Washer 5/16" Dia	6	2/03/06
151	10507	HHCS, 3/8-16UNC x 1"LG	4	2/03/06
152	10521	Lockwasher 1/4" Dia	4	2/03/06
154	13629	Ring Cover Plate (LH)	1	2/03/06
155	13630	Ring Cover Plate (RH)	1	2/03/06
156	14257	Front Plate	1	2/03/06
215	10902	Lock Washer, 3/8"	16	2/03/06
216	10901	Hex Nut, 3/8-16UNC	16	2/03/06
228	10402	Lock Washer, 5/16"	8	2/03/06

TS96 RIDE-ON TROWEL INSTRUCTION MANUAL

CUSTOMER PARTS LIST

Assembly # Chassis Assembly

Item #	Part #	Description	Qty	Eff. Date
250	30019	HHCS, 1/2-13 x 1-1/2"LG Grade 5	4	2/03/06
253	14101	Shock Absorber	4	2/03/06
255	10441	HHCS, 5/16-18 x 1"LG	8	2/03/06
257	10915	Hex Nut, 5/16-18UNC	16	2/03/06
259	10403	HHCS, 5/16-18 x 2"LG	8	2/03/06
260	10919	Flat Washer, 5/16" Dia.	8	2/03/06
262	12417	Choke Control	1	2/03/06
236	11124	Ball Joint	1	2/03/06
264	18166	Throttle Cable	1	2/03/06
265	13046	#E11 Spring	1	2/03/06
270	12970	Throttle Pivot	1	2/03/06
275	10706	Screw #10-24 x 1/2"LG	4	2/03/06
304	12517	Nylock Nut, 1/2-20UNF	11	2/03/06
406	14397	Plunger Switch	1	2/03/06
408	13953	Starter Key Switch (B&S)	1	2/03/06
414	14377	Switch, On/Off, Blue	1	2/03/06
417	12991	Hour Meter	1	2/03/06
418	14450	Wire Harness (not shown)	1	2/03/06
419	14374	Starter Cable 50" (not shown)	1	2/03/06

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TS96 RIDE-ON TROWEL INSTRUCTION MANUAL

POWERPLANT ASSEMBLY

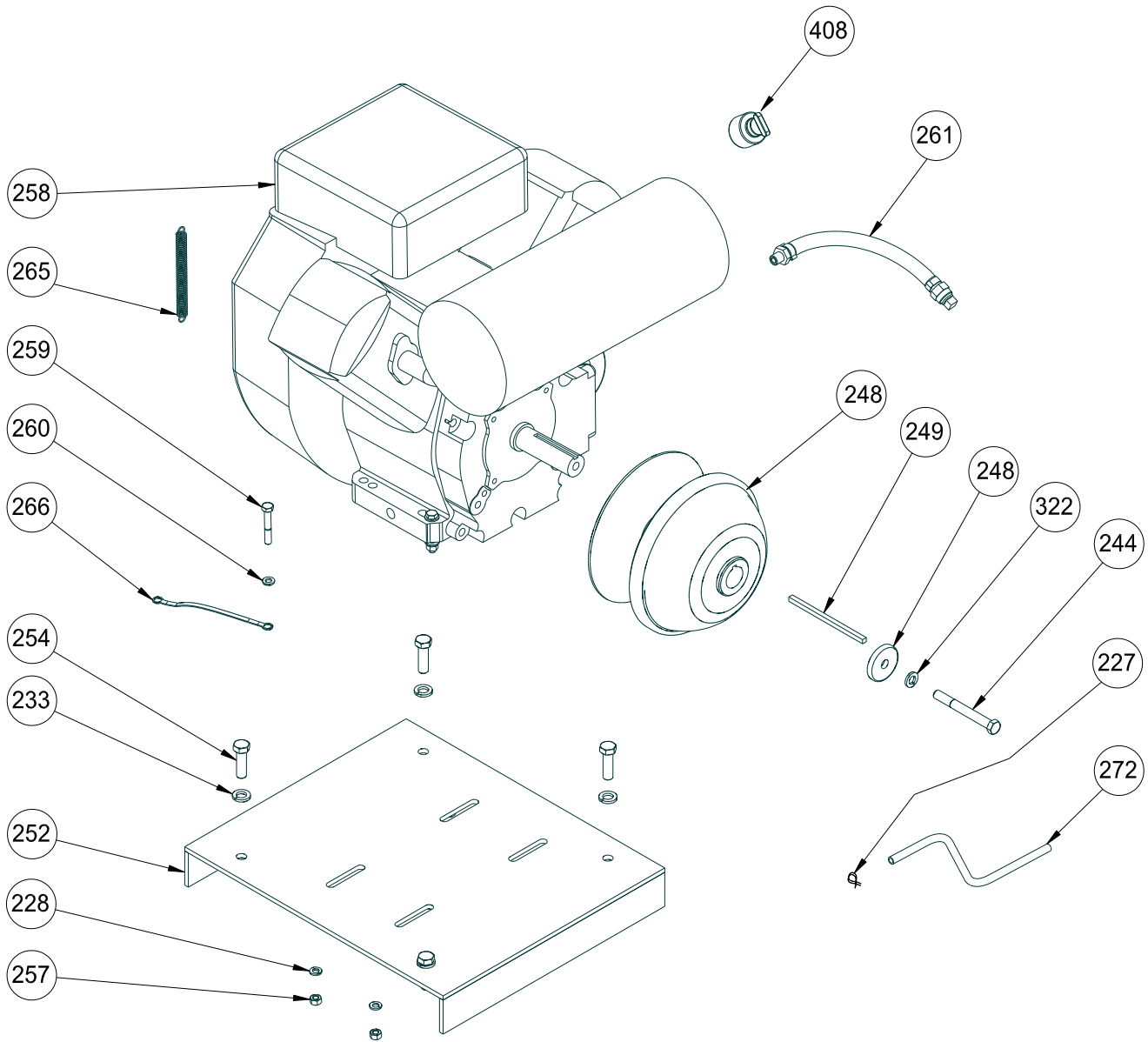


Figure 2 - Complete Powerplant

Item #	Description	Item #	Description	Item #	Description
227	Hose Clamp	252	Engine Mount	261	Oil Drain
228	Lock Washer	254	Hex Bolt	265	Spring
233	Lock Washer	257	Hex Nut	266	Ground Cable
244	Hex Bolt	258	Engine	272	Fuel Line
248	Clutch	259	Hex Bolt	322	Lock Washer
249	Key	260	Flat Washer	408	Ignition Switch

TS96 RIDE-ON TROWEL INSTRUCTION MANUAL

CUSTOMER PARTS LIST

Assembly # Powerplant Assembly

Item #	Part #	Description	Qty	Eff. Date
227	30152	Hose Clamp	1	2/03/06
228	10402	Lock Washer 5/16" Dia	4	2/03/06
233	10009	Lock Washer 1/2" Dia	4	2/03/06
244	13487	HHCS 7/16-20 x 3-1/2"LG	1	2/03/06
248	14704	Drive Pulley, 1-1/8" Bore	1	2/03/06
249	10654	Key, 1/4"sq x 5'LG	1	2/03/06
252	14312	Engine Mount	1	2/03/06
254	10955	HHCS M12-1.25 x 40mm	4	2/03/06
257	10915	Hex Nut 5/16-18	4	2/03/06
258	21393	Engine, B&S 35HP 1 1/8" shaft	1	2/03/06
259	10403	HHCS, 5/16-18 x 2"LG	4	2/03/06
260	10919	Flat Washer 5/16"	2	2/03/06
261	11797	Oil Drain	1	2/03/06
265	13046	Throttle Spring	1	2/03/06
266	13098	Ground Cable, 8"LG	1	2/03/06
272	18127	Fuel Line	1	2/03/06
322	13491	Lock Washer 7/16" Dia	1	2/03/06
408	13953	Switch - Honda	1	2/03/06

