



Operating Instructions and Parts Reference





P.O. Box 1940, JAMESTOWN, ND 58402-1940







Operating Instructions and Parts Reference





P.O. Box 1940, JAMESTOWN, ND 58402-1940





Operating Instructions and Parts Reference

DuraTech Industries International Inc. (Duratech Industries) has made every effort to assure that this manual completely and accurately describes the operation and maintenance of the ST-10 Compost Turner as of the date of publication. Duratech Industries reserves the right to make updates to the machine from time to time. Even in the event of such updates, you should still find this manual to be appropriate for the safe operation and maintenance of your unit.

This manual, as well as materials provided by component suppliers to Duratech Industries are all considered to be part of the information package. Every operator is required to read and understand these manuals, and they should be located within easy access for periodic review.

DURATECH & **(HAYBUSTER** are registered trademarks of Duratech Industries International, Inc. ST-10 is a trademarks of Duratech Industries International, Inc.





Foreword

All personnel must read and understand before operating unit

DuraTech Industries International Inc. has made every effort to assure that this manual completely and accurately describes the operation and maintenance of the ST-10 Compost Turner as of the date of the publication. Duratech Industries reserves the right to make updates to the machine from time to time. Even in the event of such updates, you should still find this manual to be appropriate for the safe operation and maintenance of your unit.

This manual, as well as materials provided by component suppliers to DuraTech Industries are all considered to be part of the information package. Every operator is required to read and understand these manuals which should be located within easy access for periodic review.

Appropriate use of the unit

Your DuraTech Industries ST-10 COMPOST TURNER is designed to mix and aerate windrows of ground compostable materials up to 10 feet wide, and comes equipped with a water spray header which can be used to add moisture to a windrow at rates of up to 100 GPM. The turner is NOT designed to turn rocks, tree limbs or any other solid objects.

Operator protection

As with all machinery, care needs to be taken in order to insure the safety of the operator and those in the surrounding area.



WARNING: Operators of the compost turner are required to wear head, eye, and ear protection. No loose clothing is allowed.

Part I: Operating Instructions		
Introduction	2	
Purpose	2	

Section 1: Safety	
1.1 Safety-alert symbols	
1.2 Operator - personal equipment	
1.3 Machine safety labels	6
1.4 Shielding	
1.5 Personal equipment	
1.6 Compost turner safety review	
1.7 Towing	9

Section 2: Dealer Preparation 10

2.1	ST-10 compost turner shipping list	10
2.2	Assembly instructions	11
2.3	Pre-delivery checklist	12
2.4	Machine operation check	12

Secti	on 3: Operation	13
3.1	Daily pre-operation inspection	
3.2	Introduction to the major system components	14
	3.2.1 Description of the Duratech Industries ST-10 compost turner	15
	3.2.2 Rotor	15
	3.2.3 Hood	15
	3.2.4 Hitch	15
	3.2.5 Outer jack	15
	3.2.6 Water system	15
	3.2.7 Inoculation system	
	3.2.8 Overview of operator controls	
3.3	Machine operations	
	3.3.1 Tractor set up and PTO hitch safety	
	3.3.2 Checking the maximum turning angles for the hitch	17
	3.3.3 Hitching the ST-10 to a tractor	
	3.3.4 Unhitching the ST-10 from a tractor	19
	3.3.5 Operating the machine as a unit	19
	3.3.6 How to make adjustments and evaluate performance	
	3.3.7 Shutdown procedures	
	3.3.8 Preparing the ST-10 for transport	

TABLE OF CONTENTS

3.3.9 Preparing the ST-10 for operation after transport	22
3.3.10 Preparing the ST-10 for storage	22
3.3.11 Removing the ST-10 from storage	22

Section 4: General Maintenance	23
4.1 General service and maintenance	

4.2 Lubrication244.2.1 Lubricating the Comer gearbox254.2.2 Lubricating the Prairie gearbox264.3 Axle, wheels, and tires264.4 General appearance26

Section 5: Troubleshooting the ST-10	27
Appendix A: Warranty	
Appendix B: Specifications	
Appendix C: Delivery Notification Form	30
Appendix D: User Training Verification Form	31
Appendix E: Operator Training Form	32
Appendix F: Required For Operation	33

ŀ	HTCH ASSEMBLY	36
Ι	DRIVELINE ASSEMBLY P.N. 3600311 - SN 0101 TO 0130	38
Ι	DRIVELINE ASSEMBLY P.N. 3600312 - SN 0101 TO 0130	40
Ι	DRIVELINE ASSEMBLY P.N. 3600432 - SN 0131 AND UP	42
Ι	DRIVELINE ASSEMBLY P.N. 3600431 - SN 0131 TO SN 0151	44
Ι	DRIVELINE ASSEMBLY P.N. 3600496 - SN 0152 AND UP	46
ŀ	HOOD ASSEMBLY - COMER GEARBOX	48
ŀ	HOOD ASSEMBLY - PRAIRIE GEARBOX	50
F	ROTOR ASSEMBLY	52
J	ACK ASSEMBLY	54
V	WATER SYSTEM ASSEMBLY	56
ŀ	HYDRAULIC ASSEMBLY	58
(GEAR BOX	60
Ι	DECALS	62
ST-	10 Compost Turner Documentation Comment Form	65

TABLE OF CONTENTS





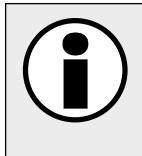
Part 1: Operating Instructions

1

Introduction

Purpose

Your Duratech Industries ST-10 COMPOST TURNER is designed to mix and aerate windrows of ground compostable materials up to 10 feet wide, and comes equipped with a water spray header which can be used to add moisture to a windrow at rates of up to 100 GPM. The turner is NOT designed to turn rocks, tree limbs or any other solid objects.



SPECIAL NOTE: When reference is made as to front, rear, left hand, or right hand of this machine, the reference is always made from standing at the rear end of the machine and looking toward the hitch. Always use serial number and model number when referring to parts or problems. Please obtain your serial number and write it below for your future reference.

MODEL: ST-10 Compost Turner SERIAL NO.

Section 1: Safety

Thank you for taking the time to read the operation and maintenance manual for the Duratech Industries ST-10 Compost Turner. Because your safety and that of others is of the utmost importance, you should familiarize yourself with this entire manual before operating this unit. The safety of the operator is of great importance to Duratech Industries. We have provided decals, shield and other safety features to aid you in using your machine safely. In addition, we ask you to be a careful operator who will properly use and service your Duratech Industries equipment.

Safety is an ongoing job experience, and Duratech Industries has made every effort to make sure that the ST-10 Compost Turner provides operator comfort and security. Duratech Industries encourages you to bring to our attention as quickly as possible any suggestions you may have concerning the safety of the equipment. Duratech Industries is dedicated to enhancing the safety of the ST-10 Compost Turner .

This unit is supplied with an operation and maintenance manual and this manual should be kept with the unit for periodic review by operational personnel.

Operators of the ST-10 Compost Turner are required to wear head, eye, and ear protection as well as clothing appropriate for the application. Individuals with loose clothing, unrestrained long hair, jewelry, or other accessories which may hang loosely away from the body should not be allowed on or near the machine.

Make sure that the tractor conforms to the tractor specifications described in Appendix F: Required For Operation.



WARNING: FAILURE TO COMPLY WITH SAFETY INSTRUCTIONS THAT FOLLOW WITHIN THIS MANUAL COULD RESULT IN SEVERE PERSONAL INJURY OR DEATH. BEFORE ATTEMPTING TO OPERATE THIS MACHINE, CAREFULLY READ ALL INSTRUCTIONS CONTAINED WITHIN THIS MANUAL.

THIS MACHINE IS NOT TO BE USED FOR ANY PURPOSE OTHER THAN THOSE EXPLAINED IN THE OPERATOR'S MANUAL, ADVERTISING LITERATURE OR OTHER DURATECH INDUSTRIES WRITTEN MATERIAL PERTAINING TO THE ST-10.

1.1 Safety-alert symbols

Decals are illustrated in Part 2: Parts Reference.

The safety decals located on your machine contain important and useful information that will help you operate your equipment safely.

To assure that all decals remain in place and in good condition, follow the instructions below:

- Keep decals clean. Use soap and water not mineral spirits, adhesive cleaners and other similar cleaners that will damage the decal.
- Replace all damaged or missing decals. When attaching decals, surface temperature of the machine must be at least 40° F (5° C). The surface must be also be clean and dry.
- When replacing a machine component to which a decal is attached, be sure to also replace the decal.
- Replacement decals can be purchased from your Duratech Industries dealer.

3

Duratech Industries uses industry accepted **ANSI** standards in labeling its products for safety and operational characteristics.



Safety-Alert Symbol

Read and recognize safety information. Be alert to the potential for personal injury when you see this safety-alert symbol.

DANGER: Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations, typically for machine components that, for functional purposes, cannot be guarded.

WARNING: Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.

CAUTION: Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.



DANGER:

Signal word - White Lettering/Red Background Safety Alert Symbol - White Triangle/Red Exclamation Point



WARNING:

Signal word - Black Lettering/Orange Background Safety Alert Symbol - Black Triangle/Orange Exclamation Point



CAUTION:

Signal word - Black Lettering/Yellow Background Safety Alert Symbol - Black Triangle/Yellow Exclamation Point

This manual uses the symbols to the right to denote important safety instructions and information.

The **DANGER**, **WARNING** and **CAUTION** symbols are used to denote conditions as stated in the text above. Furthermore, the text dealing with these situations is surrounded by a box with a white background, will begin with **DANGER**, **WARNING**, or **CAUTION**.

The **INFORMATION** symbol is used to denote important information or notes in regards to maintenance and use of the machine. The text for this information is surrounded by a box with a light grey background, and will begin with either **IMPORTANT** or **NOTE**.



1.2 Operator - personal equipment

THE OPERATOR

Physical Condition

You must be in good physical condition and mental health and not under the influence of any substance (drugs, alcohol) which might impair vision, dexterity or judgment.

Do not operate a **ST-10** Compost Turner when you are fatigued. Be alert - If you get tired while operating your **ST-10**, take a break. Fatigue may result in loss of control. Working with any industrial equipment can be strenuous. If you have any condition that might be aggravated by strenuous work, check with your doctor before operating

Proper Clothing



Clothing must be sturdy and snug-fitting, but allow complete freedom of movement. Avoid loosefitting jackets, scarfs, neckties, jewelry, flared or cuffed pants, unconfined long hair or anything that could become entangled with the machine.



Protect your hands with gloves when handling flail and sections. Heavyduty, nonslip gloves improve your grip and protect your hands.



Good footing is most important. Wear sturdy boots with nonslip soles. Steel-toed safety boots are recommended.



To reduce the risk of injury to your eyes never operate a **ST-10 Compost Turner** unless wearing goggles or properly fitted safety glasses with adequate top and side protection.



Engine noise may damage your hearing. Always wear sound barriers (ear plugs or ear mufflers) to protect your hearing. Continual and regular users should have their hearing checked regularly.

1.3 Machine safety labels

The safety decals located on your machine contain important information that will help you operate your equipment. Become familiar with the decals and their locations.



WARNING: FOR YOUR PROTECTION KEEP ALL SHIELDS IN PLACE AND SECURED WHILE MACHINE IS OPERATING MOVING PARTS WITHIN CAN CAUSE SEVERE PERSONAL INJURY.

I	A WARNING	ADVERTENCIA
	FOR YOUR PROTECTION KEEP ALL SHIELDS IN PLACE AND SECURED WHILE MACHINE IS OPERATING. MOVING PARTS WITHIN CAN CAUSE SEVERE PERSONAL INJURY.	PARA ASEGURAR SU PROTECCION MANTENGA TODOS LOS PROTECTORES E SU LUGAR Y ASEGURADOS MIENTRAS L MAQUINA ESTE OPERANDO. LAS PIEZA MOVILES INTERNAS PUEDEN CAUSA LESIONES PERSONALES GRAVES.

6500040



WARNING: WAIT FOR ALL MOVEMENT TO STOP. FAILURE TO USE CAUTION COULD RESULT IN SERIOUS INJURY OR DEATH.

A WARNING	ADVERTENCIA
WAIT FOR ALL MOVEMENT TO STOP	ESPERE A QUE CESE TODO EL MOVIMIENTO
FAILURE TO USE CAUTION COULD	EL NO EJERCER PRECAUCION PODRIA
RESULT IN SERIOUS	RESULTAR EN LESIONES
INJURY OR DEATH	GRAVES O LA MUERTE

6500110



WARNING: BE CERTAIN THAT ALL PERSONNEL ARE CLEAR OF WINGS BEFORE FOLDING OR UNFOLDING.

FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN SEVERE INJURY OR DEATH.



6500179



WARNING: FOR YOUR PROTECTION AND SAFETY OF OTHERS, FOLLOW THESE SAFETY RULES.

- 1. Read and understand operators manual before operating machine.
- Place all controls in neutral, stop engine, remove ignition key, lock out power source, and wait for all motion to stop before servicing, adjusting, repairing, or unplugging.
- 3. Read and understand all decals on machine for your safety.
- 4. Keep all shields in place while machine is in operation.
- 5. Keep hands, feet, hair, and clothing away from moving parts.
- 6. Keep others away from machine while in operation.
- 7. Install safety locks before transporting, or working beneath components.
- 8. Do not allow riders at any time.
- 9. Do not leave machine unattended with engine running.
- 10. Keep all hydraulic lines, couplings, and fittings free of leaks during operation.
- 11. Keep away from overhead electrical lines. Electrocution can occur without direct contact.
- 12. Review safety instructions periodically.



WARNING: HIGH-PRESSURE FLUID HAZARD

To prevent serious injury or death:

• Relieve pressure on system before repairing or adjusting or disconnecting.

• Wear proper hand and eye protection when searching for leaks. Use wood or cardboard instead of hands.

• Keep all components in good repair.



6500208



when searching for leaks. Use wood or cardboard instead of hands. Keep all components in good repair.

6500220



CAUTION: INSERT TRANSPORT LOCKS BEFORE MOVING ON ROADS.

	A PRECAUCION
INSERT TRANSPORT	ANTES DE DESPLAZARSE
LOCKS BEFORE	EN LA RUTA INSERTE LOS
MOVING ON ROADS	SEGUROS DE TRANSPORTE

6500112

1.4 Shielding

A shield should be installed on the tractor to protect the operator and cab glass from thrown material. This shield should be made of heavy expanded metal held in place by a sturdy frame. To ensure the operators safety, all of the ST-10's shields must be kept in place and in operating condition.

1.5 Personal equipment

Operators of the compost turner are required to wear head, eye, and ear protection. No loose clothing is allowed.

1.6 Compost turner safety review

Each and every safety aspect of the Duratech Industries ST-10 compost turner should be reviewed by each operator on a frequent basis. Safety systems are in place that result in direct operator security.

- Before Operating the ST-10 Compost Turner, be sure to read and follow all instructions contained in this **ST-10 COMPOST TURNER Operator's manual** and in the Tractor's Operator's manual. **NOTE:** Additional copies of the above mentioned materials can be obtained from the dealer.
- Allow only responsible, properly instructed individuals to operate your machine. Carefully supervise inexperienced operators.
- Use a tractor which meets the tractor requirements contained within this manual (page 32).
- Never operate the unit without all safety features, including shields, in place and in operating condition.
- Make no modifications to the machine unless specifically recommended or requested by Duratech Industries Industries International Inc.
- Check periodically for broken or worn parts and make any necessary repairs.
- If required, install the PTO safety chain. Check local regulations regarding safety chain requirements.
- Do not go under a raised weight (like the rotor) unless it has been mechanically secured.
- Be sure area is clear under the rotor before lowering it to the ground.
- Remove large objects like rocks and wood chunks from the windrow before turning it with the compost turner. Large objects may damage the machine or cause injuries when propelled by the spinning rotor.
- Everyone must be at least 60' away from work area except for the operator seated at the tractor controls.
- Never work on or near the compost turner unless engine is shut off and hammers are stopped.

- Disengage PTO and make sure everyone is clear of machine before starting engine.
- Power takeoff shafts must be locked in place with protective PTO shields in place.
- Never leave tractor controls unattended while the engine is running.
- Exercise extreme care when operating on rough and/or steep terrain. Avoid operation on terrain which is excessively rough or steep. Serious injury could result if the machine is allowed to tip.
- Make sure tractor PTO speed never exceeds 540 RPM!

1.7 Towing

A commercial driver's licence may be required to tow this unit on public roads; verify with traffic control or licensing authorities.

- When towing the ST-10, watch for low power lines.
- Use good judgment and drive slowly over rough or uneven terrain.
- Be sure tractor brakes are properly adjusted and that the tractor's foot pedals are locked together.
- Tires and rims are rated for 20 mph or less.
- Check all lights, brakes, safety chains and hitch connections before towing. Check your state laws regarding the use of lights, slow moving vehicle signs, safety chains, and other possible requirements.

Section 2: Dealer Preparation

2.1 ST-10 compost turner shipping list

ITEM	PART	QTY	DESCRIPTION
1.	3600431		REAR PTO SHAFT W/CLUTCH
2.	3600432	1	FRONT PTO SHAFT W/TRACTOR CONNECTION
3.	4100178	1	HYDRAULIC CYLINDER 4X34
4.	4800056	2	3/16 HAIR PIN
5.	4800221	2	ROLLED PIN 1/4"X2"
6.	5800602	1	HITCH JACK
7.	7801000	2	HINGE PIN 1"X6-1/2"
8.	7801011	1	REAR WEIGHT BOX
9.	7801014	1	ADJUSTING PIN
10.	7801015	2	HINGE PIN
11.	7801016	1	LEFT DEFLECTOR
12.	7801017	1	RIGHT DEFLECTOR
13.	7801024	1	SIDE WEIGHT BOX
14.	7801037	2	WEIGHT BOX LIFTING BRACKET
15.	7801055	1	HITCH\CAT3\PPI
16.	7500642	1	HITCH\CLEVIS\PPI
17.	4800562	1	BOLT\HEX\3/4X5\GR8\NC
18.	4900139	1	NUT\TPLCK\3/4\GR8\NC
19.	4800187	2	BOLT\HEX\1"X6"
20.	4900127	2	NUT\TPLCK\1"

2.2 Assembly instructions

- 1. Adjust the tractor drawbar so that the distance from the end of the 540 RPM PTO shaft on the tractor to the center of the drawbar hitch pin hole is 14" (36 cm.). Refer to pages 17-18.
- 2. Attach hitch jack (5800620) to hitch frame. See page 34.
- 3. Attach hitch (7500641) and hitch clevis(7500642) to hitch frame. See page 34.
- 4. Attach hood jack (7801033) and tire to hood.See page 41.
- 5. Connect the compost turner to the tractor drawbar. Adjust the hitch so that the hood is parallel with ground. The hitch can be adjusted at the front by setting 7500641, the hitch, up or down as needed. The hitch can be adjusted at the axle by 4 bolts (7801022) connecting the axle to the frame.
- 6. Raise the hitch jack. Pull the lock pin and store in the transport position.
- 7. Remove hydraulic cylinder from shipping position. Run hoses through the hose minders on the hitch. Then connect the two hydraulic hoses from the hydraulic cylinder to one set of hydraulic couplers on the tractor.
- 8. Cycle cylinder several times to remove air from hydraulic system. Attach cylinder to hood and hitch. (Grease pins before installing).
- 9. Set hood & rotor assembly near hitch. Align hinge points, insert (2) Hinge Pins 7801000, and (2) rolled pins 4800221. See page 34.
- 10. Attach the rear PTO shaft 3600431 to the gearbox and intermediate 12" shaft. Attach the front PTO shaft 3600432 to the front end of the intermediate shaft, making sure that the yokes on both shafts line up. If they are not aligned, it may cause high noise levels and/or shaft breakage. Insert bolts into the 3 yokes and tighten bolts to secure the yokes to the stub shafts. Depress front coupling and slide the coupling onto the tractor PTO shaft. Make sure the spring loaded safety catch is properly seated.
- 11. Fill steel boxes with concrete. Set lifting bracket 7801037 so there is a 3" clearance between the bracket and the concrete. Both boxes must be bolted securely to hitch frame. The two boxes will require over 2 cubic yards of concrete. Concrete density is to be 150 pounds per cubic foot. Weights are to keep hitch down when lifting the rotor. Boxes can be filled earlier, but the hitch is harder to move around for connecting to the hood. You are better off having extra concrete and rounding at the top instead of being short on weight.
- 12. Clevis bolts are not tight. Set the unit height so that the tractor drawbar is level with the hitch then tighten the clevis bolts.
- 13. Attach left and right deflectors 7801016 and 7801017 to hood with pins 7801014 and 7801015. See page 36.
- 14. This machine is set up to operate on 540 RPM PTO only!
- 15. If required, install the safety chain. Check local regulations regarding safety chain requirements.
- 16. Grease the PTO **before** using the machine.

2.3 Pre-delivery checklist

INSTRUCTIONS: Before delivering the machine, check the following items carefully and make corrections when necessary. Place an "X" in the box when each item has been checked and found to be acceptable.

- Check machine for missing pieces or damage in transit.
- Check for loose bolts or set screws.
- Check all hydraulics components for leaks or damage.
- Check lug bolts for tightness.
- Check tires for proper air pressure
- **Check condition of tire rims.**
- **Check machine for proper lubrication.**
- Check all shields for installation and condition.
- Check condition of all decals.

2.4 Machine operation check

Check all phases of operation.

- □ After counterweight boxes are filled with concrete, Check hydraulics to ensure that the hood raises and lowers correctly.
- Check rotor to ensure that it turns correctly.
- Check the hood jack to see if it raises and lowers the hood correctly.

Section 3: Operation

3.1 Daily pre-operation inspection

To insure long life and economical operation, thorough and complete instruction in the maintenance and operation of the machine is highly recommended.

There is no substitute for a sound preventative maintenance program and a well-trained operator.

Prior to starting the engine of the tractor, it is recommended that the operator make a visual inspection of the unit. This can be done as the lubrication is being carried out. Any items that are worn, broken, missing or needing adjustment must be serviced accordingly before operating the compost turner.

Before working on or near the compost turner for any reason, including servicing, cleaning, unplugging or inspecting machine, use normal shutdown procedures unless instructed differently in this manual.

Check the following:

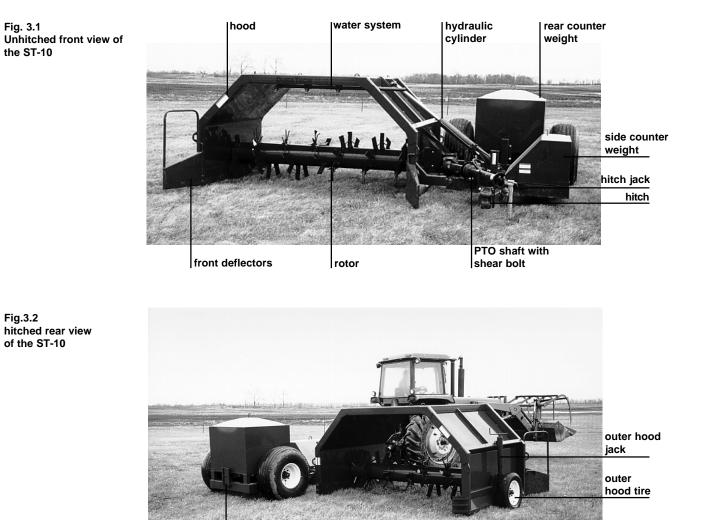
Check hydraulic components for leaks or damage.



WARNING: Hydraulic fluid escaping under pressure can be almost invisible and can have sufficient force to penetrate the skin. When searching for suspected leaks, use a piece of wood or cardboard rather than your hands. If injured, seek medical attention immediately to prevent serious infection or reaction.

- Check the condition of hammers and attachment bolts.
- Check the rotor for bent hammer mounts.
- Check that all shields are in place and in operating condition.
- Check lug nuts for tightness.
- Check the condition of tire rims, and check tires for proper air pressure, 36 psi max.
- □ If slow moving vehicle (SMV) sign is required, check the condition of the SMV sign.
- Check the condition of decals.
- □ Check lubrication points and lubricate as recommended in section "4.2 Lubrication" which can be found in the general maintenance portion of this manual.

3.2 Introduction to the major system components



storage bracket for outer hood jack and tire

ST-10 COMPOST TURNER OPERATING INSTRUCTIONS

3.2.1 Description of the Duratech Industries ST-10 compost turner

Your model ST-10 compost turner is designed to mix and aerate 10 foot wide windrows of ground compostable materials. It can turn smaller windrows but is not made to turn wider windrows. The unit comes equipped with a water spray header which can be used to add moisture to a windrow at rates of up to 100 GPM. Additionally, a fleece roller can be added to cover windrows and control moisture. An optional inoculation system which accelerates the composting process by seeding the windrow with microorganisms is also available.



NOTE: The turner is NOT made to turn rocks, tree limbs or other solid objects. Remove them from the windrow before turning.

