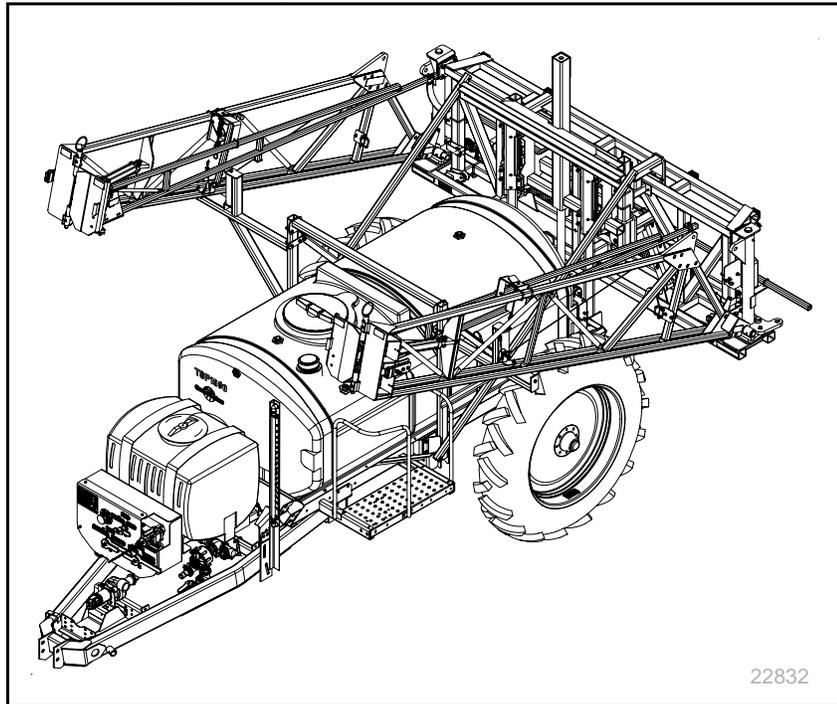


Pre-Delivery Manual

TSF1060 and TSF1260
Front Fold Boom Sprayers



Read the operator manual entirely. When you see this symbol, the subsequent instructions and warnings are serious - follow without exception. Your life and the lives of others depend on it!



Illustrations may show optional equipment not supplied with standard unit.

ORIGINAL INSTRUCTIONS



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500-642Q

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Important Safety Information

Look for Safety Symbol

The SAFETY ALERT SYMBOL indicates there is a potential hazard to personal safety involved and extra safety precaution must be taken. When you see this symbol, be alert and carefully read the message that follows it. In addition to design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence and proper training of personnel involved in the operation, transport, maintenance and storage of equipment.



Be Aware of Signal Words

Signal words designate a degree or level of hazard seriousness.

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



WARNING indicates a potentially hazardous situation which, 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 which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.



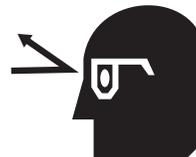
Be Familiar with Safety Decals

- ▲ Read and understand "Safety Decals" in the Operator's Manual thoroughly.
- ▲ Read all instructions noted on the decals.



Avoid High Pressure Fluids

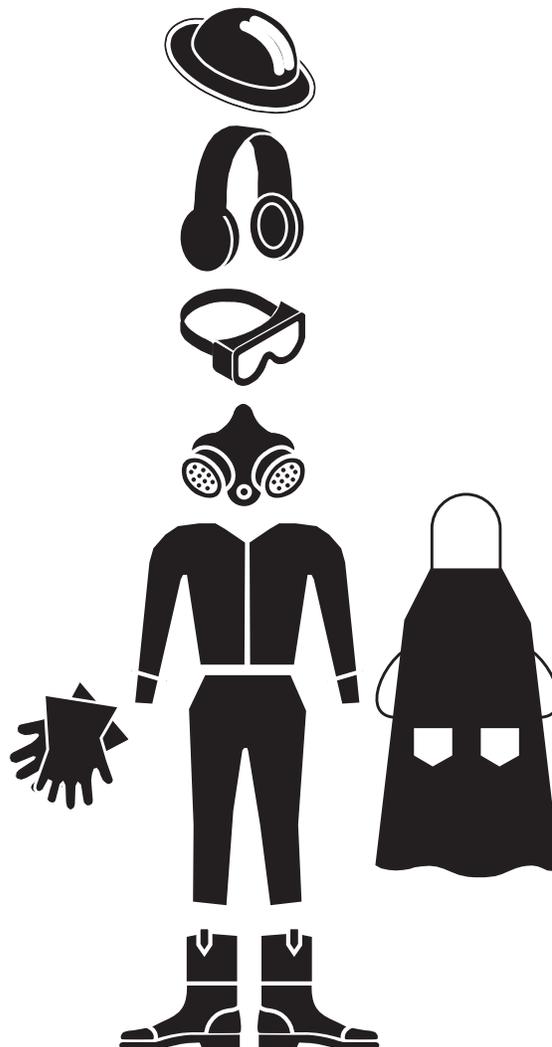
- ▲ Escaping fluid under pressure can penetrate the skin, causing serious injury. If hydraulic fluid penetrates the skin under pressure, immediate medical attention is required. See a physician familiar with this type of injury
- ▲ Avoid the hazard by relieving pressure before disconnecting hydraulic lines.
- ▲ Use a piece of paper or cardboard, NOT BODY PARTS, to check for suspected leaks.
- ▲ Wear protective gloves and safety glasses or goggles when working with hydraulic systems.



Wear Protective Equipment

Great Plains advises all users of chemical pesticides or herbicides to use the following personal safety equipment.