TS96 RIDE-ON TROWEL INSTRUCTION MANUAL

DRIVETRAIN ASSEMBLY

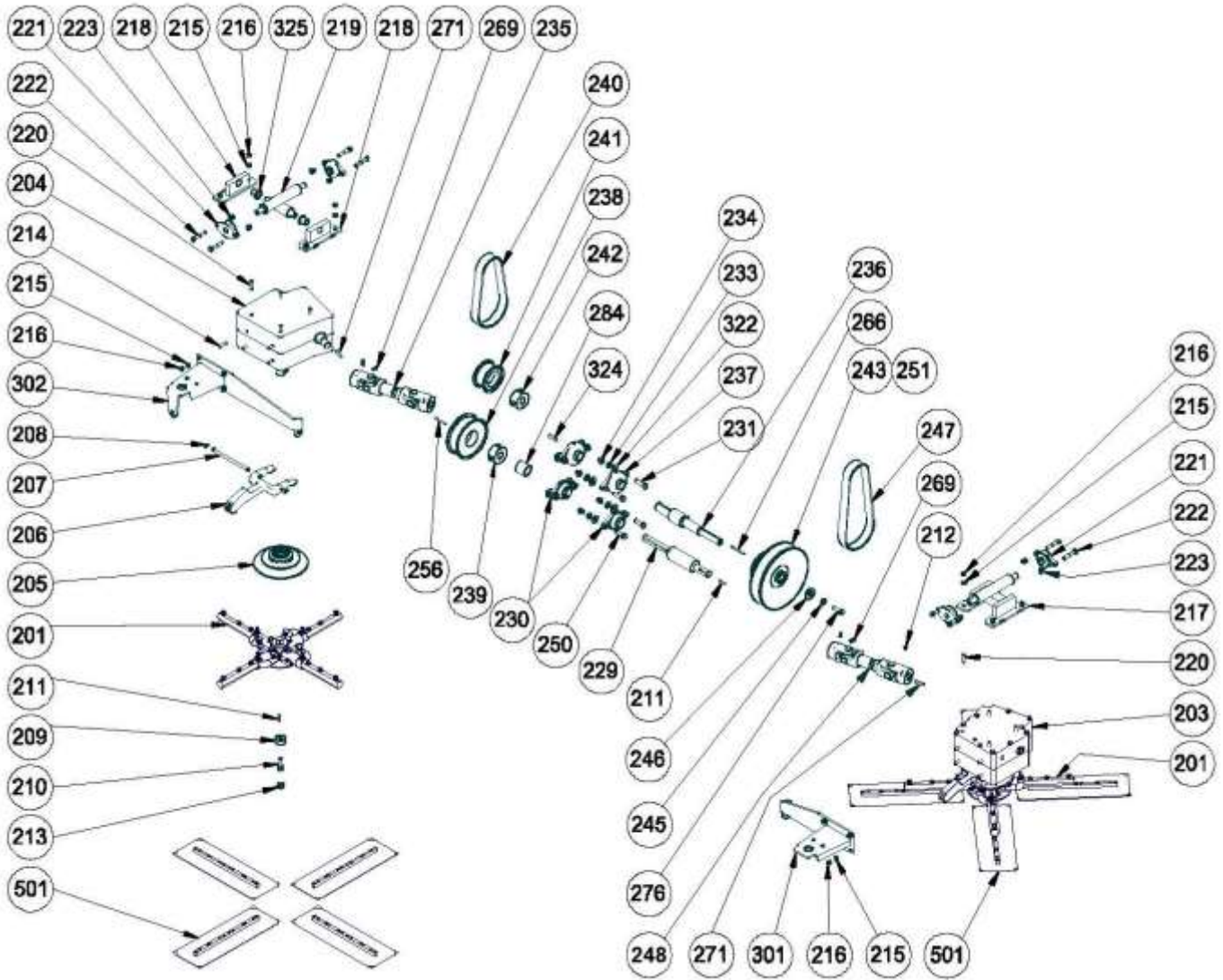


Figure 3 - Complete Drivetrain

Item #	Description	Item #	Description	Item #	Description	Item #	Description
201	Spider Plate Ass'y	215	Lock Washer	233	Lock Washer	248	U-Joint Coupling
202	Spider Plate Ass'y	216	Hex Nut	234	Hex Nut	249	Key
203	Gear Box Ass'y	217	Pivot Plate	235	U-Joint Coupling	250	Hex Bolt
204	Gear Box Ass'y	218	Pivot Bracket	236	Jack Shaft	256	Key
205	Pressure Plate	219	Pivot Bracket	237	Bearing	266	Key
206	Yoke Arm	220	Stud	238	Sprocket	269	Socket Bolt
207	Pin	221	Bearing	239	Bearing	271	Key
208	Retaining Ring	222	Hex Bolt	240	Drive Belt	273	Bushing
209	Retainer	223	Lock Nut	241	Sprocket	276	Hex Bolt
210	Socket Bolt	228	Lock Washer	243	Driven Pulley	301	Control Arm, LH
211	Key	229	Drive Shaft	245	Lock Washer	302	Control Arm, RH
213	Cap Plug	230	Bearing	246	Washer	324	Key
214	Stud	231	Hex Bolt	247	Drive Belt	501	Trowel Blade

TS96 RIDE-ON TROWEL INSTRUCTION MANUAL

CUSTOMER PARTS LIST

Assembly # Drive Train Assembly

Item #	Part #	Description	Qty	Eff. Date
201	14165	TS96 Spider Plate Ass'y – CCW, 4 Blade	1	2/03/06
	14231	TS96 Spider Plate Ass'y – CCW, 5 Blade	1	2/03/06
202	14164	TS96 Spider Plate Ass'y – CW, 4 Blade	1	2/03/06
	14232	TS96 Spider Plate Ass'y – CW, 5 Blade	1	2/03/06
203	13973	Gear Box Ass'y – Left Side, CW	1	2/03/06
204	13972	Gear Box Ass'y – Right Side, CCW	1	2/03/06
205	20626	Pressure Plate Ass'y, Large	2	2/03/06
206	10311	Yoke Arm, Large	2	2/03/06
207	10914	Pin	2	2/03/06
208	10913	Retaining Ring, 7/16" Dia.	4	2/03/06
209	10804	Retainer	2	2/03/06
210	10802	SHCS, 1/2-13 x 1-1/2"LG	2	2/03/06
211	10608	Key, 1/4"SQ x 1-5/32"LG	3	2/03/06
213	10823	Cap Plug, EC-12	2	2/03/06
214	10910	Stud, 3/8-16 x 1-3/4"LG	8	2/03/06
215	10902	Lock Washer, 3/8" Dia.	16	2/03/06
216	10901	Hex Nut, 3/8-16UNC	16	2/03/06
217	13904	Pivot Plate, LH	1	2/03/06
218	13903	Pivot Bracket, Top RH	2	2/03/06
219	13900	Pivot Bracket, RH	1	2/03/06
220	11247	Stud, 3/8-16 x 1-3/8"LG	8	2/03/06
221	13570	Bearing, Flanged, UCFL204-012D1	4	2/03/06
222	13490	HHCS, 7/16-20 x 2-1/4"LG	8	2/03/06
223	13488	Nylock Nut, 7/16-20UNF	8	2/03/06
228	10402	Lock Washer, 5/16" Dia.	8	2/03/06
229	14443	Drive Shaft (overlap)	2	2/03/06
	14444	Drive Shaft (non-overlap)	2	2/03/06
	14799	Drive Shaft, TS96 (non-overlap)	2	1/10/14
230	12453	Bearing, Flanged, UCFL205-100D1	2	2/03/06
231	13498	HHCS, 1/2-13 x 1-3/4"LG	4	2/03/06
233	10009	Lock Washer, 1/2" Dia.	8	2/03/06
234	12519	Hex Nut, 1/2-13UNC	1	2/03/06
235	13779	U-Joint Drive Coupling (non-overlap)	1	2/03/06
236	14442	Jack Shaft, TS96 & LP95	1	2/03/06
237	13246	Bearing, UCFL206-104D1	2	2/03/06
	12453	Bearing, Flanged, UCFL205-10001	2	1/10/14
238	13204	Sprocket, 8MX-63S-36 (low speed)	1	2/03/06
	14181	Sprocket, 8MX-56S-36 (high speed)	1	2/03/06
239	13549	Bushing Taperlock 2517 x 1" Bore (low speed)	1	2/03/06
	14183	Bushing Taperlock 2012 x 1" Bore (high speed)	1	2/03/06
240	13202	Drive Belt, 8MGT720-36	1	2/03/06
241	13426	Sprocket, 8M-30S-36 (low speed)	1	2/03/06
	14182	Sprocket, 8MX-36S-36 (high speed)	1	2/03/06
242	14184m	Bushing Taperlock, 1610 x 1-1/4" Bore (high speed)	1	2/03/06
243	14724	Driven Pulley, 1" Bore	1	2/03/06
245	13491	Lock Washer 7/16" Dia.	1	2/03/06
246	11314	Brake Clutch Washer	1	2/03/06
247	14706	Drive Belt	1	2/03/06