3.2.2 Rotor

The rotor is the heart of the turner. The rotor incorporates three styles of hammers to pull the material at the outer edges of the windrow towards the center while mixing and aerating the material. The shape of the finished windrow can be changed by rotor speed.

3.2.3 Hood

The hood is the framework around the rotor which helps to prevent material from being scattered by the rotor.

3.2.4 Hitch

The hitch connects the drawbar to the hood. Adjustments to the rear axle height and front hitch can be made to keep the hood parallel to ground. The ground clearance for the inner edge of hood is also regulated by adjustments to the rear axle height and front hitch.

The cylinder can be extended to raise the inner tire off the ground which will raise the inner edge of the hood providing more ground clearance while running.

3.2.5 Outer jack

The outer jack is adjusted to raise and lower the outer edge of the hood depending on the required ground clearance. In order to reduce the overall height of the machine when transporting, the outer jack can be removed and placed on the rear end of the hitch.

3.2.6 Water system

Controlling moisture content of the windrow is important in the composting process. The unit comes equipped with a water system which can be used to add moisture to a windrow at rates of up to 100 GPM. The turner's water system consists of a spray header made up of a pipe with three nozzles. In order to utilize the ST-10's water system, the customer must provide a water delivery system which consists of a water tank, pump, and control valves.

3.2.7 Inoculation system

This option gives the operator the flexibility to add an inoculation package to the process. The inoculation system accelerates the composting process by seeding the windrow with microorganisms.

3.2.8 Overview of operator controls

Since operation of the ST-10 is accomplished through the unit's connection to a tractor and through other third party systems, there are no operator controls on the ST-10 unit.

In a typical configuration, the operator controls operate in the following manners:

- The tractor throttle controls the speed of the rotor, and the tractor PTO lever is used to engage or disengage the PTO. Engaging the PTO causes the rotor to turn, and disengaging the PTO causes the rotor to slow down and eventually stop.
- The ST-10's hydraulic system performs only one function; raising and lowering the hood and rotor for transport. In order to utilize this function, the ST-10's hydraulic lines must be connected to the tractor's hydraulic system. Once connected, raising and lowering of the hood and rotor is controlled by the tractor's hydraulic controls.
- In order to utilize the ST-10's water system, the customer must provide a water delivery system which consists of a water tank, pump, and control valves. The water spray output of the ST-10 is adjusted by water line pressure, which is set by the water pump and any control valves present in the water delivery system.

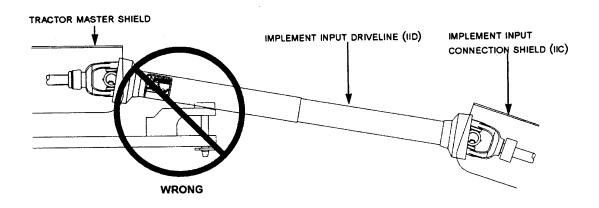
3.3 Machine operations

This sub-section describes how to operate the ST-10 compost turner as well as how to optimize the unit's performance.

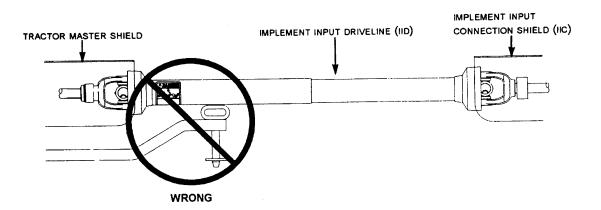
3.3.1 Tractor set up and PTO hitch safety

A tractor drawbar and 3-point arms can cause interference with the PTO driveline IID (Implement Input Driveline). This interference can cause serious damage to the IID guarding and the IID telescoping members.

If this implement is attached to a tractor with a clevis hitch (hammer strap) style drawbar, the hammer-strap must be removed to prevent damage to the IID guarding and the IID telescoping members.



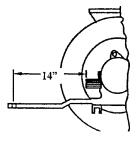
If this implement is attached to a tractor with an offset in the drawbar, be certain it is in the down position to prevent damage to the IID guarding and the IID telescoping members.



If this implement is attached to a tractor with 3-point arms, the arms must be fully raised and locked in position to prevent damage to the IID guarding and the IID telescoping members.

3.3.2 Checking the maximum turning angles for the hitch

To **PREVENT DAMAGE** to the **PTO**, adjust the tractor drawbar so that the distance from the end of the PTO shaft on the tractor to the center of the drawbar pin is 14". See figure at right.



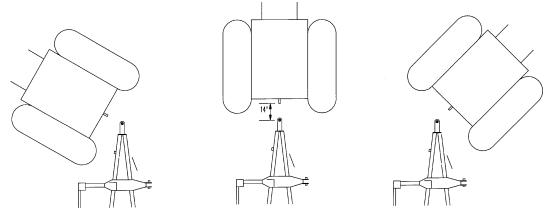


Fig. 3.3 Maximum turning angles for the hitch

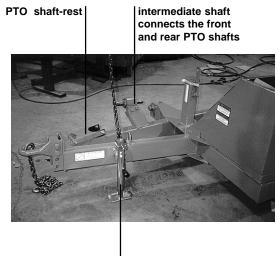
Due to the difference in height between the drawbars and the size and spread of the tractor tires, it is necessary for the operator to check the maximum turning angles between the tractor and the ST- 10 before operation. Failure to check the maximum turning angles may result in damage to the PTO.

- Step 1. With the PTO detached from the tractor make a sharp left hand turn. Try to attach the PTO to the tractor. If the PTO can not be attached to tractor, the angle is too sharp. Detach the PTO and repeat the previous instructions at a slightly shallower angle until you find the angle at which the PTO will attach to the tractor. Set this angle as the limit. When turning the tractor with the ST-10 connected, do not exceed this limit. If the PTO can be attached to the tractor, note the angle, detach the PTO and repeat the previous instructions at a slightly sharper angle until you find the angle at which the PTO will not attach to the tractor. Set the limit as the last angle where the PTO could attach to the tractor. When turning the tractor with the ST-10 connected, do not exceed this limit. To the tractor. Set the limit as the last angle where the PTO could attach to the tractor. When turning the tractor with the ST-10 connected, do not exceed this limit.
- Step 2. Repeat the procedure for right hand turns.

3.3.3 Hitching the ST-10 to a tractor

To hitch the ST-10 to a tractor, perform the following steps:

- 1. Back the tractor up to the turner and install the hitch pin.
- 2. Check the maximum turning angles for the hitch. (See section 3.3.2)
- 3. If the safety chain is installed, connect the safety chain.
- 4. Attach the ST-10's hydraulics hoses to the tractor's hydraulic system.
- 5. Attach the ST-10's PTO shaft to the tractor, and then lower the shaft rest to the hitch.
- 6. Raise the hitch jack.
- 7. Remove blocking.



hitch jack

3.3.4 Unhitching the ST-10 from a tractor

To unhitch the ST-10 from a tractor, perform the following steps:

- 1. Follow the normal shutdown procedure which can be found in section 3.3.7
- 2. After making sure that the rotor is completely down, cycle the hydraulic control levers to release any pressure in the hydraulic hoses.
- 3. Block the tires so that the machine can't roll.
- 4. Lower jack, making sure that the base of the jack is setting on a firm surface. Raise the tongue off of the tractor's draw bar.
- 5. Detach the PTO shaft from the tractor.
- 6. Detach the hydraulic hoses from the tractor.
- 7. Remove the safety chain, if installed.
- 8. Remove the hitch pin.

3.3.5 Operating the machine as a unit



WARNING: Before starting the tractor or engaging the PTO, make all the necessary hookups to the tractor as outlined in section 3.3.3 "Hitching the ST-10 to a tractor". Prior to starting the tractor or engaging the PTO, make sure that the rotor is clear of any solid objects, and also make sure that any bystanders are at least 60' away from the machine.

- The ST-10's hydraulic system performs one function: raising and lowering the hood and rotor for transport.
- The tractor's engine speed must be varied according to the amount of material being turned. When starting or finishing a windrow, the rotor must be slowed down to less than 130 RPM, or less than 250 RPM on the PTO. Operating speed in the windrow will vary according to the size of the windrow. A smaller windrow should be turned at a slower RPM than a larger windrow. The rotor should turn fast enough to produce a peaked windrow.
- After finishing a windrow, immediately disengage the PTO. The PTO should always be disengaged while the operator maneuvers the tractor to the next windrow or while the operator maneuvers the tractor for another pass on the same windrow.
- In extremely cold weather, run the machine without a load to allow the bearings and gearbox to warm up.

3.3.6 How to make adjustments and evaluate performance

ADJUSTING HOOD HEIGHT

Hood height is controlled at the following 4 points: the outer hood jack, the hitch axle, the hitch connection and with the hydraulic cylinder over extension.

The hood clearance should initially be set at 1/2" on asphalt lots and 1-1/2" on dirt or gravel lots. The hood clearance is defined as the distance from the ground to the bottom edge of the hood. Hood clearance should be minimized so that as little product as possible is left unturned. In order to keep the end of the hood or the rotor paddles from digging into the ground, hood clearance must be maintained over the entire length of the windrow.

- The hitch connection and hitch axle adjustments will set depending on how parallel the hood is to the ground. The hitch connection (7500641) is set according to the tractor hitch to keep the hitch roughly parallel to the ground. The hitch axle is set by 4 bolts and 8 nuts which connects the axle to the hitch. The hitch axle should be set for the initial hood clearance described above, after the counterweight boxes have been filled.
- The outer hood jack adjusts the outer edge-to-ground clearance. This is set by turning the crank on the jack, which raises or lowers the hood.
- During operation, the hydraulic cylinder can be adjusted to raise the inner edge of the hood. The cylinder has extra travel in it which could be used to raise the inner edge and the inner tire.

ADJUSTING ROTOR SPEED

Rotor speed is adjusted by the tractor engine's RPM. The speed of the rotor will determine the shape of the pile.

ADJUSTING GROUND SPEED

Ground speed is set by the tractor engine unless there is a pusher axle. If there is a pusher axle, the ground speed should be set slow enough to prevent material from plugging the rotor. In general, the ground speed varies from approximately 1/4 to 1/2 miles per hour.

ADJUSTING WATER SPRAY OUTPUT

Water spray output is determined by the water line pressure and the water line pressure is determined by pump and control valves of the water delivery system. The accompanying chart shows how the water output varies with line pressure.

With original nozzles:

Water System Pressure Output/Nozzle Total Output(3 nozzles)

10 psi	12 GPM	36 GPM
30 psi	21 GPM	63 GPM
60 psi	29 GPM	87 GPM
100 psi	38 GPM	114 GPM

3.3.7 Shutdown procedures

For your safety and the safety of others, you must use the following normal shutdown procedure before leaving the tractor controls unattended for any reason; including servicing, cleaning, or inspecting the compost turner. A variation of the following procedure may be used if so instructed within this manual, the tractor's manual or if an emergency requires it.

- Disengage the PTO.
- Lower machine to ground level.
- Place transmission in park or set the parking brake.
- Shut off the tractor's engine and remove the tractor's ignition key.
- Wait for all movement on the compost turner to stop before exiting the tractor's cockpit or operators seat.

3.3.8 Preparing the ST-10 for transport

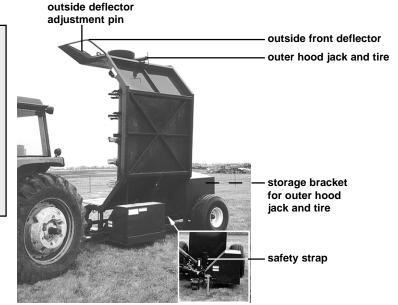
To prepare the ST-10 for transport over public roadways, perform the following steps:

- 1. This ST-10 is designed to fold for easy transportation. The hood and rotor assembly rotates up to set on the hitch.
- 2. Be sure tractor brakes are properly adjusted and that the tractor's foot pedals are locked together.
- 3. Set the front deflectors towards the center of the machine. Setting the outside deflector will reduce transport height.
- 4. Move hood jack to bracket on rear of hitch. This also reduces transport height.
- 5. Raise hood all the way up, watching for overhead obstructions.
- 6. Bolt safety strap in place.
- 7. Review the safety guidelines for towing the ST-10. These guidelines can be found in section 4.5 of this manual.



NOTE: ILLUSTRATION DOES NOT SHOW THE OUTSIDE DEFLECTOR IN TRANSPORT POSITION. TO PLACE IN TRANSPORT POSITION, USE THE OUTSIDE DEFLECTOR ADJUSTMENT PIN TO SET THE FRONT DEFLECTOR TOWARDS THE CENTER OF MACHINE.