- ▲ *Waterproof, wide-brimmed hat*
- ▲ *Waterproof apron.*
- ▲ *Face shield, goggles or full face respirator.*
- ▲ *Goggles with side shields or a full face respirator is required if handling or applying dusts, wettable powders, or granules or if being exposed to spray mist.*
- ▲ *Cartridge-type respirator approved for pesticide vapors unless label specifies another type of respirator.*
- ▲ *Waterproof, unlined gloves. Neoprene gloves are recommended.*
- ▲ *Cloth coveralls/outer clothing changed daily; waterproof items if there is a chance of becoming wet with spray*
- ▲ *Waterproof boots or foot coverings*
- ▲ *Do not wear contaminated clothing. Wash protective clothing and equipment with soap and water after each use. Personal clothing must be laundered separately from household articles.*
- ▲ *Clothing contaminated with certain pesticides must be destroyed according to state and local regulations. Read chemical label for specific instructions.*
- ▲ *Wear clothing and equipment appropriate for the job. Avoid loose-fitting clothing.*
- ▲ *Prolonged exposure to loud noise can cause hearing impairment or loss. Wear suitable hearing protection such as earmuffs or earplugs.*
- ▲ *Avoid wearing entertainment headphones while operating machinery. Operating equipment safely requires the full attention of the operator.*



Handle Chemicals Properly

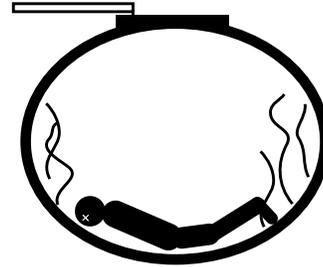
- ▲ *Read and follow chemical manufacturer's instructions.*
- ▲ *Wear protective clothing.*
- ▲ *Handle all chemicals with care.*
- ▲ *Agricultural chemicals can be dangerous. Improper use can seriously injure persons, animals, plants, soil and property.*
- ▲ *Inhaling smoke from any type of chemical fire is a serious health hazard.*
- ▲ *Store or dispose of unused chemicals as specified by the chemical manufacturer.*
- ▲ *Before adding chemical to the tank, make sure tank is at least half full. Do not pour concentrate into an empty tank.*
- ▲ *Never leave fill hose attached to the sprayer after filling tank. Chemicals in tank can siphon out of tank and contaminate freshwater source.*
- ▲ *Always keep handwash tank filled with clean water and have soap available in case of an emergency. Immediately and thoroughly flush any area of the body that is contaminated by chemicals.*
- ▲ *Do not touch sprayer components with mouth or lips.*
- ▲ *If chemical is swallowed, carefully follow the chemical manufacturer's recommendations and consult with a doctor.*
- ▲ *If persons are exposed to a chemical in a way that could affect their health, consult a doctor immediately with the chemical label or container in hand. Any delay could cause serious illness or death.*
- ▲ *Dispose of empty chemical containers properly. By law rinsing of the used chemical container must be repeated three times. Puncture the container to prevent future use. An alternative is to jet-rinse or pressure rinse the container.*
- ▲ *Wash hands and face before eating after working with chemicals. Shower as soon as spraying is completed for the day.*
- ▲ *Spray only with acceptable wind conditions. Wind speed must be below 5 mph. Make sure wind drift of chemicals will not affect any surrounding land, people or animals.*
- ▲ *Never wash out the sprayer tank within 100 feet (30m) of any freshwater source or in a car wash.*
- ▲ *Rinse out the tank. Spray rinse water on last field sprayed.*



Confined Space

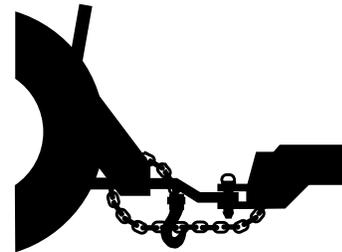
Once used for hazardous fertilizers, or seeds with hazardous treatments, your tank may become a “*permit-required confined space*” under applicable statutes, regulations, insurance rules or business policy.

- ▲ *When hazardous fumes are present, you can be quickly overcome even with the tank lid open.*
- ▲ *Do not enter a tank for material loading, material unloading, tank cleaning or valve maintenance.*
- ▲ *Clean tank by power washing from outside the tank top.*
- ▲ *Perform valve maintenance by removing meters from bottom of empty tank.*
- ▲ *If obstruction removal or repair requires tank entry, have the work performed by a team trained in confined space procedures.*



Use A Safety Chain

- ▲ *Use a safety chain to help control drawn machinery should it separate from tractor drawbar.*
- ▲ *Use a chain with a strength rating equal to or greater than the gross weight of towed machinery.*
- ▲ *Attach chain to tractor drawbar support or other specified anchor location. Allow only enough slack in chain to permit turning.*
- ▲ *Replace chain if any links or end fittings are broken, stretched or damaged.*
- ▲ *Do not use safety chain for towing.*



Keep Riders Off Machinery

- ▲ *Riders obstruct the operator's view. Riders could be struck by foreign objects or thrown from the machine.*
- ▲ *Never allow children to operate equipment.*
- ▲ *Keep all bystanders away from machine during operation.*



Use Safety Lights and Devices

- ▲ *Slow-moving tractors and towed implements can create a hazard when driven on public roads. They are difficult to see, especially at night.*
- ▲ *Use flashing warning lights and turn signals whenever driving on public roads.*
- ▲ *Use tractor lights and lights provided with implement.*

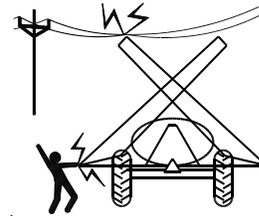


Check for Overhead Lines

⚠ DANGER

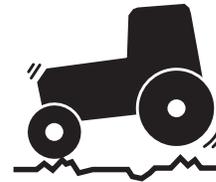
Sprayer booms contacting overhead electrical lines can introduce lethal voltage levels on sprayer and tractor frames. A person touching almost any metal part can complete the circuit to ground, resulting in serious injury or death. At higher voltages, electrocution can occur without direct contact.