TS96 RIDE-ON TROWEL INSTRUCTION MANUAL

CUSTOMER PARTS LIST

Assembly # Drive Train Assembly - Continued

Item #	Part #	Description	Qty	Eff. Date
248	13767	U-Joint Drive Coupling (overlap)	1	2/03/06
	13779	U-Joint Drive Coupling (non-overlap)	1	2/03/06
249	10654	Key 1/4"SQ x 5"LG	1	2/03/06
250	30019	HHCS, 1/2-13 x 1-1/2"LG	4	2/03/06
256	10608	Key 1/4"SQ x 1 - 5/32	1	2/03/06
266	11010	Key .160"THK x .250"X 2.5 LG	1	2/03/06
269	12745	SHSS 3/8-16 x 3/4"LG	8	2/03/06
271	13579	Pinion Key, Gearbox	2	2/03/06
273	12593	Bushing, 3/4" x 1" x 7/8"LG	2	2/03/06
276	10269	HHCS 7/16-20 x 1-1/2"LG	1	2/03/06
301	14488	Control Arm, LH (non-overlap)	1	2/03/06
	14694	Control Arm, LH (overlap)	1	2/03/06
302	14487	Control Arm, RH (non-overlap)	1	2/03/06
	14693	Control Arm, RH (overlap)	1	2/03/06
324	13597	Key 5/16"SQ x 1-1/2"LG	1	2/03/06
501	20410	Trowel Blade 6 x 18 Imperial (4 blade)	8	2/03/06
		Trowel Blade 6 x 18 Imperial (5 blade)	10	2/03/06
	20456	Trowel Blade 6 x 18 Metric (4 blade)	8	2/03/06
		Trowel Blade 6 x 18 Metric (5 blade)	10	2/03/06

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TS96 RIDE-ON TROWEL INSTRUCTION MANUAL