NOTE: ILLUSTRATION DOES NOT SHOW THE OUTER HOOD, JACK, AND TIRE IN THE TRANSPORT POSITION. OUTER HOOD JACK AND TIRE SHOULD BE MOVED TO THE STORAGE BRACKET ON THE REAR COUNTER WEIGHT BEFORE TRANSPORT



3.3.9 Preparing the ST-10 for operation after transport

To prepare the ST-10 for operation after transporting it over public roads, perform the following steps:

- 1. Park the ST-10 on level ground.
- 2. Unbolt the safety straps.
- 3. Lower the hood to the ground.
- 4. Move the hood jack to its operating position on the hood.
- 5. Set the front deflectors to their operating position.

3.3.10 Preparing the ST-10 for storage

To prepare the ST-10 for storage, preform the following steps:

- 1. Shutdown the ST-10 using the normal shutdown procedure.
- 2. Clean all mud, dirt, grease and other foreign material from the exterior of the machine. If washing the compost turner with a high pressure washer, keep the nozzle away from the sealed bearings. To inhibit rusting, repaint places on the machine where the bare metal is exposed.
- 3. Rest the hitch on the hitch jack, and take the weight off the tires by setting the rear axle up on blocks. Do not deflate the tires. Raise the hood tire off ground using the hood jack. If possible, store the machine in a dry, protected place. If it is necessary to store the machine outside, cover it with waterproof canvas, plastic, or other protective covering.
- 4. To inhibit rusting, use blocks to raise the hood off of the ground.
- 5. Coat the exposed lift cylinder rod with grease and follow the lubrication instructions which can be found in the General maintenance section of this manual. Clean and repack the wheel bearings.
- 6. Check the machine for any worn or broken parts.

By ordering parts now, you will avoid delays when it is time to remove the machine from storage. When ordering parts, always specify the machine's serial number and the part number of the replacement part. Part numbers can be found in the parts section of this manual.

3.3.11 Removing the ST-10 from storage

To remove the ST-10 from storage, preform the following steps:

- 1. Remove all the protective coverings from the unit.
- 2. Remove the blocking from under compost turner and check the tire pressure.
- 3. Lubricate the machine following the lubrication instructions which can be found in the General maintenance section of this manual.
- 4. Check all of the hydraulic hoses for deterioration and, if necessary, replace the hoses. Inspect the hydraulic cylinder tightening any loose bolts, nuts or hydraulic fittings.
- 5. Preform a pre-operation inspection.

Section 4: General Maintenance



WARNING: Before inspecting the machine, use the normal shutdown procedure on page 19.

4.1 General service and maintenance



CAUTION: Before performing any maintenance or adjustments make sure the machine is NOT running. If for any reason arc welding is to be done on this machine, always ground the rotor to frame of machine to prevent arcing within the bearings.

Never work on the compost turner with the hood & rotor in the raised position. Lower the hood and rotor to ground level.

Use only replacement parts that are recommended and approved by Duratech Industries International Inc.

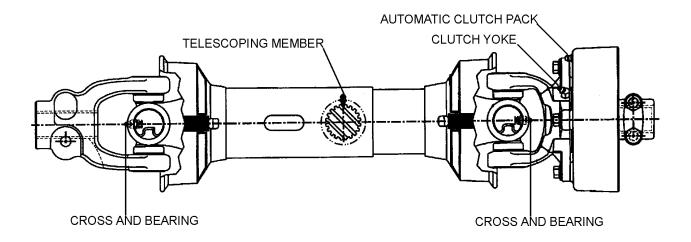
Cycle the hydraulic control levers to relieve all pressure in the hydraulic system before disconnecting the hoses or performing other work on the system. Make sure all connections are tight and the hoses are in good working condition before applying pressure to the hydraulic system.

CAUTION: Use the normal shutdown procedure on page 19 before lubricating the machine.

IMPORTANT PTO LUBRICATION INSTRUCTIONS

To insure the best possible performance, all indicated lubrication points should be greased as often as every eight (8) hours under severe conditions. All lubrication points should be greased at equal intervals.

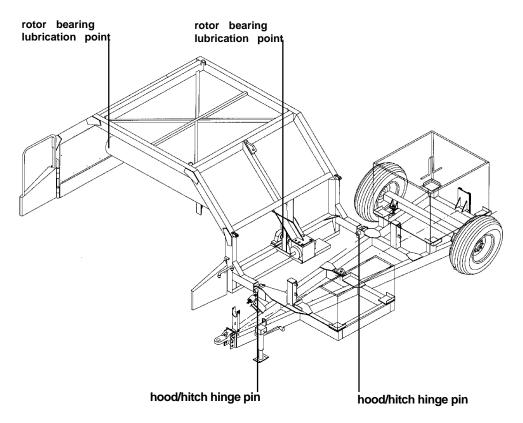
- Telescoping Members: require 4-8 pumps every 8 hours to maintain a smooth sliding action. When telescoping members become contaminated with dirty grease, they should be inspected and cleaned to insure continued smooth operation.
- Shield components should be lubricated and inspected to insure all components are in good working condition. Damaged shields should be replaced. A properly maintained shield will inhibit dirt from contaminating telescoping members.
- Cross and Bearing require 2 pumps every 8 hours.



- Clutch Yoke: Once per season, remove clutch pack from yoke and hub, rotate hub as grease is added until grease starts to come out of yoke.
- Automatic Clutch Pack: 5 pumps per season: if installed. DO NOT grease if no zerk is present
- Use only a high quality multipurpose grease when lubricating the unit. Make sure all fittings and the nozzle of the grease applicator are clean before applying the grease. If any grease fittings are missing, replace them immediately.

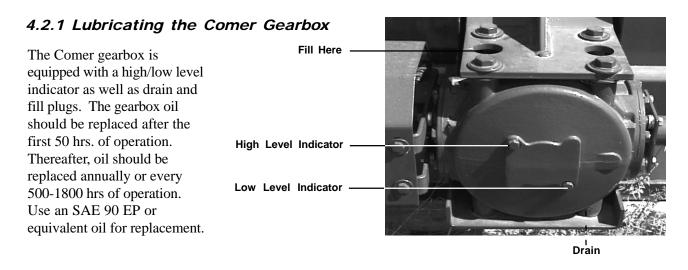
Machine has 10 points to lubricate with grease gun every eight (8) hours of operating time.

- Rotor bearings total of two points
- Hood/Hitch hinge pin (7801000) total of two points
- See PTO Section Total of six points

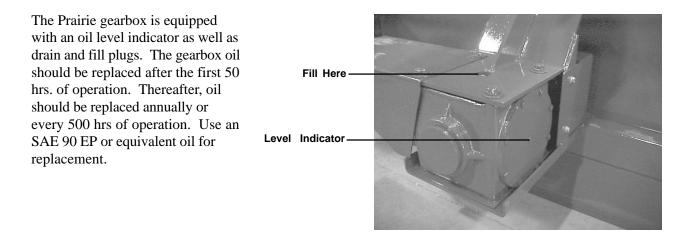


Periodically apply grease to sliding track of support wheel on hood.

Wheel hub bearings on axle and hood jack should be checked for adjustment and lubrication annually, preferably at the end of the season. If there is a generous amount of grease on the bearing and the housing, and if the grease is soft, the grease will not need changing. If the grease is caked, or the bearing seems dry, the bearing should be cleaned to remove old grease and contaminants. The bearings should be repacked and reinstalled.



4.2.2 Lubricating the Prairie Gearbox



4.3 Axle, wheels, and tires

The tires should be checked for abnormal wear or damage. The tires should be inflated to 36 psi.

Check lug and axle nuts periodically.

4.4 General appearance

Clean the unit frequently with high pressure air or water in order to make the inspection process easier. Leaking hoses and loose fasteners are easier to see on a clean unit. Use no solvents when cleaning the unit, and do not spray bearings with water.

Section 5: Troubleshooting the ST-10

The following represent problems you may encounter with your ST-10 and some basic solutions.

Hammers hit the ground.

There are two basic problems encountered with the hammers hitting the ground. The first remedy is to check for proper rotor and hood height adjustment. See section 3.3.6 of this manual. If the height adjustment is correct, check for an uneven work surface. The working surfacing for the ST-10 should be as level as possible.

Damaged PTO.

The PTO can be damaged by one of several ways. The most common cause of PTO damage results from turning to sharply. See section 3.3.1 of this manual.

Rotor stuck in windrow.

If the rotor becomes stuck in the windrow while working, the most probable cause is excessive speed. See section 3.3.5 -3.3.6 of this manual.

Material building up on both sides of hood.

If you are experiencing excessive buildup of material under the hood the primary cause is likely to be that your windrow is to large. The ST-10 is designed to accept a maximum width of 10 feet. Keep windrow within 10 feet or less.

Windrow not properly peaked.

The speed of the rotor will determine the shape of the pile. Check to see that compost is not sticking to the hammers or that there is excessive wear on one or more of the hammers. See sections 3.3.5 and 3.3.6 of this manual.

Shear pin breaks excessively.

Among the likely causes for excessive shear pin breakage are:

- The automatic clutch has been activated excessively.
- Worn hammers. (see section 3.3.6. of this manual)
- Large objects in the windrow pile. Large objects should be removed from the windrow pile before turning. (see section 3.2.1 of this manual)
- Running too fast, or too deep, in new windrows- Material may be packed solid when windrows are set up. You should slow down, and raise the turner up as much as possible, on first passes.

Appendix A: Warranty

Duratech Industries International Inc. warrants to the original purchaser for 1 year from purchase date that this product will be free from defects in material and workmanship when used as intended and under normal maintenance and operating conditions. This warranty is limited to the replacement of any defective part or parts returned to our factory in Jamestown, North Dakota, USA, within thirty (30) days of failure.

This warranty shall become void if in the judgment of Duratech Industries International, Inc. the machine has been subject to misuse, negligence, alterations, damaged by accident or lack of required normal maintenance, or if the product has been used for a purpose for which it was not designed.

All claims for warranty must be made through the dealer which originally sold the product and all warranty adjustments must be made through same.

This warranty does not apply to tires or bearings or any other trade accessories not manufactured by Duratech Industries International Inc. Buyer must rely solely on the existing warranty, if any, of these respective manufacturers.

Duratech Industries International Inc., shall **not** be held liable for damages of any kind, direct, contingent, or consequential to property under this warranty. Duratech Industries International Inc., cannot be held liable for any damages resulting from causes beyond its control. Duratech Industries International Inc., shall **not** be held liable under this warranty for rental costs or any expense or loss for labor or supplies.

Duratech Industries International Inc., reserves the right to make changes in material and/or designs of this product at any time without notice.

This warranty is void if Duratech Industries International Inc. does not receive a valid warranty registration card at its office in Jamestown, North Dakota, USA, within 10 days from date of original purchase.

All other warranties made with respect to this product, either expressed or implied, are hereby disclaimed by Duratech Industries International Inc.

Appendix B: Specifications

General

Tractor H.P. required (see also Appendix F)	Min. 70 H.P.
Capacity	
Rotor Length	
Rotor Diameter	
Rotor Bearings - Ball	
Hammers, total	
Wheel - Taper Roller Bearings - Tire Size	16.5x16.1SL-10 Ply
Working Position Height	
Length	
Width	
Transport Position:Height	
Length	
Width	
Total Operating Weight	11700 Lbs.
Axle Weight	9000 Lbs.
Hitch Weight	
Shipping Weight(without concrete)	5000 Lbs.
РТО	540 RPM
Cylinder 4x34" Double Acting with pilot operated ch	neck valve
Shear pin, Front PTO shaft	

Appendix C: Delivery Notification Form

To be filled out and returned to the factory upon delivery of ST-10 Compost Turner unit.



IMPORTANT: No action, in terms of service or warranty, will be taken until this form, together with the "Verification of User Training Form" on the following page, are completed and returned to the factory.

Model of machine
Serial number of machine
Customer name
Dealer name
Address
Phone
Is owner a business?
Is owner a government entity?
Other?
What will be the primary application of this unit?
Engine type
Engine serial number
Date of sale of machine
Date of delivery of machine



IMPORTANT: All engine registration papers must be filed with the engine dealer in order to handle any future engine claims.

Appendix D: User Training Verification Form

We certify that the users of the ST-10 Compost Turner named below have read the instructions in the operating manual, and understand all information concerning the safe operation of the unit. We further certify that dealer personnel have provided instruction in the use of the unit, and have conducted a "walk-around" inspection of all safety instructional decals on the machine itself.