- ▲ Avoid overhead lines during sprayer operations.



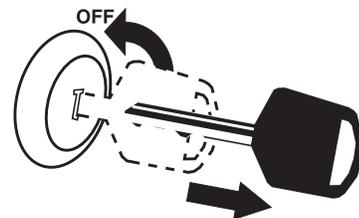
Transport Machinery Safely

- ▲ Maximum transport speed for implement is 20 mph (32 kph). Some rough terrains require a slower speed. Sudden braking can cause a towed load to swerve and upset.
- ▲ Do not exceed 20 mph (32 kph). Never travel at a speed which does not allow adequate control of steering and stopping. Reduce speed if towed load is not equipped with brakes.
- ▲ Comply with state and local laws.
- ▲ Do not tow an implement that, when fully loaded, weighs more than 1.5 times the weight of towing vehicle.
- ▲ Carry reflectors or flags to mark Front Fold Boom Sprayer in case of breakdown on the road.
- ▲ Keep clear of overhead power lines and other obstructions when transporting. Refer to transport dimensions under “**Specifications and Capacities**” on page 19.
- ▲ Do not fold or unfold the Front Fold Boom Sprayer while the tractor is moving.



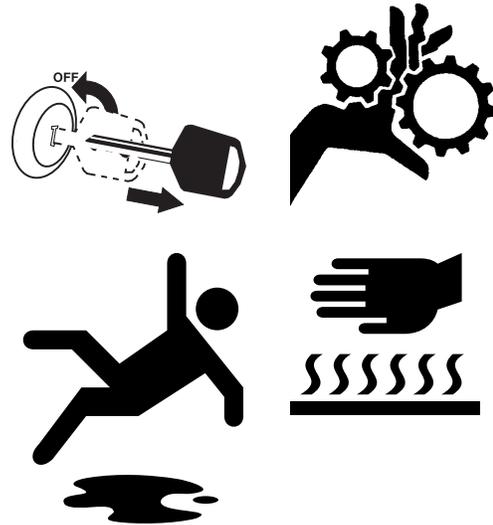
Shutdown and Storage

- ▲ Fold Front Fold Boom Sprayer, put tractor in park, turn off engine, and remove the key.
- ▲ Secure Front Fold Boom Sprayer using blocks and supports provided.
- ▲ Detach and store Front Fold Boom Sprayer in an area where children normally do not play.



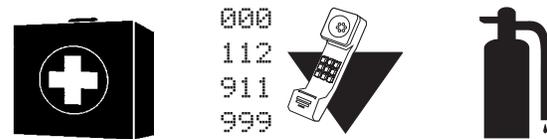
Practice Safe Maintenance

- ▲ *Understand procedure before doing work. Use proper tools and equipment. Refer to this manual for additional information.*
- ▲ *Work in a clean, dry area.*
- ▲ *Fold the Front Fold Boom Sprayer, put tractor in park, turn off engine, and remove key before performing maintenance.*
- ▲ *Make sure all moving parts have stopped and all system pressure is relieved.*
- ▲ *Allow Front Fold Boom Sprayer to cool completely.*
- ▲ *Disconnect battery ground cable (-) before servicing or adjusting electrical systems or before welding on Front Fold Boom Sprayer.*
- ▲ *Inspect all parts. Make sure parts are in good condition and installed properly.*
- ▲ *Remove buildup of grease, oil or debris.*
- ▲ *Remove all tools and unused parts from Front Fold Boom Sprayer before operation.*



Prepare for Emergencies

- ▲ *Be prepared if a fire starts.*
- ▲ *Keep a first aid kit and fire extinguisher handy.*
- ▲ *Keep emergency numbers for doctor, ambulance, hospital and fire department near phone.*



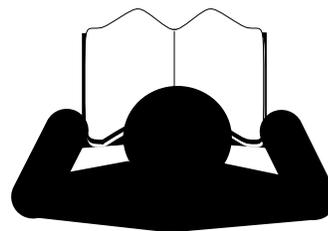
Tire Safety

- ▲ *Tire changing can be dangerous and should be performed by trained personnel using correct tools and equipment.*
- ▲ *When inflating tires, use a clip-on chuck and extension hose long enough for you to stand to one side—not in front of or over tire assembly. Use a safety cage if available.*
- ▲ *When removing and installing wheels, use wheel-handling equipment adequate for weight involved.*



Safety At All Times

- ▲ *Thoroughly read and understand the instructions in this manual before operation. Read all instructions noted on the safety decals.*
- ▲ *Be familiar with all Front Fold Boom Sprayer functions.*
- ▲ *Operate machinery from the driver's seat only.*
- ▲ *Do not leave Front Fold Boom Sprayer unattended with tractor engine running.*
- ▲ *Do not dismount a moving tractor. Dismounting a moving tractor could cause serious injury or death.*
- ▲ *Do not stand between the tractor and Front Fold Boom Sprayer during hitching.*
- ▲ *Keep hands, feet and clothing away from power-driven parts.*
- ▲ *Wear snug-fitting clothing to avoid entanglement with moving parts.*
- ▲ *Watch out for wires, trees, etc., when folding and raising Front Fold Boom Sprayer. Make sure all persons are clear of working area.*
- ▲ *Do not turn tractor too tightly, causing Front Fold Boom Sprayer to ride up on wheels. This could cause personal injury or equipment damage.*
- ▲ *Use only water without pesticides added to calibrate the sprayer. Do not exceed the calibrated sprayer speed and pressure when operating.*
- ▲ *When using a PTO pump, be sure that PTO shield is in place on the tractor, PTO coupler bolts are torqued to the correct specification, and torque bar is properly chained to tractor drawbar.*
- ▲ *Spray with the boom in the unfolded position only.*
- ▲ *The boom has many pinch points during field operation and folding. Keep all bystanders away.*
- ▲ *Never use tank for potable water.*





Introduction

Great Plains welcomes you to its growing family of new product owners. This front fold boom sprayer has been designed with care and built by skilled workers using quality materials. Proper setup, maintenance and safe operating practices will help you get years of satisfactory use from the machine.