STEERING ASSEMBLY

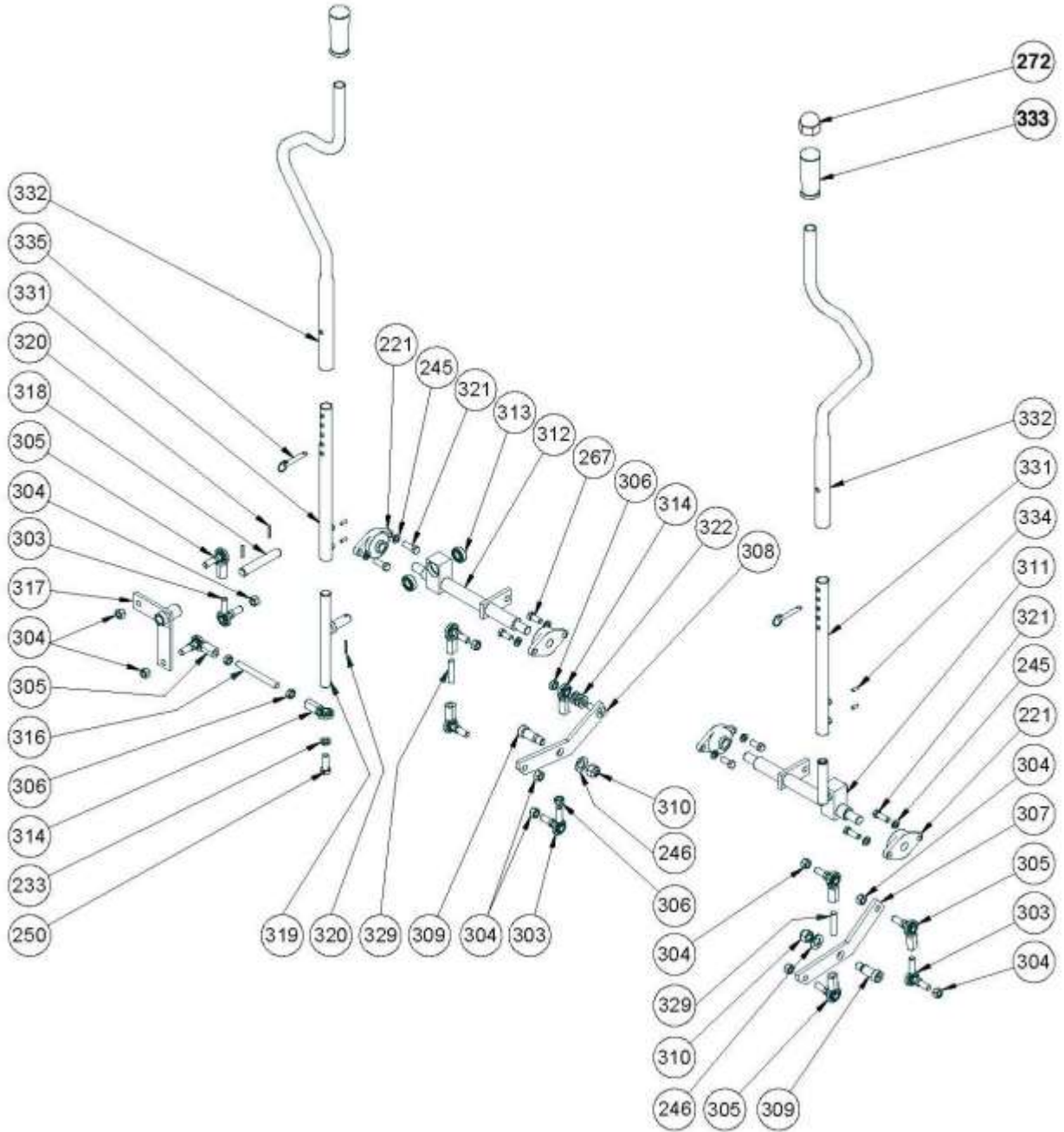


Figure 4 - Complete Steering

TS96 RIDE-ON TROWEL INSTRUCTION MANUAL

DUAL POSITION STEERING ASSEMBLY

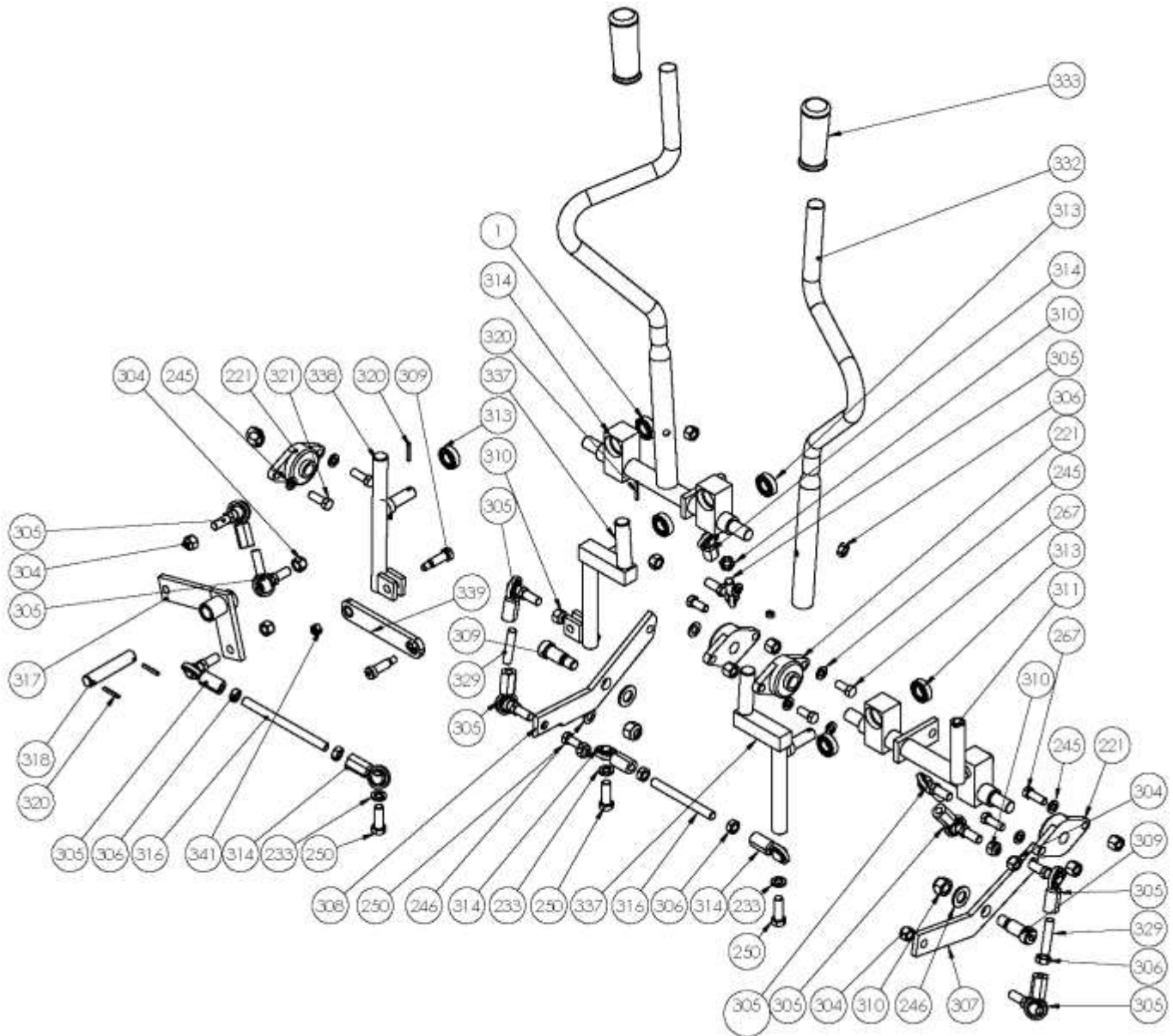


Figure 5 – Complete Dual Position Steering

Item #	Description	Item #	Description	Item #	Description	Item #	Description
221	Bearing	307	Pivot Arm	318	Lever Pin L/R	335	Lynch Pin
233	Lock Washer	308	Pivot Arm	319	Steering Link	336	Inside Steering Link LH
245	Lock Washer	309	Shoulder Bolt	320	Spring Pin	337	Inside Steering Link RH
250	Hex Bolt	310	Lock Nut	321	Hex Bolt	338	Outside Steering Link RH
267	Hex Bolt	311	Steering Shaft	322	Flat Washer	339	Link Plate
272	Spray Switch (opt.)	312	Steering Shaft	329	Push Rod	340	Bolt
303	Rod End	313	Bearing	331	Washer	341	Control Cable Stud
304	Lock Nut	314	Rod End	332	Steering Arm		
305	Rod End	316	Push Rod	333	Handle Grip		
306	Hex Jam Nut	317	Steering Pivot	334	Set Screw		

TS96 RIDE-ON TROWEL INSTRUCTION MANUAL

CUSTOMER PARTS LIST

Assembly # Steering and Dual Position Steering Assemblies

Item #	Part #	Description	Qty	Eff. Date
221	13570	Bearing, Flanged, ASFE204-012D1	4	2/03/06
233	10009	Lock Washer, 1/2"	1	2/03/06
245	13491	Lock Washer, 7/16"	8	2/03/06
246	10306	Washer, .75"ID x 1.33"OD	2	2/03/06
250	30019	HHCS, 1/2-12 x 1-1/2"LG	1	2/03/06
267	11214	HHCS, 7/16-14 x 1"LG	4	2/03/06
272	13896	Spray Switch (option)	5	2/03/06
303	13932	Rod End, 1/2-20UNF Stud	3	2/03/06
304	12517	Nylock Nut 1/2-20UNF	11	2/03/06
305	12412	Rod End, 1/2-20UNF	7	2/03/06
306	12592	Hex Jam Nut, 1/2-20UNF	5	2/03/06
307	14434	Pivot Arm, LH	1	2/03/06
308	14431	Pivot Arm, RH	2	2/03/06
309	13481	Shoulder Bolt, 3/4"Dia x 1-1/4"LG	2	2/03/06
310	13578	Nylock Nut, 5/8-11	2	2/03/06
311	14402	Steering Shaft, LH	1	2/03/06
312	14401	Steering Shaft, RH	1	2/03/06
313	13883	Bearing, 6003-LLU-2A	2	2/03/06
314	12420	Rod End – Female 1/2-20UNF	2	2/03/06
316	13478	Push Rod, L/R	1	2/03/06
317	14429	Steering Pivot, L/R	1	2/03/06
318	13480	Lever Pin L/R	1	2/03/06
319	14428	Steering Link, L/R	1	2/03/06
320	10315	Spring Pin, 3/16"Dia x 1-1/4"LG	3	2/03/06
321	11184	HHCS, 7/16-14 x 1-1/4"LG	4	2/03/06
322	12930	Flat Washer USS 7/16"Dia	4	2/03/06
329	12969	Push Rod, 1/2-20 x 2-1/4"LG	2	2/03/06
331	14426	Steering Post, Adjustable Height	2	2/03/06
332	14427	Steering Arm, Adjustable Height	2	2/03/06
333	13065	Handle Grip, 1"	2	2/03/06
334	50017	Set Screw 5/16-18 x 1/2"	4	2/03/06
335	14436	Lynch Pin, 3/8"Dia x 1-1/4"Grip	2	2/03/06
336	14518	Inside Steering Link LH	1	9/26/13
337	14524	Inside Steering Link RH	1	9/26/13
338	14518	Outside Steering Link RH	1	9/26/13
339	14532	Link Plate	1	9/26/13
340	12985	Bolt, 3/8-16, 1-1/4"LG	1	9/26/13
341	10318	Control Cable Stud	1	9/26/13