Signatures

User:	Date:
User:	Date:
User:	Date:
User:	Date:
Dealer:	Date:



IMPORTANT: This form, together with the "Delivery Notification Form" on the previous page, is to be completed and returned to the factory. No action, in terms of service or warranty, will be taken until this information is received by the factory.

Appendix E: Operator Training Form

The following personnel, by their signature, certify that they have read this manual in its entirety and comprehend its instructions. Only personnel so qualified are allowed to operate this unit.

Printed Name	Review Date	Signature

Appendix F: Required For Operation



WARNING: Do not operate the ST-10 compost turner unless the tractor complies with the following requirements:

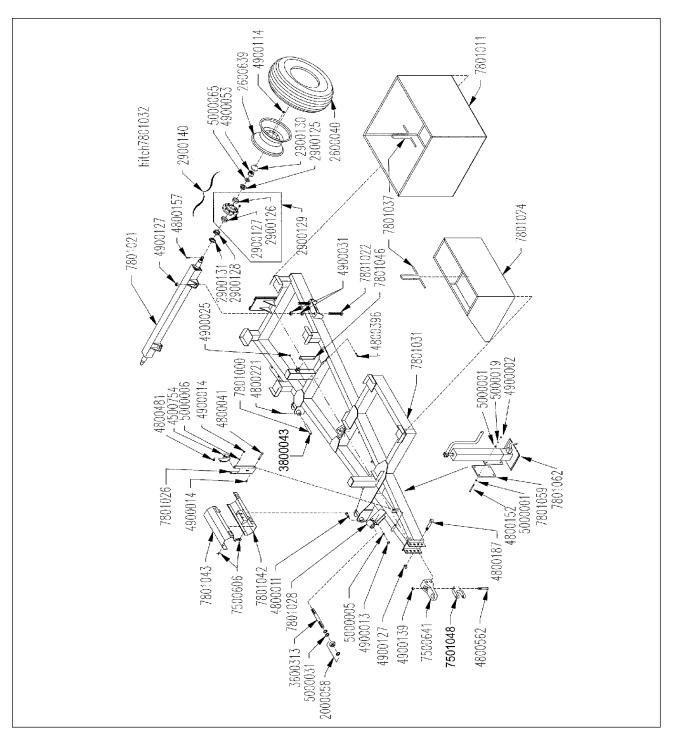
- 1. Horsepower 70 H.P. minimum. 540 rpm PTO shaft.
- 2. Rollover protective structure and seat-belts.
- 3. An enclosed cab is preferred.
- 4. One set of two-way hydraulic outlets.
- 5. A shield should be installed on the tractor to protect the operator and cab glass from thrown material. This shield should be made of heavy expanded metal held in place by a sturdy frame.
- 6. A water delivery system capable of providing 100 GPM at 100 psi. A water delivery system is only required if the operator wishes to use the ST-10' s water system to and moisture to a windrow.
- 7. Counter weight boxes require 2 to 2-1/4 yards of concrete. It is best to round pile on top of both boxes for rain run-off and extra weight. (see page 14)





ST-10 Compost Turner

Part 2: Parts Reference



7801032 Hitch Assembly

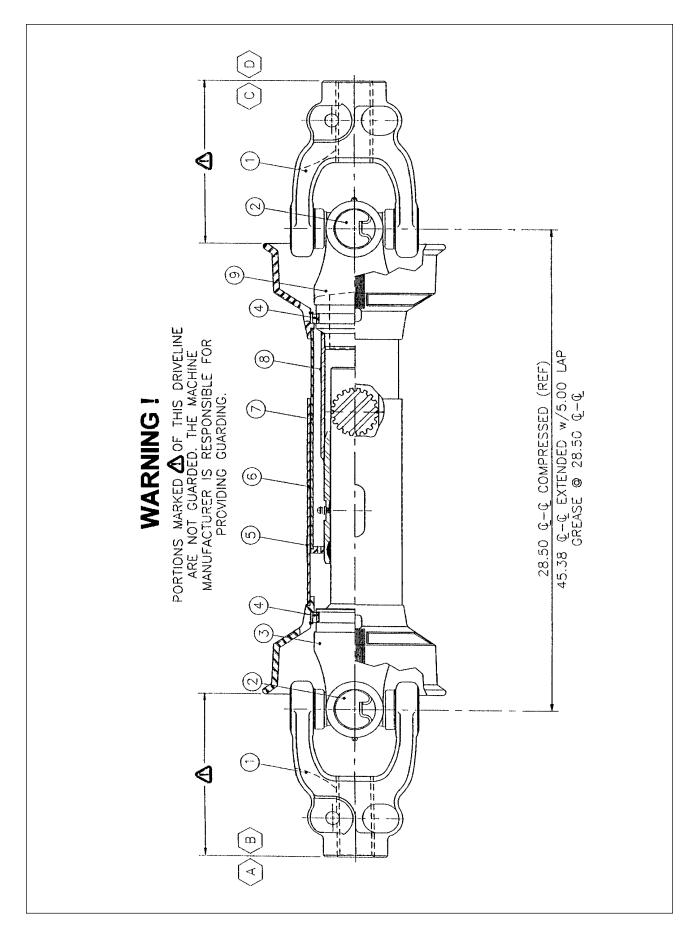
PART #	QTY	DESCRIPTION	
2000058	2	BRG\INS\1-3/8\CYL\W/COLLR	
2600040	2	TIRE\16.5X16.1SL\10PLY	
2600639	2	WHL\8BOLT\16.1X14\>	
2900140	2	HUB\8BOLT\COMP\>	
2900125	1	OUTER CONE H817 HUB	
2900128	1	INNER CONE H817 HUB	
2900129	1	HUB\8BOLT\W/RACES\W/NUTS>	
2900130	1	DUST CAP H817	

ST-10 COMPOST TURNER

PARTS REFERENCE

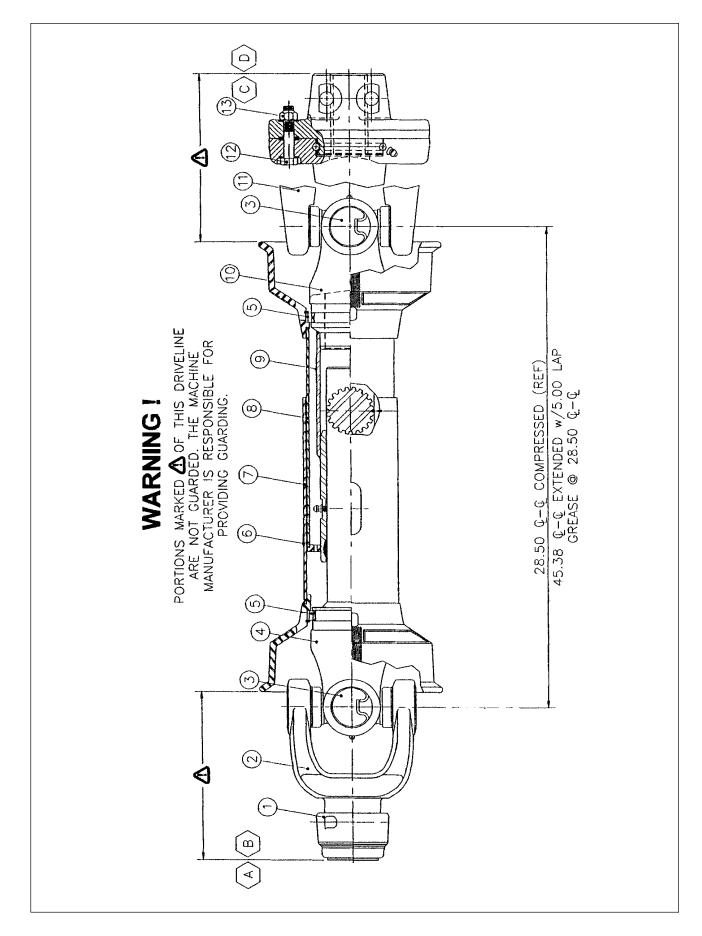
7801032 Hitch Assembly cont.

PART #	QTY	DESCRIPTION
2900131	1	GREASE SEAL H 817
3600311	1	PTO\M-18782\ST10
3600312	1	PTO\M-18783\ST10
3600313	1	SHFT\1-3/8X12\6SP\2ENDS\>
3700083	50	
3800043	2	FTG\LUB\1/8MPXZRK\SHORT
3800075 4100178	8 1	FTG\1/2MPSX1/2BARB\HE\> CYL\HYD\YOKE\4X34\2ROD\>
4500754	1	BELT\1/4X2X10-1/2\STND\>
4800011	2	BOLT\HEX\3/4X3-1/2
4800018	8	BOLT\HEX\1/2X1-1/4
4800041	1	BOLT\HEX\1/2X5
4800152	4	BOLT\HEX\3/8X4-1/2
4800157	2	PIN\COT\3/16X2
4800187	2	BOLT\HEX\1X6
4800221	2	PIN\RLLD\1/4X2
4800481	2	BOLT\CRG\1/2X1-1/4\NC
4800562	1	BOLT\HEX\3/4X5\GR8\NC
4900002	4	NUT\HEX\3/8
4900013	2	NUT\TPLCK\3/4\NC
4900014	11	"NUT\TPLCK\1/2\NC\.500""MAX"
4900031	8	NUT\HEX\1\NC
4900053	2	NUT\CASTLE\1-1/4\NF
4900127	6	
4900139	1	
5000001	8	
5000004	16 2	WASH\FLAT\1/2 WASH\FLAT\3/4
5000005 5000006	2	WASH/FLAT(3/4 WASH/LOCK/1/2
5000000	4	WASH\LOCK\3/8
5000013	4	WASH\MACH\1-3/8IDX10GA
5000065	2	2.5 ODX 1.25ID 224 WASH
	-	
7500606	2	LATCH\35-M\AUSTIN
7500641	1	HITCH\CAT3\PPI>
7501048	1	HITCH\CLEVIS\PPI\1"PIN
7801000	2	PIN\HINGE\1X6-1/2
7801011	1	ENCL\WT\REAR
7801021	1	AXLE\MAIN\4X4X6'\ST10
7801022	4	BOLT\1X7\GR5\ALLTHRD
7801024	1	ENCL/WT/40.5X31X22/SIDE
7801026 7801028	1 1	STND\PTO\GRAY BRKT\BRG\SHFT\INT
7801028	1	HITCH\WELD
7801031	1	BRKT\ENCL\WT\LUG\LIFT
	-	
7801031	1	HITCH\WELD
7801037	1	BRKT\ENCL\WT\LUG\LIFT
7801037	1	BRKT\ENCL\WT\LUG\LIFT
7801042	1	SHLD\SHFT\INT\DRVLN\BOT
7801043	1	SHLD\SHFT\INT\DRVLN\TOP
7801046	1	STRAP\LOCK\HITCH
7801059	1	BRKT\HITCH\JACK
7801062	1	JACK\10000\ONE;SPEED\WELDED
		·



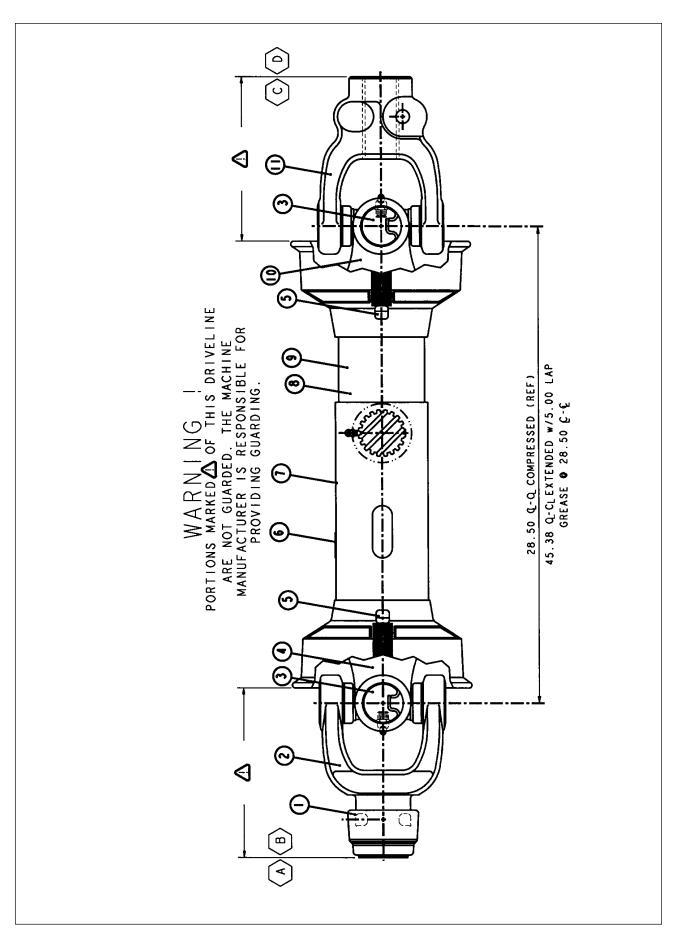
3600311 Driveline Assembly

ITEM	QTY	PART#	DESCRIPTION
A B C	1 1	3600520	Joint & shaft half assy w/ guard Joint & shaft half assy Joint & tube half assy w/ guard
D	1		Joint & tube half assy
1	2	3600490	YOKE\55\CLAMP\1-3/8\6SPL
2	2	3600013	55r cross & bearing kit
3	1	3600665	yoke & shaft
4	2	3600093	nylon repair kit
5	1	3600278	Safety Sign
6	1	3600445	Guard\Pto\Out\St10
7	1	3600444	Guard\Pto\In\St10
8	1	3600282	safety sign
9	1	3600664	yoke, tube. and slip sleeve