Description of Unit

TSF1060 and TSF1260 are pull-type implements. They have a working width of 60 feet (18.3m). The level float boom is fully suspended starting with vertical spring suspension in a 42in (107cm) hydraulic elevator which provides a wide range of boom height adjustment along with gas shocks that provide side-to-side stability.

Intended Usage

Use these booms as part of a pressurized sprayer system to apply liquid pesticides, herbicides or fertilizers to production-agriculture crops only. Do not modify sprayer for use with attachments other than those approved by Great Plains.

Models Covered

TSF-1060-2530	1000 Gallon 60ft 25 Nozzles at 30in
TSF-1060-3620	1000 Gallon 60ft 36 Nozzles at 20in
TSF-1260-2530	1250 Gallon 60ft 25 Nozzles at 30in
TSF-1260-3620	1250 Gallon 60ft 36 Nozzles at 20in

Using This Manual

This manual was written to help you assemble and prepare the new machine for the customer. The manual includes instructions for assembly and setup. Read this manual and follow the recommendations for safe, efficient and proper assembly and setup.

An operator's manual is also provided with the new machine. Read and understand "**Important Safety Information**" and "**Operating Instructions**" in the operator's manual before assembling the machine. As a reference, keep the operators's manual on hand while assembling.

The information in this manual is current at printing. Some parts may change to assure top performance.

Definitions

The following terms are used throughout this manual.

Right-hand and left-hand as used in this manual are determined by facing the direction the machine will travel while in use unless otherwise stated.

NOTICE

Paragraphs in this format present a crucial point of information related to the current topic.

Read and follow the directions to:

- remain safe,
- avoid serious damage to equipment and
- ensure desired field results.

NOTE:

Paragraphs in this format provide useful information related to the current topic.

Further Assistance

For additional help with understanding these assembly instructions or for any other assembly or setup related questions, please contact our service department at the following address:

Great Plains Service Department
1525 E. North St.
P.O. Box 5060
Salina, KS 67402-5060

Or call us at **(800) 270-9302** to speak over the phone with a service representative.

Copies of this machine's operator manual are available by mail or online. Please visit **www.greatplainsag.com** and follow the product link for information on your machine.



The following headings are step-by-step instructions for assembling the Trailer Sprayer. Begin with *Tools Required* and *Pre-Assembly Checklist* to make sure you have all necessary parts and equipment. Then proceed with *Unload Boom from Truck*. Follow each step in order to make the job as quick and safe as possible and produce a properly working machine.

The Trailer Sprayer is shipped via flat bed truck. It is the dealer's responsibility to unload the boom. Unload all equipment before beginning assembly. Do not attempt any assembly work with the Trailer Sprayer on the truck.

Tools Required

- General hand tools

Pre-Assembly Checklist

1. Read and understand "**Important Safety Information**" on page 1 before assembling.
2. Have at least two people on hand while assembling.
3. Make sure the assembly area is level and free of obstructions (preferably an open concrete area).
4. Have all major components.
5. Have all fasteners and pins shipped with boom.

NOTICE

If a pre-assembled part or fastener is temporarily removed, remember where it goes. Keep the parts separated.

6. Have a copy of the parts manual on hand. If unsure of proper placement or use of any part or fastener, refer to the parts manual.
7. Check that all working parts are moving freely, bolts are tight, and cotter pins are spread.
8. Check that safety labels and reflectors are correctly located and legible. Replace if necessary. Refer to *Safety Decals* in the "**Important Safety Information**" chapter of the operator's manual.

Unload Boom from Truck

1. Using a forklift or tractor, remove boom from truck. Do not remove shipping stands until boom is ready to be assembled.
2. When ready to assembly boom, place sprayer in an open, level area. Make sure there is enough overhead and side clearance to fold and unfold assembled boom.

Remove Shipping Straps

Refer to Figure 1

3. Remove strap securing booms to shipping brackets.
4. Unscrew U-bolts to remove shipping brackets securing boom arms to sprayer during shipping.



Figure 1
Shipping Strap and Bracket

24346

Swivel Bolt Snap

Refer to Figure 2 and Figure 3

5. Unhook swivel bolt snap from stationary ring. Re-hook swivel bolt snap to ring located in outer boom lock plunger rod.
6. Carefully unfold sprayer. Consult Operator's Manual for procedure.



Figure 2
Swivel Bolt Snap (transport)

24164



Figure 3
Swivel Bolt Snap (operation)

24165

Remove Shipping Tires

Refer to Figure 4

To remove shipping tires, boom arms must be folded into transport position. In addition, a forklift or jack is needed to remove and replace shipping tires.

7. Unscrew wheel lugs from shipping tires. Depending on size, tires will have either 8-bolts or 10-bolts.
8. Remove shipping tires.
9. Replace shipping tires with standard sprayer tires.
10. Secure sprayer tires to implement with wheel lugs removed in step 7.