TS96 RIDE-ON TROWEL INSTRUCTION MANUAL

GEARBOX ASSEMBLY

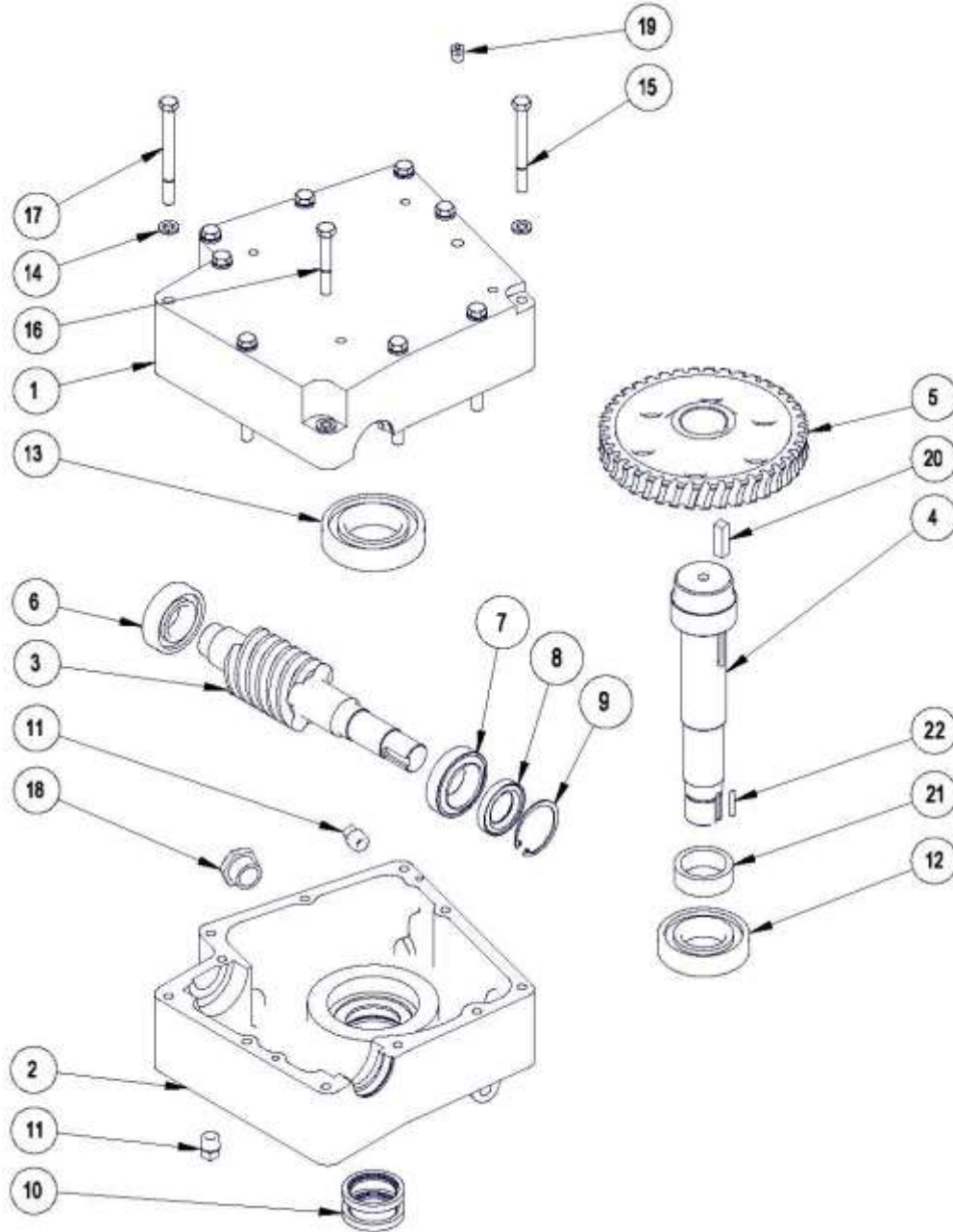


Figure 6 – Gearbox Assembly

Note: Left Side Gearbox Shown.

Item #	Description	Item #	Description	Item #	Description
1	Gearbox – Top	8	Oil Seal	15	Hex Bolt
2	Gearbox – Bottom	9	Retaining Clip	16	Hex Bolt
3	Worm Shaft	10	Oil Seal	17	Hex Bolt
4	Main Shaft	11	Plug	18	Sight Plug
5	Main Gear	12	Main Shaft Bearing	19	Relief Valve
6	Worm Shaft Bearing	13	Main Shaft Bearing	20	Key
7	Taper Roller Bearing	14	Lock Washer	21	Spacer

TS96 RIDE-ON TROWEL INSTRUCTION MANUAL

CUSTOMER PARTS LIST

Assembly # **13973**

Gearbox, CW, Left Side of Unit

Item #	Part #	Description	Qty	Eff. Date
1	13905	Gearbox Top Half	1	7/29/04
2	13906	Gearbox Bottom Half	1	7/29/04
3	13353	Worm Shaft, LH Cut	1	7/29/04
4	13360	Main Shaft	1	7/29/04
5	13359	Main Gear, LH Cut	2	7/29/04
6	13911	Worm Shaft Bearing	1	7/29/04
7	13509	Taper Roller Bearing	1	7/29/04
8	13912	Oil Seal	2	7/29/04
9	13913	Retaining Clip	4	7/29/04
10	13967	Gearbox Main Seal	2	7/29/04
11	10911	Plug	3	7/29/04
12	13910	Main Shaft Bearing	2	7/29/04
13	13909	Main Shaft Bearing	6	7/29/04
14	10902	Lock Washer	1	7/29/04
15	13937	Hex Bolt	1	7/29/04
16	10506	Hex Bolt	4	7/29/04
17	13914	Hex Bolt	1	7/29/04
18	10930	Sight Plug	4	7/29/04
19	10909	Relief Valve	2	7/29/04
20	13919	Key	1	7/29/04
21	13918	Spacer	3	7/29/04
22	22800	Key	1	7/29/04

Assembly # **13972**

Gearbox, CCW, Right Side of Unit

Item #	Part #	Description	Qty	Eff. Date
1	13907	Gearbox Top Half	1	7/29/04
2	13908	Gearbox Bottom Half	1	7/29/04
3	13352	Worm Shaft, RH Cut	1	7/29/04
4	13360	Main Shaft	1	7/29/04
5	13358	Main Gear, RH Cut	2	7/29/04
6	13911	Worm Shaft Bearing	1	7/29/04
7	13509	Taper Roller Bearing	1	7/29/04
8	13912	Oil Seal	2	7/29/04
9	13913	Retaining Clip	4	7/29/04
10	13967	Gearbox Main Seal	2	7/29/04
11	10911	Plug	3	7/29/04
12	13910	Main Shaft Bearing	2	7/29/04
13	13909	Main Shaft Bearing	6	7/29/04
14	10902	Lock Washer	1	7/29/04
15	13937	Hex Bolt	1	7/29/04
16	10506	Hex Bolt	4	7/29/04
17	13914	Hex Bolt	1	7/29/04
18	10930	Sight Plug	4	7/29/04
19	10909	Relief Valve	2	7/29/04
20	13919	Key	1	7/29/04
21	13918	Spacer	3	7/29/04
22	22800	Key	1	7/29/04

TS96 RIDE-ON TROWEL INSTRUCTION MANUAL

SPIDER PLATE ASSEMBLY

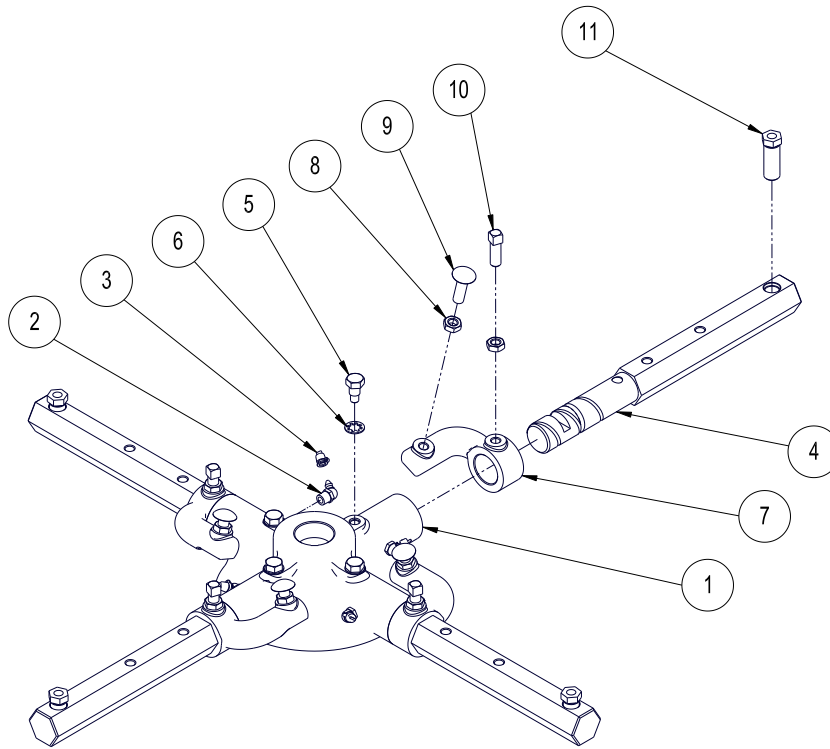
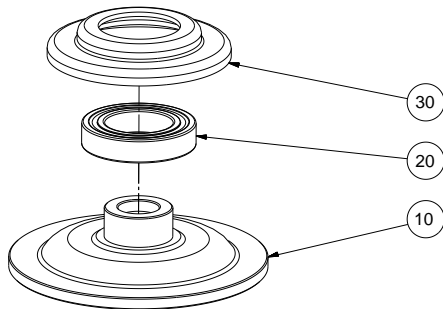


Figure 7 – Greased Spider Assembly

Note: 4 Blade Spider Plate Shown.