3600312 Driveline Assembly

ITEM	QTY	PART#	DESCRIPTION
А	1	3600412	PTO\Quick Disconnect\Tractor Half\for 3600312
В	1		Joint & shaft half assy
С	1	3600411	PTO\Shear\Machine Half\for 3600312
D	1		Joint & tube half assy
1	1	3600271	safety slide lock repair kit
2	1	3600442	Yoke\55\Qd\1-3/8\6spl
3	2	3600013	55r cross & bearing kit
4	1	3600665	yoke & shaft
5	2	3600093	nylon repair kit
6	1	3600278	safety sign
7	1	3600445	Guard\Pto\Out\St10
8	1	3600444	Guard\Pto\In\St10
9	1	3600282	safety sign
10	1	3600664	yoke, tube. and slip sleeve
11	1	3600410	Yoke\55\Shear\1-3/8\6Spline\for 3600312
12	1	4800526	3/8X2 NF Hex Bolt, Gr 5
13	1	4900085	3/8 Nylon Lock Nut

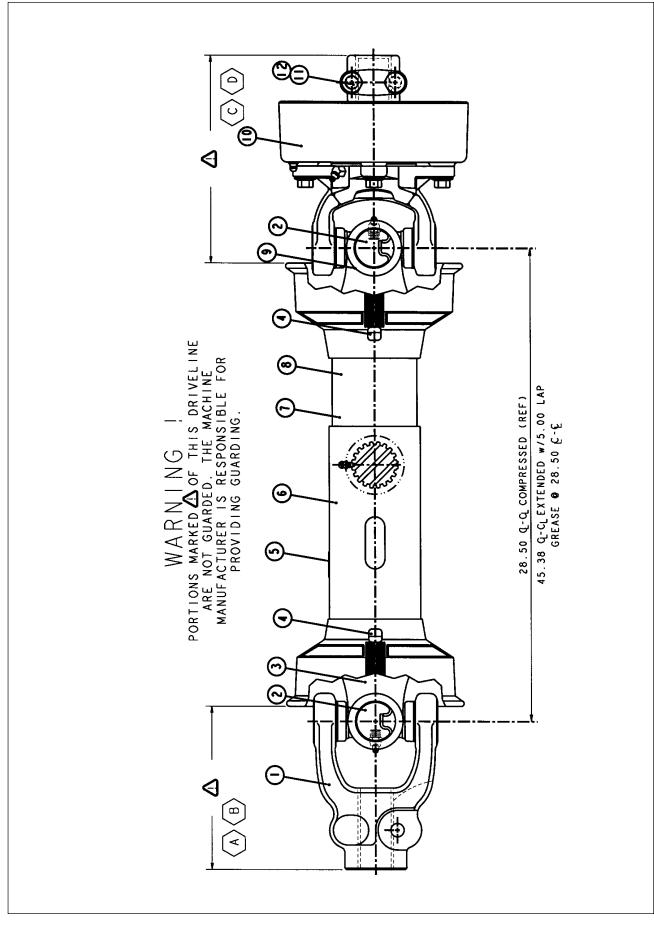


PARTS REFERENCE

3600432 PTO\QD&CLAMP:YOKE\ST10\55R

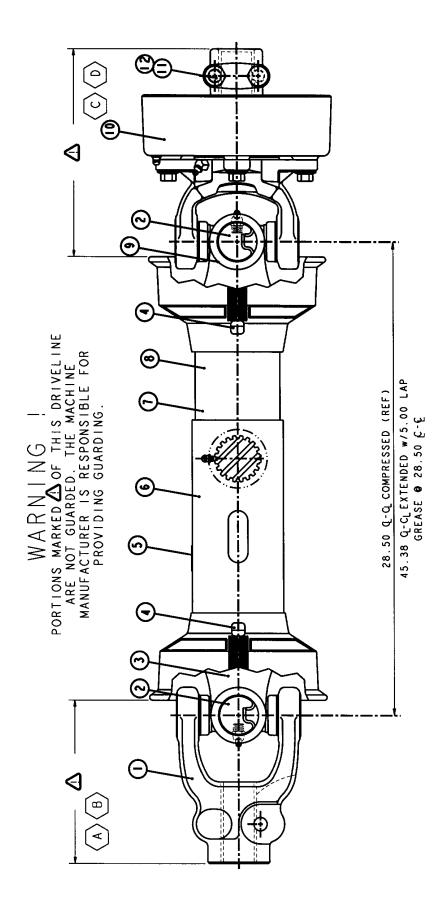
ltem	Qty	Part	Description
А	1	3600412	PTO\Quick Disconnect\Tractor Half\For 3600312
В	1		Joint & Shaft Half Assy
С	1		Joint & Tube Half Assy W/ Guard
D	1		Joint & Tube Half Assy
1	1	3600271	Safety Slide Lock Repair Kit
2	1	3600442	Yoke\55\Qd\1-3/8\6spl
3	2	3600013	55r Cross & Bearing Kit
4	1	3600665	Yoke & Shaft
5	2	3600093	Nylon Repair Kit
6	1	3600278	Safety Sign
7	1	3600445	Guard\Pto\Out\St10
8	1	3600444	Guard\Pto\In\St10
9	1	3600282	Safety Sign
10	1	3600664	Yoke, Tube. And Slip Sleeve
11	1	3600490	YOKE\55\CLAMP\1-3/8\6SPL

DRIVELINE ASSEMBLY P.N. 3600431 - SN 0131 TO SN 0151



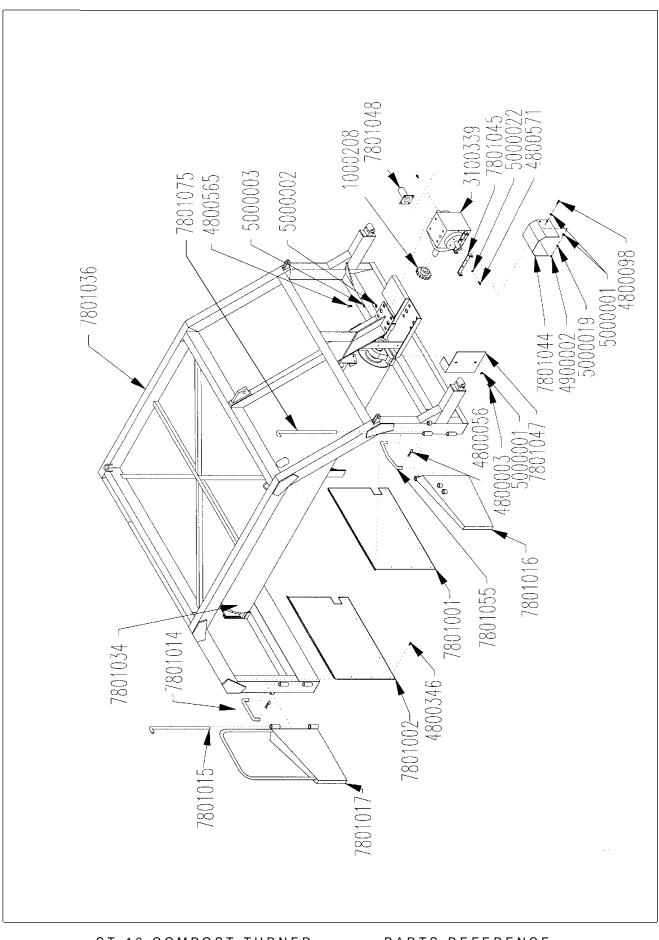
3600431 PTO|CLUTCH&CLAMP|ST10|55R (FOR COMER GEAR BOX)

ltem	Qty	Part	Description
А	1	3600520	Joint & Shaft Half Assy W/ Guard
В	1		Joint & Shaft Half Assy
С	1	3600521	Joint & Tube Half Assy W/ Guard
D	1		Joint & Tube Half Assy
1	1	3600490	YOKE\55\CLAMP\1-3/8\6SPL
2	2	3600013	55r Cross & Bearing Kit
3	1	3600665	Yoke & Shaft
4	2	3600093	Nylon Repair Kit
5	1	3600278	Safety Sign
6	1	3600445	Guard\Pto\Out\St10
7	1	3600444	Guard\Pto\In\St10
8	1	3600282	Safety Sign
9	1	3600664	Yoke, Tube. And Slip Sleeve
10	1	3600433	Yoke\55\Clutch\1-3/8\6spl
10A		3600529	Clutch\Pack\21K\Auto
11	2	4900014	Nut\Tplck\1/2\Nc
12	2	4800351	Bolt\Hex\1/2x2-3/4



3600496 PTO QD&CLAMP: YOKE ST10 55R (FOR PRAIRIE GEAR BOX)

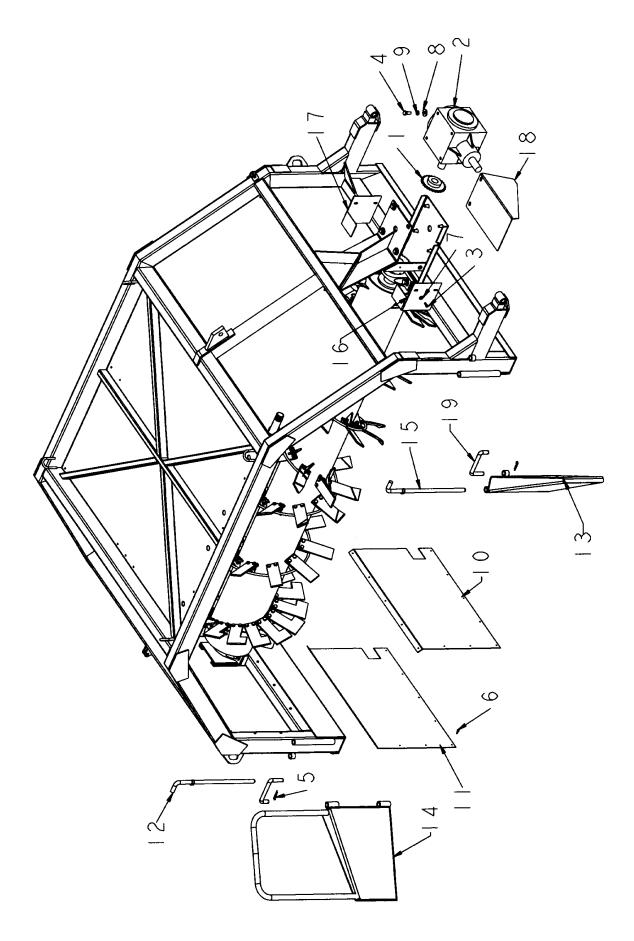
ltem	Qty	Part	Description
А	1	3600520	Joint & Shaft Half Assy W/ Guard
В	1		Joint & Shaft Half Assy
С	1		Joint & Tube Half Assy W/ Guard
D	1		Joint & Tube Half Assy
1	1	3600490	YOKE\55\CLAMP\1-3/8\6SPL
2	2	3600013	55r Cross & Bearing Kit
3	1	3600665	Yoke & Shaft
4	2	3600093	Nylon Repair Kit
5	1	3600278	Safety Sign
6	1	3600445	Guard\Pto\Out\St10
7	1	3600444	Guard\Pto\In\St10
8	1	3600282	Safety Sign
9	1	3600664	Yoke, Tube. And Slip Sleeve
10	1	3600491	YOKE\55\CLUTCH\1-3/4\20SP
10A		3600529	Clutch\Pack\21K\Auto
11	2	4900014	Nut\Tplck\1/2\Nc
12	2	4800351	Bolt\Hex\1/2x2-3/4