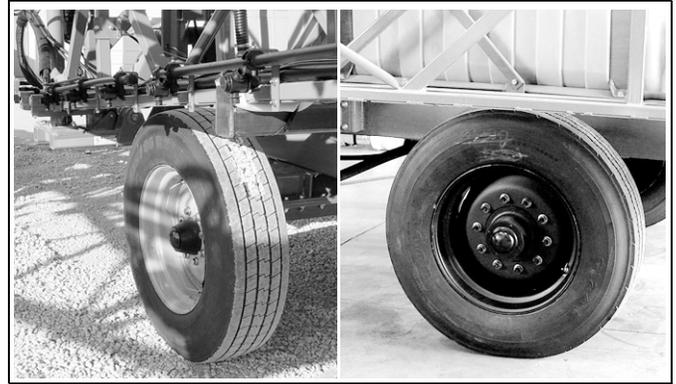


Figure 4
8- and 10-bolt Transport
Wheels and Tires

24347
24348

Foam Marker Tank

Refer to Figure 5

11. Mount the foam marker tank on the right side of the sprayer.



Figure 5
Foam Marker Tank

23243

Handrail

Refer to Figure 6

12. Cut plastic tie securing handrail to sight gauge weldment. Remove handrail.



Figure 6
Handrail in Transport 24349

Refer to Figure 5

13. Attach handrail to left-hand walkboard.



Figure 7
Handrail in Operation 24349



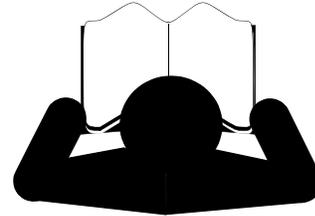
Preparation and Setup

Before You Start

Read and understand the owners manual for your sprayer. A basic understanding of how the sprayer works will aid in the assembly, setup and operation of your sprayer.

Perform these checks before setting up your front fold boom.

1. Read and understand “**Important Safety Information**” on page 1.
2. Check that all working parts are moving freely, bolts are tight, and cotter pins are spread.
3. Check that all grease fittings are in place and lubricated.
4. Check that all safety decals and reflectors are correctly located and legible. Replace if damaged.



Hitching Tractor to Sprayer

⚠ DANGER

Crushing Hazard:

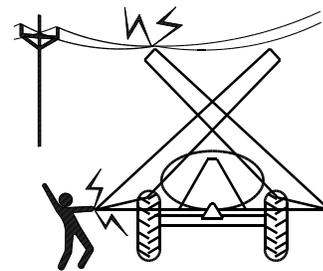
You may be severely injured or killed by being crushed between the tractor and front fold boom sprayer. Do not stand or place any part of your body between front fold boom sprayer and moving tractor. Stop tractor engine and set park brake before installing the hitch pin.



⚠ DANGER

Electrocution Hazard:

To prevent serious injury or death from electric shock, keep clear of overhead power lines when transporting, folding or unfolding boom. Boom is not grounded. Electrocution can occur without direct contact. Do not fold or unfold boom while tractor is moving.



Refer to transport dimensions under “**Specifications and Capacities**” on page 19.

The sprayer is equipped with a ball hitch on sprayers equipped with a PTO drive-line pump.

A single tang hitch is used in place of the ball hitch on other pump options. If the sprayer has a single tang hitch, attach it to the tractor using a hitch pin with a retaining hair pin. Park the sprayer in an open, flat area with the jack in the park position. Proceed with step 5.

If the sprayer is equipped with the ball hitch, use step 1 through step 4 to assemble the hitch plate.

Refer to Figure 8 and Figure 9

1. Remove the hammer-strap on the tractor. Assemble the ball hitch plate (1) to the drawbar by placing the 1 x 5-inch long bolt (2) through the drawbar hole using flat washers on both ends.
2. Secure the $\frac{3}{4}$ x 5-inch long bolts (3) in the slots of the ball hitch plate (1) and in the slots of the backup plate (4) using the flange nuts provided. Orient the backup plate with the slots in the opposite direction of the ball hitch plate.
3. Park the sprayer in an open, flat area with the jack in the park position.
4. Back the tractor up to the sprayer and hook up the sprayer ball hitch onto the stud (5) mounted on the ball hitch plate (1). Secure the ball hitch with the flat washer (6) and the lynch pin (7).

Refer to Figure 10 (shown with the tongue removed for clarity - do not remove the tongue for adjustment)

CAUTION

Block the wheels, and use a hoist or multiple jacks for this adjustment. Do not remove the adjustment bolts until the front end of the tank mainframe is fully supported. Do not remove the rear pivot bolts.

5. With the sprayer attached to the tractor, prepare to level the frame of the sprayer by securely supporting the front of the frame with a hoist.
6. Adjust the frame by moving the adjustment bolts (1) to a position where the frame is sloping to the front about one degree. This allows the fluid in the tank to drain into the sump when the sprayer is in use.
7. Securely fasten the adjustment bolts (1) using the "Torque Values" on page 20.