Item #	Description	Item #	Description
1	Spider Plate	7	Lift Lever
2	Grease Fitting	8	Jam Nut
3	Cap	9	Carriage Bolt
4	Trowel Arm	10	Square Heat Setscrew
5	Dog Screw	11	Adjuster Bolt
6	Lock Washer		



Item #	Description
10	Pressure Plate
20	Thrust Bearing
30	Pressure Plate Cap

Figure 8 – Pressure Plate Assembly

TS96 RIDE-ON TROWEL INSTRUCTION MANUAL

CUSTOMER PARTS LIST

Assembly # **14165(4 Blade Spider), 14231(5 Blade Spider)**
 CCW Spider Plate Assembly, Greased, Right Side of Unit

Item #	Part # 14165	(Part #) 14231	Description	Qty	Eff. Date
1	14160	14258	Spider Plate, 4 Spoke (5 Spoke), CCW	1	7/29/04
2	10801	10801	Grease Fitting 1/8 NPT x 180° (65°)	4 (5)	7/29/04
3	10822	10822	Cap Plug, Grease Nipple, Red	4 (5)	7/29/04
4	14161	14449	Trowel Arm 1-1/4" Hex	4 (5)	7/29/04
5	10806	10806	HHCS 3/8-16 x 7/8"	4 (5)	7/29/04
6	10805	10805	Lock Washer ø3/8" External Tooth	4 (5)	7/29/04
7	14163	14163	Lift Lever, LH 1-1/4" Bore	4 (5)	7/29/04
8	10808	10808	Jam Nut 3/8-16	8 (10)	7/29/04
9	10807	10807	Carriage Bolt 3/8-16 x 1-1/4"	4 (5)	7/29/04
10	10809	10809	SHSS 3/8-16 x 1" Cup Point	4 (5)	7/29/04
11	14208	14208	Adjusting Screw 1-1/2"	4 (5)	7/29/04
12	N/A	30051	Socket Plug 1/8 NPT (5 Blade Spider only)	4 (5)	7/29/04

Assembly # **14164(4 Blade Spider)*, 14232(5 Blade Spider)**
 CW Spider Plate Assembly, Greased, Left Side of Unit

Item #	Part # 14164	(Part #) 14232	Description	Qty	Eff. Date
1	14159	14258	Spider Plate, 4 Spoke (5 Spoke), CW	1	7/29/04
2	10801	10801	Grease Fitting 1/8 NPT x 180° (65°)	4 (5)	7/29/04
3	10822	10822	Cap Plug, Grease Nipple, Red	4 (5)	7/29/04
4	14161	14449	Trowel Arm 1-1/4" Hex	4 (5)	7/29/04
5	10806	10806	HHCS 3/8-16 x 7/8"	4 (5)	7/29/04
6	10805	10805	Lock Washer ø3/8" External Tooth	4 (5)	7/29/04
7	14162	14162	Lift Lever, RH 1-1/4" Bore	4 (5)	7/29/04
8	10808	10808	Jam Nut 3/8-16	8 (10)	7/29/04
9	10807	10807	Carriage Bolt 3/8-16 x 1-1/4"	4 (5)	7/29/04
10	10809	10809	SHSS 3/8-16 x 1" Cup Point	4 (5)	7/29/04
11	14208	14208	Adjusting Screw 1-1/2"	4 (5)	7/29/04
12	N/A	30051	Socket Plug 1/8 NPT (5 Blade Spider only)	4 (5)	7/29/04

Assembly # **20626**
 Pressure Plate Assembly

Item #	Part #	Description	Qty	Eff. Date
10	10659	Large pressure plate	1	7/29/04
20	10663	Large thrust bearing 6010LLU-2A	1	7/29/04
30	10667	Large pressure plate cap	1	7/29/04

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PITCH CONTROL ASSEMBLY

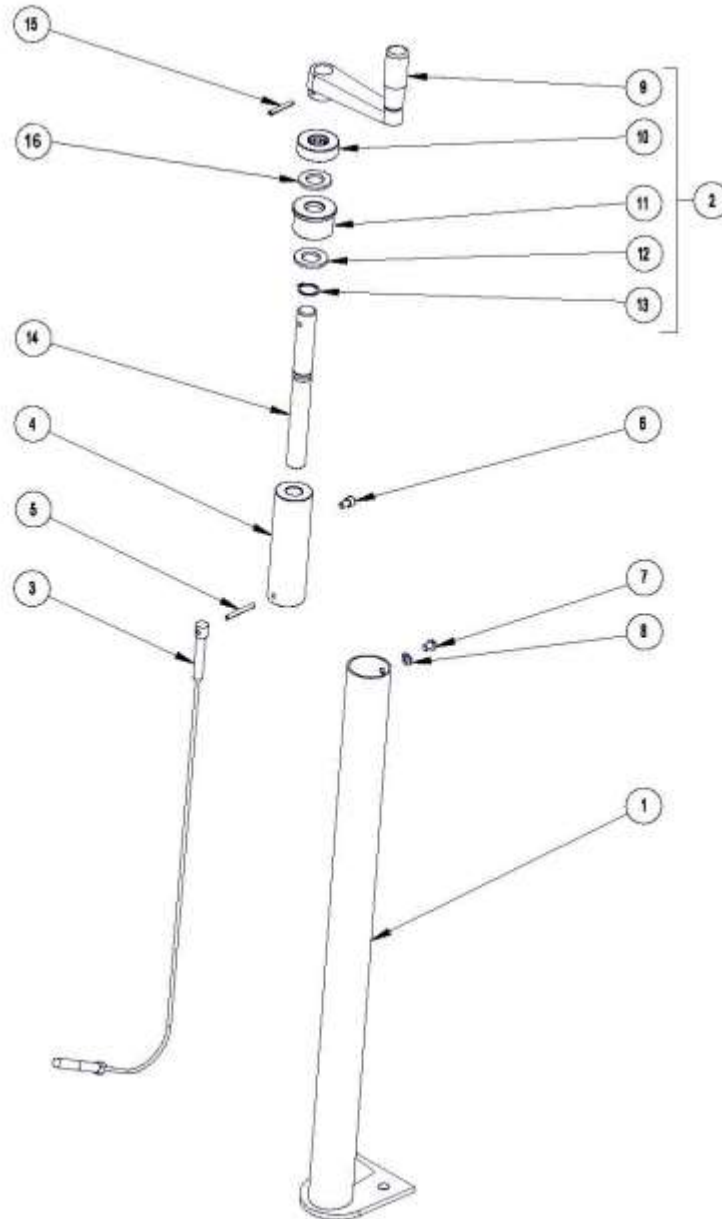


Figure 9 – Pitch Control

Item #	Description	Item #	Description
1	Pitch Control Tube	9	Crank Handle
2	Crank Handle Ass'y	10	Bearing
3	Control Cable	11	Bushing
4	Slide Bushing	12	Washer
5	Spring Pin	13	Retainer
6	Socket Screw	14	Screw Shaft
7	Machine Screw	15	Spring Pin
8	Lock Washer		

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CUSTOMER PARTS LIST

Assembly # **23551**
Pitch Control Assembly

Item #	Part #	Description	Qty	Eff. Date
1	22538	Tube	1	10/06/04
2	23573	Crank Handle Assembly	1	10/06/04
3	22539	Control Cable	1	10/06/04
4	10308	Slide Bushing	1	10/06/04
5	10309	Spring Pin $\varnothing 3/16$ " x 1-1/2"	1	10/06/04
6	10510	SHCS 1/4-20 x 3/8"LG	1	10/06/04
7	10511	RHMS 1/4-20 x 3/8"LG	1	10/06/04
8	10521	Lock Washer $\varnothing 1/4$ "	1	10/06/04
9	14793	Crank Handle	1	10/06/04
10	10304	Bearing	1	10/06/04
11	10305	Bushing	1	10/06/04
12	10306	Washer	1	10/06/04
13	10307	Retainer	1	10/06/04
14	10303	Screw Shaft	1	10/06/04
15	10315	Spring Pin $\varnothing 3/16$ " x 1-1/4"LG	1	10/06/04
16	22674	Shim Ring 3/4"	1	10/06/04