7801035 Hood Assembly (COMER GEAR BOX)

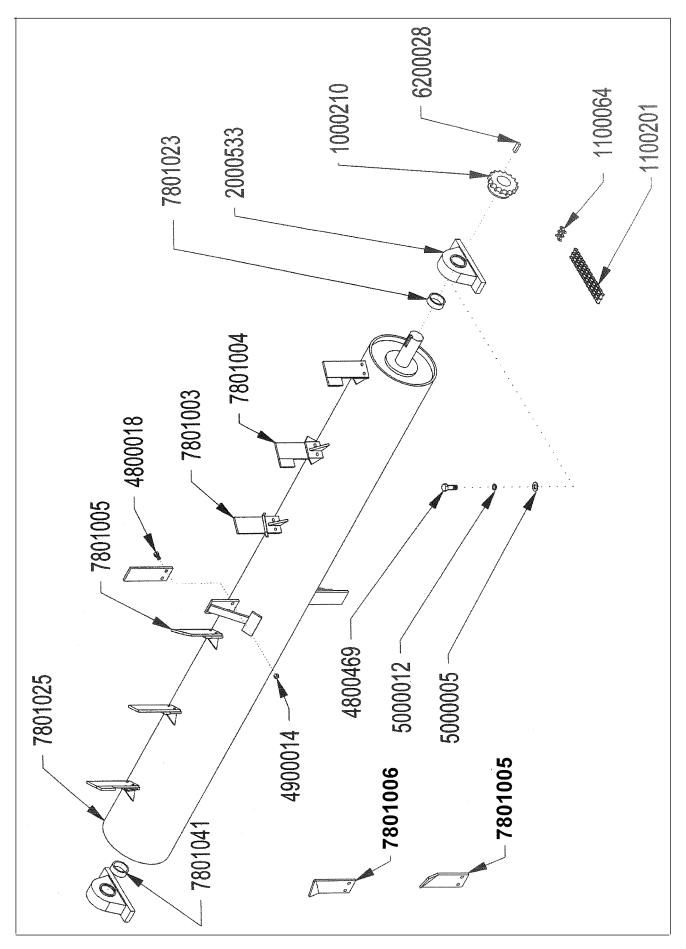
PART #	QTY	DESCRIPTION
7801035		HOOD\ST10\ASY
1000208	1	SPKT\60\B\26\1-3/4\20SP
1000221		SPKT\60\B\26\1-3/4\6SP
3100339	1	GRBX\T\1.93:1\COMER\20SP>
3100342		GRBX\SEAL;KIT\COMER\T269B for 3100339
4800003	4	BOLT\HEX\3/8X1
4800056	4	PIN\HAIR\3/16X3 (#6)
4800098	4	BOLT\HEX\3/8X1-1/4\NC
4800346	24	SCR\SD&T\#10X3/4
4800565	8	BOLT\HEX\M16XM35
4800571	8	BOLT\HEX\8MM\25MM
4900002	4	NUT\HEX\3/8\NC
5000001	12	WASH\FLAT\3/8
5000002	8	WASH\FLAT\5/8
5000003	8	WASH\LOCK\5/8
5000019	8	WASH\LOCK\3/8
5000022	8	WASH\LOCK\5/16
5000023	8	WASH\FLAT\5/16
7801001	1	SHLD\LH\RTR\HOOD
7801002	1	SHLD\RH\RTR\HOOD
7801014	1	PIN\U\15/16X12-1/4
7801015	2	PIN\HINGE\DFLCTR\RIGHT
7801016	1	DFLCTR\HOOD\LH
7801017	1	DFLCTR\HOOD\RH
7801036	1	HOOD\ST10\WELD
7801044	1	SHLD\GRBX\DRVLN
7801045	2	BRKT\SHLD\GRBX\DRVLN
7801047	2	SHLD\RTR\DRVLN
7801048	1	SHLD\GRBX\DRVLN\STUB
7801055	1	PIN\U\15/16X14-3/4
7801075	1	PIN\HINGE\DFLCTR\LEFT

Note – Most gearboxes have a 20 spline shaft pointed towards the rotor. Some have a 6 spline shaft. Please verify if gearbox or sprocket are ordered.



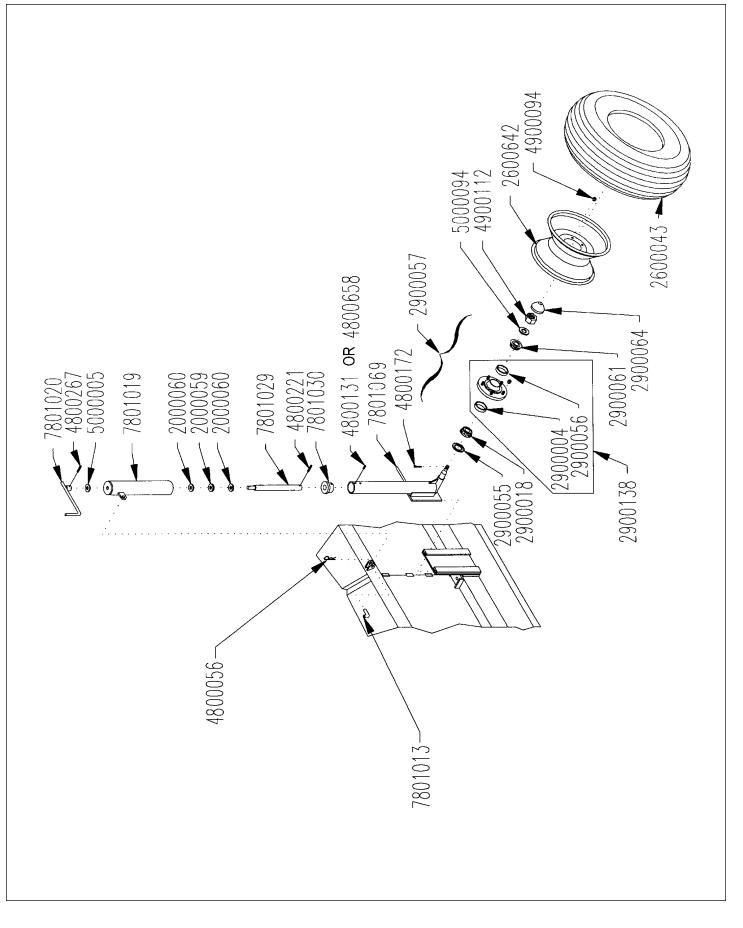
7801035 Hood Assembly (PRAIRIE GEAR BOX)

ITEM	PART	QTY.	PART DESCRIPTION
	7801035		HOOD\ST10\ASY
1	1000208	1	SPKT\60\B\26\1-3/4\20SP
2	3100356	1	PRAIRIE GEARBOX 1000
3	4800003	4	BOLT\HEX\3/8X1
4	4800106	8	BOLT\HEX\5/8X1-1/2
5	4800107	2	PIN\HAIR\1/8(#9)
6	4800561	24	SCR\SD&T\1/4X1
7	5000001	4	WASH\FLAT\3/8
8	5000002	8	WASH\FLAT\5/8
9	5000003	8	WASH\LOCK\5/8
10	7801001	1	SHLD\LH\RTR\HOOD
11	7801002	1	SHLD\RH\RTR\HOOD
12	7801015	1	PIN\HINGE\DFLCTR
13	7801016	1	DFLCTR\HOOD\LH
14	7801017	1	DFLCTR\HOOD\RH
15	7801075	1	PIN\HINGE\DFLCTR
16	7801079	1	SHLD\DRVLN\RTR\REAR\PG
17	7801080	1	SHLD\DRVLN\RTR\REAR\PG
18	7801081	1	SHLD\DRVLN\GEARBOX\PG
19	7801087	2	PIN\U\7/8\HOOD



7801034 Rotor Assembly

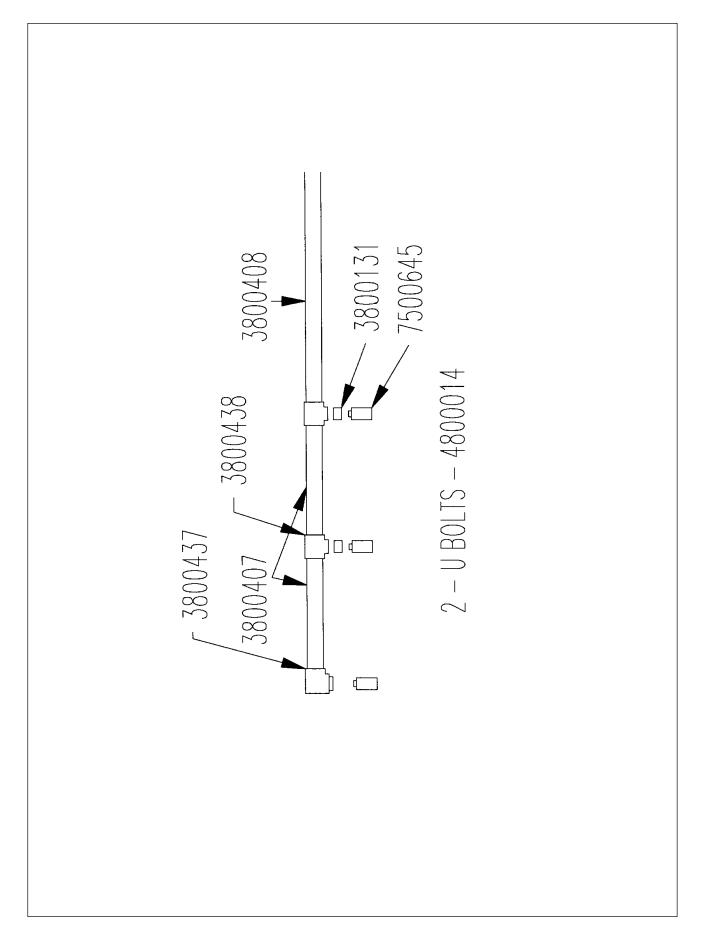
PART #	QTY	DESCRIPTION
1000210	1	SPKT\60\B\26\2-1/2BORE\
1100064	1	CHAIN\60DBL\CL
1100201	1	CHAIN\60DBL\25
2000533	2	BRG\PB\2-1/2\SCM\DODGE
4800018	136	BOLT\HEX\1/2X1-1/4
4800469	4	BOLT\HEX\3/4X1-3/4\NC
4900014	136	"NUT\TPLCK\1/2\NC\.500
5000005	4	WASH\FLAT\3/4
5000012	4	WASH\LOCK\3/4
6200028	1	KEY\SQ\5/8X3
7801003	20	HMMR\FXD\FLAT\3X9
7801004	32	HMMR\FXD\FLAG\3X9
7801005	8	HMMR\FXD\BENT\3X9\LH
7801006	8	HMMR\FXD\BENT\3X9\RH
7801023	1	SHIM\TUBE\RD\3X2-1/2X1.75
7801025	1	RTR\12X118\ST10
7801041	1	SHIM\TUBE\RD\3X2-1/2X1.25.25