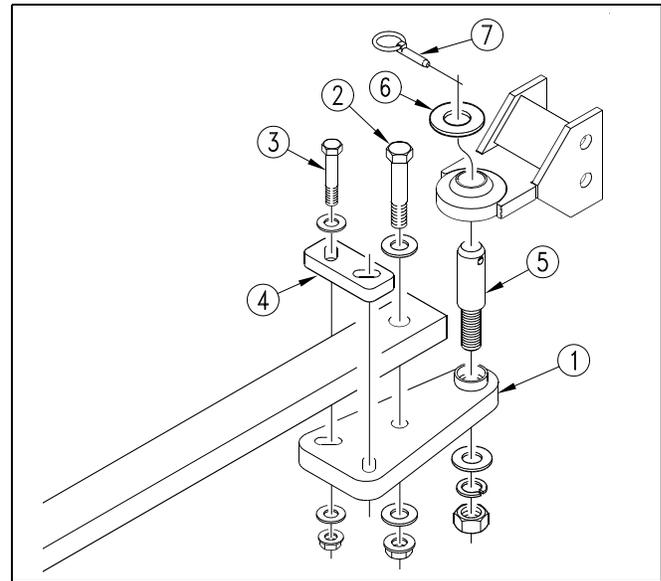


Figure 8
Hitch Hook-Up Assembly

13851

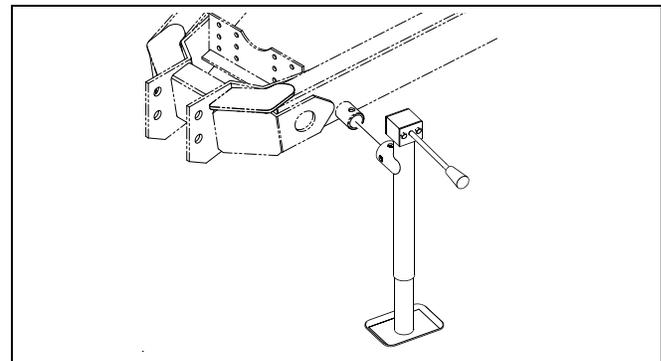


Figure 9
Jack in Park Position

13811

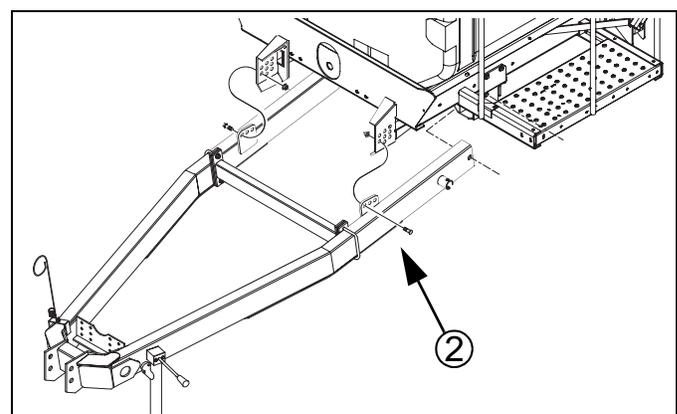


Figure 10
Tongue-Mainframe Adjustment

27163

Predelivery

1. Have tractor delivered to dealership that will be operating sprayer.
2. Confirm row spacing, and set wheel spacing on sprayer. (Axles are adjustable.)
3. Set drawbar length to ASAE standards as shown on decal if equipped with a PTO pump. Mount ball hitch plate to tractor drawbar, and ball joint hitch to sprayer.
4. Hook sprayer to tractor, and adjust hitch height so that front of sprayer is 1½ inch lower than the rear.
5. Install control switch boxes inside of tractor cab, and route power supplies to the tractor battery.
6. Connect front fold boom sprayer controller, Fasse valve hydraulic control box, and optional foam marker control to the tractor battery.
 - a. To connect the sprayer controller to the tractor battery, see the Raven Installation and Service manual.
 - b. To connect the Fasse valve hydraulic control box to the tractor battery:
 - Use the 6-foot, two-wire red and black cable to connect the hydraulic controls to the tractor battery.
 - Connect the red wire from each cable to the positive terminal and the black wire from each cable to the negative terminal.
 - c. Use the 6-foot gray cable to connect the optional foam marker control to the tractor battery.
7. Mount the radar gun to the tractor frame, if applicable, and route the cable up through the cab. If using existing radar on the tractor, install the Y-cable according to the tractor manufacturer's recommendations.
8. Connect all hydraulic hoses to outlets (refer to tractor operator's manual for designated outlet if equipped with a hydraulic pump).
The hydraulic motor used on all liquid pumps is a 7 gpm motor. If the tractor used on this sprayer does not have the capabilities to adjust the remotes to this flow, then a hydraulic flow divider kit must be installed so that flow can be controlled to prevent operating the pump at excessive speeds.
9. Place a stop in the neutral position for the tractor hydraulics so that the hydraulic lever can only be moved to the float and down positions. Refer to the tractor operator's manual on information for the neutral stop.

NOTICE

Damage to the pump will occur if the hydraulic lever is returned to the neutral position while the pump is running.

10. Check all hydraulic functions of the boom/elevator.
11. With boom still unfolded, make sure boom locks are adjusted correctly to just clear the stops.
12. Fill sprayer approximately 1/2 full of water. Open tank sump valve and let water circulate throughout the system and check for any leaks.
13. Before installing nozzles, engage pump slowly and circulate water through the system, then turn on boom valves individually to flush out the system.
On sprayers equipped with a hydraulic pump, start out with the hydraulic lever in the float position, and engage the pump by placing the lever in the down position. Make sure the hydraulic flow control valve is set at a minimum flow.
14. After system has been thoroughly flushed, install nozzles and open boom valves again to check nozzle pattern across the boom.
15. Set the dead head pressure of the pump in the following ways depending on how pump is driven.

Hydraulic Drive Pumps

1. To determine the correct flow rate to the hydraulic motor, start out with the hydraulic control valve set at a minimum flow, and the hydraulic lever in the float position.
2. Open up the sprayer control valve to its maximum setting.
On the front fold boom sprayer monitor, with the power switch on, the rate switch must be placed in the manual position, and the increase/decrease switch must be pushed to increase for 10-12 seconds.
3. Start the tractor and engage the pump by placing the hydraulic lever in the down position. Once the system builds pressure, speed up the tractor to normal operating speed. Shut off the boom section switches, and close the agitation valve.
4. The pump is now at deadhead pressure and the hydraulic control valve must be adjusted up until the spray pressure reaches 80 P.S.I. maximum. *Mark this setting on the hydraulic control valve for future reference.*
5. Open up the agitation valve.

Ace Pump Flow Limiter (Option)

Refer to Figure 11

The flow limiter is a hydraulic device designed to shut off the flow of hydraulic oil when a specified flow rate is exceeded. On tractors with load sensing closed center hydraulic systems, this device limits the flow of oil to the Ace motor and prevents failures.

Newer Case-IH, John Deere, New Holland, and CAT tractors have a great potential to run motors beyond their rated speeds. Flows out of the hydraulic valves can exceed 20 gpm while the motors are rated at 4-11 gpm. The flow limiter protects the Ace motor by shutting off on excess hydraulic flow.