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RETARDANT SPRAY SYSTEM

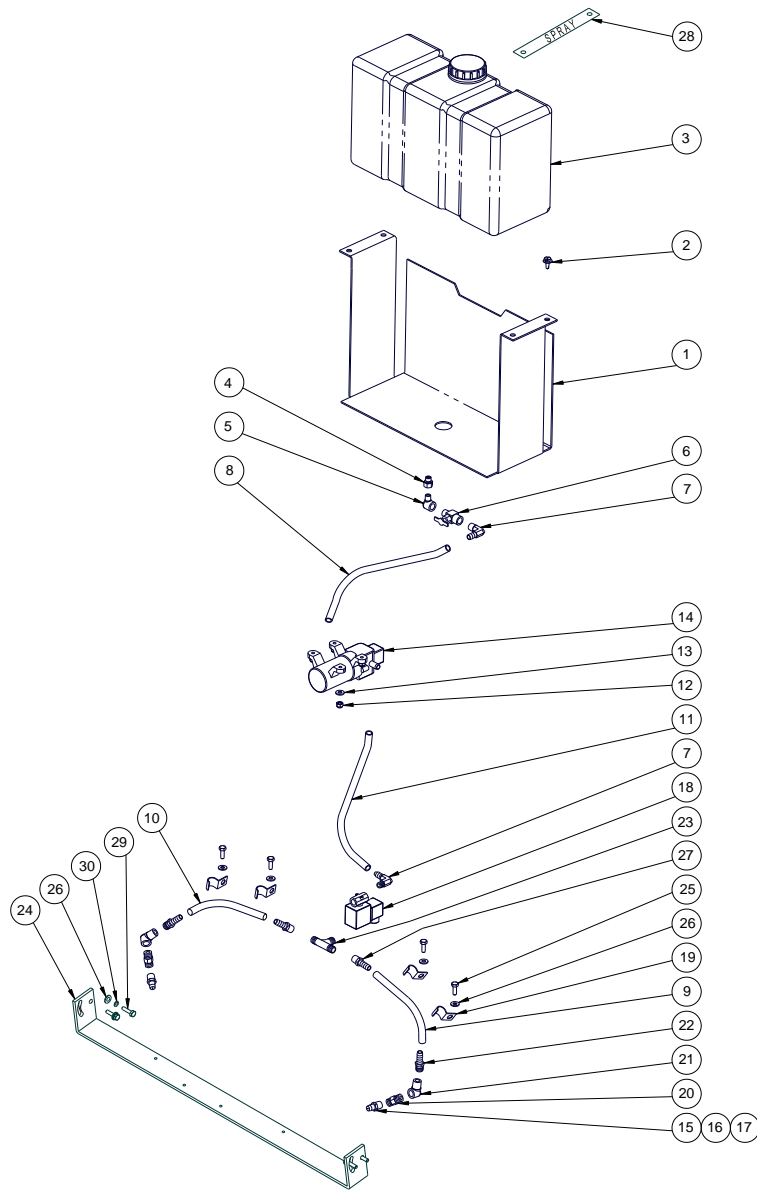


Figure 10 – Spray Kit

Item #	Description	Item #	Description	Item #	Description
1	Bracket	11	Tubing	21	Fitting
2	Screw	12	Locknut	22	Fitting
3	Tank	13	Washer	23	Fitting
4	Fitting	14	Pump	24	Nozzle
5	Fitting	15	Check Valve	25	Hex Bolt
6	Valve	16	Bronze Cap Nut	26	Lockwasher
7	Fitting	17	Cone Jet Nozzle	27	Fitting
8	Tubing	18	Valve	28	Label
9	Tubing	19	Clamp	29	Hex Bolt
10	Tubing	20	Fitting	30	Lock Washer

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CUSTOMER PARTS LIST

Assembly # **14261**
Spray System

Item #	Part #	Description	Qty	Eff. Date
1	14304	Spray System Bracket	1	2/03/06
2	14596	HWHS 1/4-20 x 5/8"LG	4	2/03/06
3	13600	Tank, 10.9 L, White	1	2/03/06
4	14200	Fitting, Pipe Adapter	1	2/03/06
5	14291	Fitting, Street Elbow	1	2/03/06
6	14288	Valve, Needle, 1/4NPTF-1/4MPTM	1	2/03/06
7	14247	Fitting, 90 Deg Hose Barb.	2	2/03/06
8	00644	Tubing, Rubber, 8-1/2"LG	1	2/03/06
9	00644	Tubing, Rubber, Gray 7"LG	1	2/03/06
10	00644	Tubing, Rubber, Gray 5-1/2"LG	1	2/03/06
11	00644	Tubing, Rubber, Gray 30"LG	1	2/03/06
12	30141	Locknut, 1/4"-20	4	2/03/06
13	10919	Washer 5/16"	4	2/03/06
14	14292	Pump, Diaphragm With Neck	1	2/03/06
15	13894	Check Valve	2	2/03/06
16	13876	Bronze Cap Nut	2	2/03/06
17	13877	Cone Jet Nozzle	2	2/03/06
18	14234	Valve, NC, 12VDC Solenoid	1	2/03/06
19	13591	Wiring Clamp 5/8"	4	2/03/06
20	14293	Fitting, Nipple, 3/8 NPT Male	2	2/03/06
21	14294	Fitting, Elbow, 3/8-1/4 NPT Female	2	2/03/06
22	14289	Fitting, Hose Barb, 3/8 Tube, Male	1	2/03/06
23	14365	Fitting, Male Branch Tee	1	2/03/06
24	14396	Mounting Bracket, Nozzle	1	2/03/06
25	30031	HHCS, 1/4-20UNC x 1/2"LG	4	2/03/06
26	10521	Lockwasher 1/4"	6	2/03/06
27	14290	Fitting, Hose Barb, 3/8 Tube, Female	2	2/03/06
28	14481	Decal "SPRAY"	1	2/03/06
29	30142	HHCS 5/16-18 x 3/4"LG	4	2/03/06
30	10402	Lock Washer 5/16"Dia	6	2/03/06

TROWEL BLADE ASSEMBLY

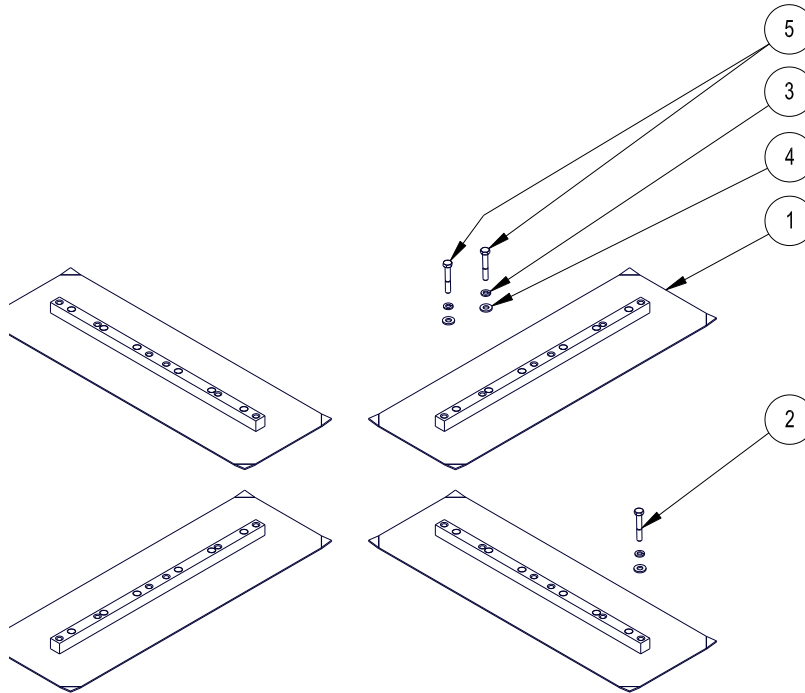


Figure 11 – Trowel Blade Kit

CUSTOMER PARTS LIST

Assembly # **Metric**
6 x 18 Finish – 4 Blade

Item #	Part #	Description	Qty	Eff. Date
1	20456	6 x 18 Metric Trowel Blade	4	2/01/06
2	10453	HHCS M8-1.25 x 50mm	12	2/01/06
3	11614	Lock Washer ø8MM	12	2/01/06
4	11667	Washer ø8MM	8	2/01/06

Assembly # **Imperial**
6 x 18 Finish – 4 Blade

Item #	Part #	Description	Qty	Eff. Date
1	20410	6 x 18 Imperial Trowel Blade	4	2/01/06
2	10403	HHCS 5/16-18 x 2"	4	2/01/06
3	10402	Lock Washer ø5/16"	12	2/01/06
5	30008	HHCS 5/16-18 x 1-3/4"LG	8	2/01/06