PARTS REFERENCE

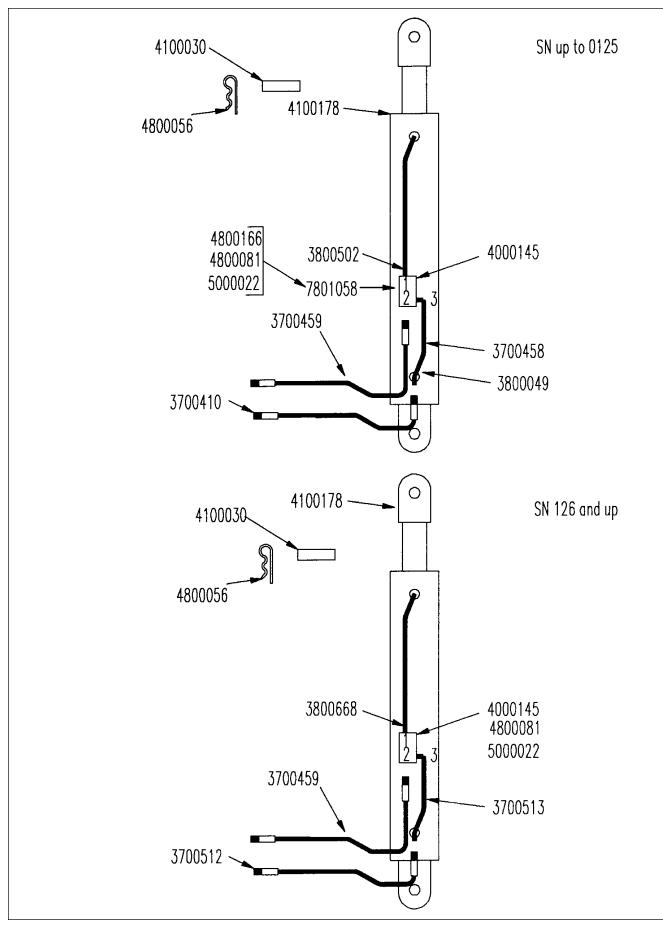
7801033 Jack Assembly

PART #	QTY	DESCRIPTION
7801033		JACK\ST10\ASY
2000059	1	BRG\THRST\.75ID\1.25OD
2000060	2	WASH\THRST\.75ID\1.25OD
2600043	1	TIRE\ST225/75/D15\8 PLY
2600642	1	WHL\5BOLT\15
2900057	1	HUB\5BOLT\(985)\COMP
2900018	1	CONE\OUTER\WHL;HUB(67048
2900055	1	SEAL/WHEEL HUB(16069)
2900061	1	OUTER CONE/WHL HUB(11949
2900064	1	CAP/WHEEL HUB(985)
2900138	1	NA, order 2900057
4800056	1	PIN\HAIR\3/16X3 (#6)
4800131		PIN\RLLD\1/4X1
4800172	1	PIN\COT\1/8X2
4800221	1	PIN\RLLD\1/4X2
4800267	1	PIN\RLLD\1/4X1-3/4
4800658	2	PIN\RLLD\5/16X3/4
4900112	1	NUT\SLOT.\5/8\NF
5000005	1	WASH\FLAT\3/4
5000094	1	WASH\SPNDL\5/8
7801013	1	PIN\BENT\5/8X2
7801018	Obsolete	JACK\HSG\INNER\HOOD
7801069	1	JACK\HSG\INNER\HOOD\11"_SPNDL
7801019	1	JACK\HSG\OUTER\HOOD
7801020	1	JACK\CRANK\HOOD
7801029	1	RD\1-1/4X16\THRDD\ACME\>
7801030	1	NUT\ACME\1-1/4X5\SPCL



7801040 Water System Assembly

PART #	QTY	DESCRIPTION
7801040		SPRY\SYSTM\ASSY\WTR
3800131	2	FTG\1MPX3/4FP\BUSH\LW
3800407	2	FTG\1-1/2MPX15\NPL
3800408	1	FTG\1-1/2MPX36\NPL
3800437	1	FTG\1-1/2FPX3/4FP\90D\LW
3800438	2	FTG\1-1/2FPX1-1/2FPX1FP>
4800014	2	BOLT\U\3/8X2X2-5/8
7500645	3	FTG\NOZ\3/4MP\120\WLJT



7801054 Hydraulic Assembly

PART QTY DESCRIPTION

FOR S.N. 0101-0125

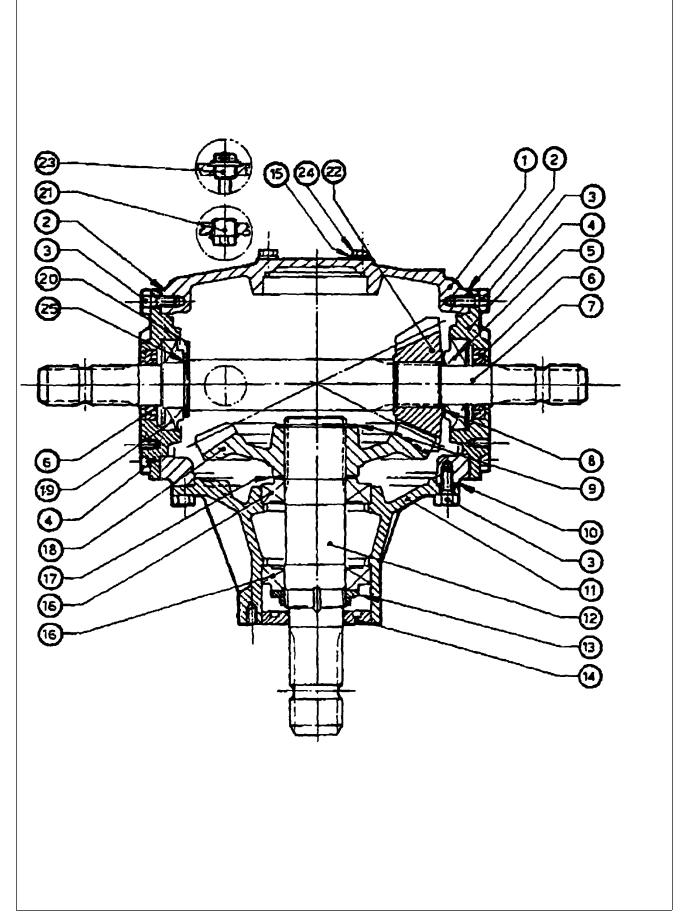
3700410	1	HOSE\HYD\1/2X129\SO-SO
3700458	1	HOSE\HYD\1/4X10-3/4\>
3700459	1	HOSE\HYD\1/2X146\1/2MPX3/4MORS
3800049	1	FTG\1/2MPX1/4FP\BUSH
3800502	1	FTG\7/8MJICX3/4MOR\ADPT
4000145	1	VALVE\HYD\CNTR;BLNC\ST10>
4100030	2	PIN 3 1/2X16 HYD. CYL.
4100178	1	CYL\HYD\YOKE\4X34\2ROD\>
4800056	4	PIN\HAIR\3/16X3 (#6)
4800081	2	BOLT\HEX\5/16X1-1/2
4800166	2	SCR\CSK\ALN\5/16X1\NC
5000022	2	WASH\LOCK\5/16
7801058	1	BRKT\VALVE\CYL\ST10
7801060	1	VALVE\HOLD\KIT\41-178\>

FOR S.N. 0126 AND UP

3700512	1	HOSE\HYD\1/2X135\SO-3/4MORS
3700513	1	HOSE\HYD\1/4X11\9/16MORSX9/16MORS;90D ELL
3700459	1	HOSE\HYD\1/2X146\1/2MPX3/4MORS
	1	
3800668	1	FTG\1-1/16MJICX3/4MOR\ADP
4000145	1	VALVE\HYD\CNTR;BLNC\ST10>
4100030	2	PIN 3 1/2X16 HYD. CYL.
4100178	1	CYL\HYD\YOKE\4X34\2ROD\>
4800056	4	PIN\HAIR\3/16X3 (#6)
4800081	2	BOLT\HEX\5/16X1-1/2
5000022	2	WASH\LOCK\5/16

Not Shown (all serial numbers)

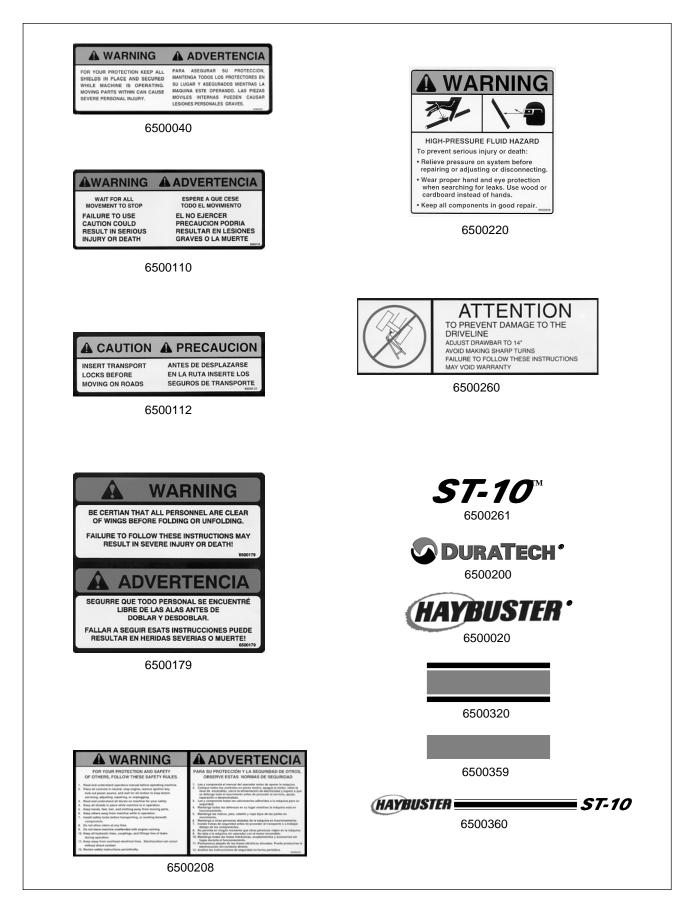
3800525	2	FTG\1/2\NPTF\QUICK;COUPLER
4100200		CYL\HYD\SEAL;KIT\4\2ROD\ST10 REF#4100178



ltem	Qty	Part	Description	
	1	3100339	GRBX\T\1.93:1\COMER\20SP T269-B,CODE 269.046	
2 6 10 14	2 2 1 1	3100342 3100353	GRBX\SEAL;KIT\COMER\T269B GASKET OIL SEAL 35X62X10 GASKET OIL SEAL 45X90X10	

INDIVIDUAL PARTS

3 5 7 12 13 15 16 18	24 1 1 1 2 2	3100350 3100351 3100352	BOLT M1OX22 8,8 BEARING SHAFT 1-3/8" SHAFT 1-3/4" Z20 NUT M5OX1.5 COPPER WASHER 8,4X14X1 BEARING 30210 GEAR Z29 M6.9
19	1		BEARING 30208
21	1		PLUG 1/2" GAS
22	1		PINION Z15 M6,9
23	1		OIL FILLER PLUG 2-1/2 GAS
24	2		BOLT M8X14 8,8



DECALS

Decals

PART # QTY

DESCRIPTION

Duratech Decals

6500040	1	DECAL\WARN\SHIELD\PROT
6500110	2	DECAL\WARN\WAIT;FOR;MVMNT
6500112	1	DECAL\INFO\INSRT;TRNSPRT
6500179	2	DECAL\WARN\PRSNNL;STAY;CLEAR
6500200	2	DECAL\LOGO\DURATECH\SILVR
6500208	1	DECAL\WARN\GENERAL
6500220	1	DECAL\WARN\HI;PRESS;FLUID
6500260	1	DECAL\INFO\DRVLN\ANGL\14"
6500261	2	DECAL\LOGO\ST-10\BLACK
7500405		Quart Dad Daint

7500105	Quart Red Paint
7500104	Gallon Red Paint
7500078	12 oz. Spray Can Red Paint

For SN up to 140

7500406	Quart Gray Paint
7500407	Gallon Gray Paint
7500408	12 oz. Spray Can Gray Paint

SN 141 and up

7500932

12 oz. Spray Can Met Silver Paint

Haybuster Decals

6500020	2	DECAL\LOGO\HYBSTR\SNBRS\3
6500040	1	DECAL\WARN\SHIELD\PROT
6500110	2	DECAL\WARN\WAIT;FOR;MVMNT
6500112	1	DECAL\INFO\INSRT;TRNSPRT
6500179	2	DECAL\WARN\PRSNNL;STAY;CLEAR
6500208	1	DECAL\WARN\GENERAL
6500220	1	DECAL\WARN\HI;PRESS;FLUID
6500260	1	DECAL\INFO\DRVLN\ANGL\14"
6500302	6 ft	DECAL\LOGO\STRIP\3\RD&BLK
6500359	12 ft	DECAL\LOGO\STRIP\8\YELLOW
6500360	2	DECAL\LOGO\ST-10\HAYBUSTR
7500105		Quart Red Paint
7500104		Gallon Red Paint
7500078		12 oz. Spray Can Red Paint
For SN up to 140		
7500406		Quart Gray Paint
7500407		Gallon Gray Paint
7500408		12 oz. Spray Can Gray Paint

SN 141 and up

7500932

12 oz. Spray Can Met Silver Paint

Notes

ST-10 Compost Turner Documentation Comment Form

DuraTech Industries welcomes your comments and suggestions regarding the quality and usefulness of this manual. Your comments help us improve the documentation to better meet your needs.

- Did you find any errors?
- Is the information clearly presented?
- Does the manual give you all the information you need to operate the equipment safely and effectively?
- Are the diagrams and illustrations correct?
- Do you need more illustrations?
- What features do you like most about the manual? What features do you like least?

If you find errors or have specific suggestions, please note the topic, chapter and page number.

Send your comments to:

DuraTech Industries International, Inc. P.O. Box 1940 Jamestown, ND 58402-1940 OR Contact us through our website: www.duratechindustries.net

Thank you for taking the time to help us improve our documentation.