The flow limiter should not be used on open center or pressure compensating closed center hydraulic systems. The flow limiter should not be used with a restrictor orifice.

To install:

1. Install the flow limiter in the inlet port of the Ace motor.
2. Connect the hydraulic hoses so that the pump runs with the hydraulic lever in the lower/retract position. Connect return hose to low pressure return port, when available.
3. Shut off boom and agitation valves on the sprayer to deadhead the sprayer pump flow.
4. Adjust the flow control on the tractor to minimum flow setting (turtle).
5. Move the hydraulic lever to the lower/retract position.

NOTE:

Always shut the pump off in the float position. This eliminates high pressure being trapped in the return line and protects hydraulic seals. Avoid returning the oil to the remote valve; use the low pressure return port, when available.

6. Adjust the flow control on the tractor until the sprayer system deadhead pressure is within the operating parameters of the pump.

If the flow limiter stops the flow of oil to the motor:

- a. Move the hydraulic lever to the neutral position. This removes the oil pressure from the flow limiter and allows it to reset.
 - b. Adjust the flow control to a lower flow position.
 - c. Repeat steps 5 and 6.
7. Set sprayer pressure by opening the agitation valve.

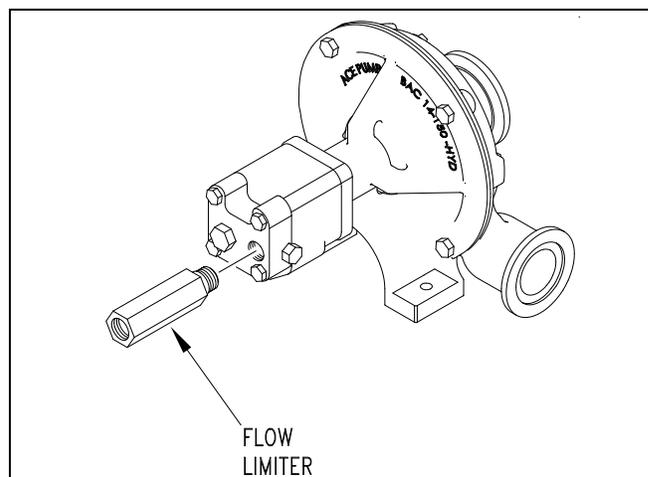


Figure 11
Ace Pump Flow Limiter

23395

PTO Driven Pumps

1. Open up the sprayer control valve to its maximum setting.

On the front fold boom sprayer monitor, with the power switch on, the rate switch must be placed in the manual position, and the increase/decrease switch must be pushed to increase for 10-12 seconds.

2. Start the tractor and engage the PTO pump slowly with the tractor engine idling. Once the system builds pressure on the pressure gauge, shut off the boom section switched and close the agitation valve.
3. The pump is now at deadhead pressure. Increase the engine rpms until the spray pressure reaches 80 psi maximum on the pressure gauge or the PTO speed reaches the rated rpm (540/1000). Never exceed the rated tractor PTO rpm. This is the rpm needed to spray at to prevent excess pressure on the sprayer's plumbing.

Tractor / PTO Shaft Hookup

⚠ DANGER

Entanglement Hazard:

Rotating drive-line contact can cause death. **KEEP AWAY!** Do not operate without guards attached and drive-line securely attached at both ends.

Refer to Figure 12 and Figure 13

1. The tractor drawbar should be adjusted to ASAE standard or as shown. Adjust implement drive-line to a position which is level with the tractor PTO
2. Position PTO shaft on tractor. Be sure shaft is coupled on tractor.

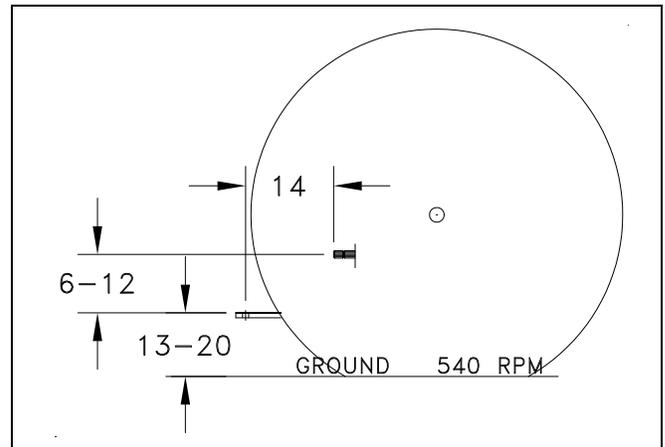


Figure 12
540 PTO RPM Adjustment

15764

Refer to Figure 14

3. Adjust the vertical position of the pump drive shaft on the sprayer so that it is level, to slightly higher than level with the PTO shaft on the tractor as shown. This reduces drive-line vibration when turning a corner. Adjust the vertical position by moving the four bolts supporting the drive shaft bracket.

NOTICE

If, after adjusting the vertical position of the pump drive shaft, the drive shaft is still a lot higher than the PTO drive shaft on the tractor; adjust the hitch up one position and readjust the pump drive shaft.

Refer to **“Hitching Tractor to Sprayer”** starting on page 13 to adjust the hitch.