TS96 RIDE-ON TROWEL INSTRUCTION MANUAL

TRANSPORTER ASSEMBLY

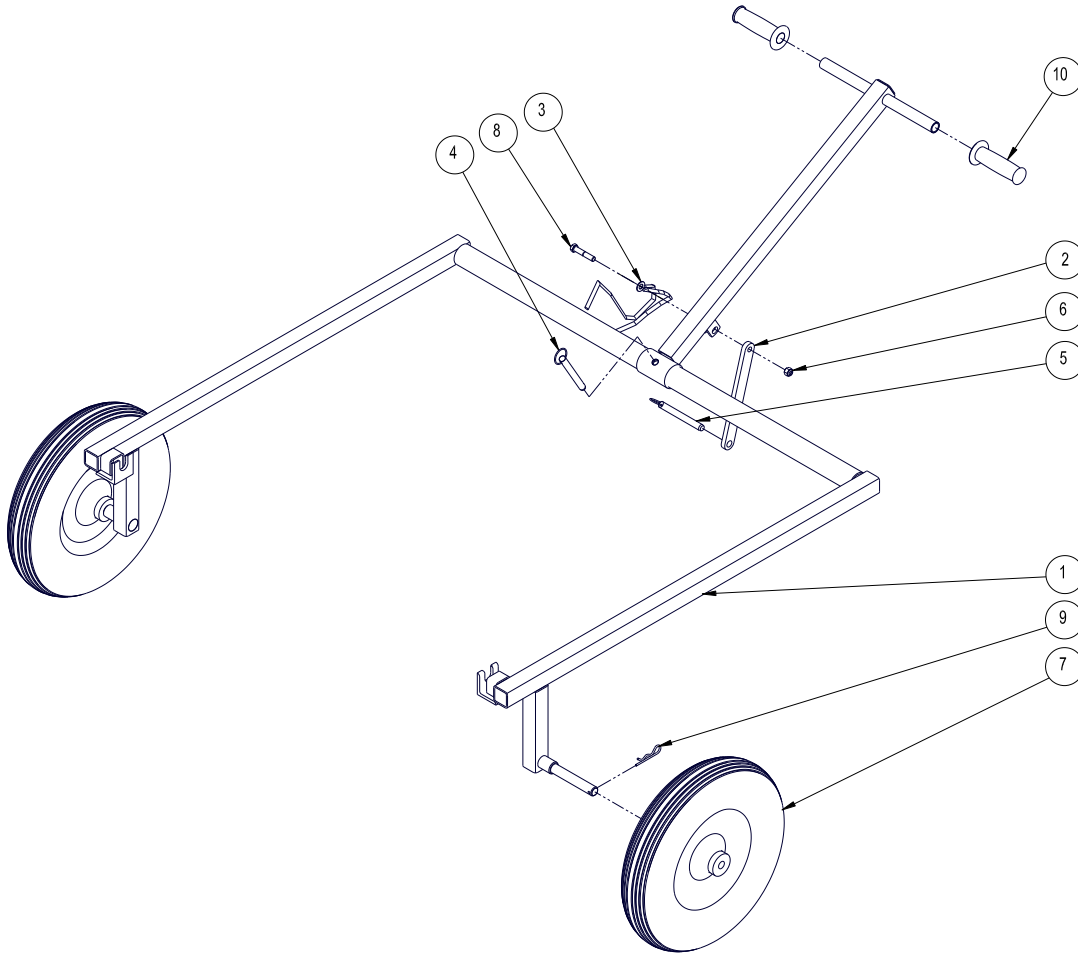


Figure 12 – TS96 Transporter

CUSTOMER PARTS LIST

Assembly # **22523**
Transporter

Item #	Part #	Description	Qty	Eff. Date
1	22524	Transporter Frame Assembly	1	7/29/04
2	13364	Exporter Linkage Arm	1	7/29/04
3	12860	Chain	1	7/29/04
4	12487	Large Hitch Pin 3-1/2"	1	7/29/04
5	12488	Small Hitch Pin 2-1/2"	1	7/29/04
6	10317	Nylock Nut 3/8-16	1	7/29/04
7	13198	Wheel ø16" x 4" Hub	2	7/29/04
8	12859	Hex Bolt 3/8-16 x 2"LG	1	7/29/04
9	50265	Spring Clip	2	7/29/04
10	10509	Handle Grips	2	7/29/04

TS96 RIDE-ON TROWEL INSTRUCTION MANUAL

TROUBLESHOOTING

WON'T START

- Throttle fully open
- Hand lever wire broken
- No gas
- Dirty gas
- Gas filter plugged
- Gas line plugged
- Hole in gas line
- Gas supply valve turned off (available on certain engines only)
- Dead-man safety switch inoperable (foot lever must be depressed)
- Safety switch wire or connectors not making good contact
- Other engine problems (Refer to engine manual)

STARTS BUT NO HIGH SPEED

- Engine problems
- Throttle cable broken or seized
- Throttle lever and connectors loose or out of adjustment
- Clutch shoes worn

TROWELS TURN, ENGINE AT IDLE

- Idle too fast
- Belt too tight
- Clutch seized

MACHINE JUMPS ON FLOOR

- Concrete hardened on bottom of spider plate
- Trowels unevenly worn
- Spider plate seized
- Spider plate loose
- Trowel arms bent
- Adjusting screws (carriage bolts) incorrectly set - use spider plate adjustment jig (pg,12)
- Mainshaft bent
- Steering handle too far right or left

SPIDER PLATE HARD TO GREASE

- Fittings plugged
- Cement in grease grooves of arms
- Grease fittings too tight

PITCH CONTROLS WILL NOT OPERATE BLADES

- Cable broken or out of adjustment
- Slot screw missing (under-side of handle)
- Pressure plate and/or yoke arm broken or badly worn
- Hand crank adjuster not working

BELT WEARING RAPIDLY

- Belt adjusted improperly
- Pulley out of alignment
- Wrong belt/defective belt
- Clutch sticking
- Gearbox seizing

OIL LEAKS

- a) **Top of gearbox**
 - Engine leaks
 - Relief valve broken
 - Too much oil in gearbox
 - Set screw missing in cover
- b) **Between end cap and gearbox (recoil side)**
 - "O" ring damaged
 - End cap not tight
- c) **At mainshaft or countershaft**
 - Relief valve seized
 - Shaft and/or seal worn

BLADES HITTING EACH OTHER (MODIFIED MODELS ONLY)

- Blades out of synchrony
- Sheared key in spider plate or gearbox
- Drive shaft misaligned

WON'T MOVE FORWARD OR REVERSE

- Pins or forward/reverse lever broken
- Rod end seizing on F/R lever
- Connecting rod broken

WON'T STEER LEFT OR RIGHT

- Steering arms broken
- Linkage worn out
- Gearbox stud sheared
- Rod end connecting shaft loose

DRIVE SHAFT WILL NOT TURN

- Universal joint(s) seized
- Yoke arm broken
- Spline stripped
- Key sheared

TS96 RIDE-ON TROWEL INSTRUCTION MANUAL

SPECIFICATIONS

RIDE-ON POWER TROWEL

TS96 (GASOLINE - Air Cooled)	
Engine Options	Honda 24 HP Kohler 25 HP Kohler 27 HP Vanguard 31 Vanguard 35
Length	96" (244 cm)
Width	48" (122 cm)
Height (without seat & steering levers)	28" (71 cm)
Weight	1225 lbs. (557 kg)
Trowel Coverage	29 sq. ft. (2.7 sq. m)
Travel Speed	380 ft/min (116 m/min)
Dual Rotor Speeds	180 ±10 rpm
Float Blade Size	10" x 18" (25 x 46 cm)
Finish Blade Size	6" x 18" (15 x 46 cm)
Combo Blade	8" x 18" (20 x 46 cm)
Pan Float Size	45 ¾" (116 cm)
Electric Start	Yes
Electrical System	12 Volt
Charging System	15 or 25 Amps
Battery	12 Volt
Dead-man Safety Switch	Yes
Fuel Capacity	2.9 Gal. (11 L)
Running Time (approximately)	2 ¾ hours.
Steering Levers	Adjustable Twin Stick
Variable Speed Clutch	Yes
Standard Features	Seat Adjuster Hour Meter 50W Light Package (4 light kit)
Options	Transporter Retardant Spray System

TS96 RIDE-ON TROWEL INSTRUCTION MANUAL

COMPANY INFORMATION

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(Directive 89/392/CEE, modified) and the rules governing its transposition

Mississauga, Ontario, Canada, October 2009

European Representative



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