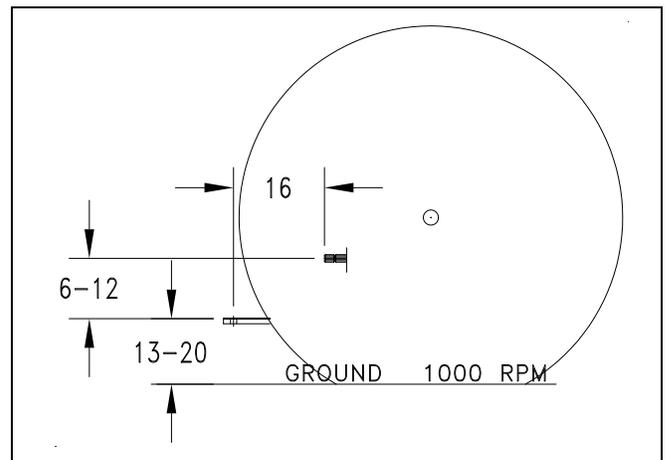


Figure 13
1000 PTO RPM Adjustment

15765

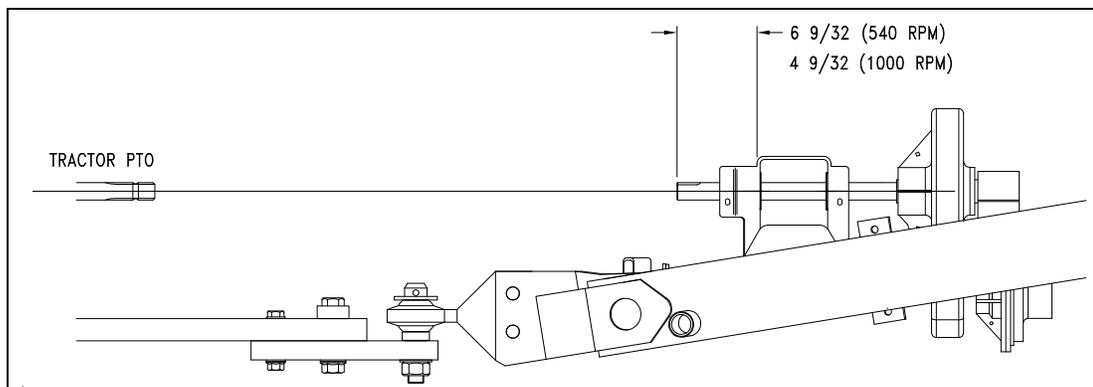


Figure 14
Hitch Height Adjustment

15837

Axle Wheel Spacing Adjustment

CAUTION

Axle position must be located correctly to avoid excessive tongue weight or negative tongue weight which could cause mechanical failure resulting in personal injury.

CAUTION

Do not adjust the wheel spacing wider than 120 inches. To do so may cause a falling axle hazard while the sprayer is in service.

Refer to Figure 15

The wheel spacing of the axle can also be adjusted for differing row spacings.

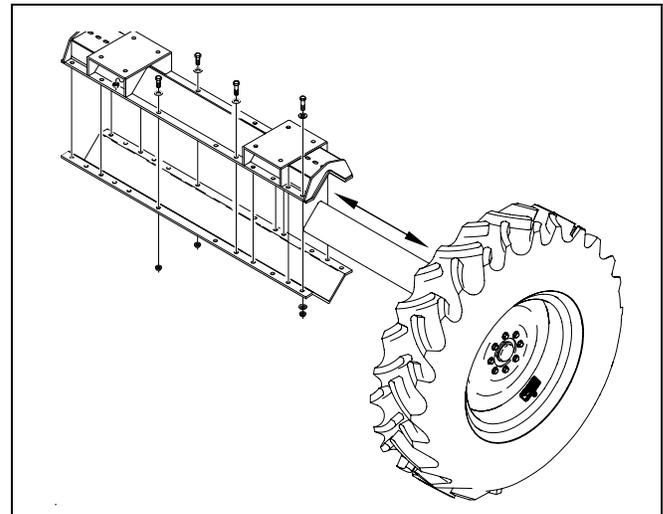


Figure 15
Sprayer Axle Assembly

13855



Appendix - Reference Information

Specifications and Capacities

	TSF-1060-2530	TSF-1060-3620	TSF-1260-2530	TSF-1260-3620
Boom Width	60 feet 18.3 m	60 feet 18.3 m	60 feet 18.3 m	60 feet 18.3 m
Nozzle Spacing	30 inches (76 cm)	20 inches (51 cm)	30 inches (76 cm)	20 inches (51 cm)
Nozzle Count	25	36	25	36
Main Tank Capacity	1000 gallons (3785 liters)		1250 gallons (4732 liters)	
Flush Tank Capacity	100 gallons (379 liters)			
Handwash Tank Capacity	5 gallons (18.9 liters)			
Marker Foam Tank Capacity	25 gallons (95 liters)			
Tractor Requirement	75 hp (55 kW)		100 hp (75 kW)	
Closed Center* Hydraulic Circuits	One hydraulic remote (with PTO pump) Two hydraulic remotes (with hydraulic pump)†			
Empty Weight	7520 lbs (3411 kg)		8070 lbs (3660 kg)	
Full Weight	16450 lbs (7462 kg)		19075 lbs (8652 kg)	
Working Width	63 feet (19.2 m)			
Transport Width	12 feet (3.7 m)			
Transport Height	13 feet (4.0 m)			
Length	22 feet 5in (6.8 m)			
Clearance‡	28 inches (71 cm)			
Wheel Spacing	North American models: 80 to 120 inches (203 to 305 cm) Export models: 203 to 290 cm (80 to 114 inches)			
Tire Size	320/85R38 Radial**		14.9 R46 10 Ply	
Pumps††	Ace Hydraulic, Ace Tractor mounted high volume PTO pump - 540 RPM, Ace Tractor mounted high volume PTO pump - 1000 RPM 1 ³ / ₈ -inch spline, or customer-provisioned 90 gpm at 30 psi (341 liters/min at 207 kPa)			

* An optional kit (833-427C) is available for open center tractors. See Operator's Manual for more information.

† If tractor cannot restrict flow to 6 gpm, purchase a flow-control kit from your Great Plains dealer.

‡ Lowest part of hitched sprayer is the tractor side of the hitch.

** May be upgraded by Option to 14.9 R46.

†† Standard sprayer does not include a pump.

Tire Inflation Chart

Wheel	Tire Size	Inflation
Transport	13.6-38 6 Ply Tubeless	22 psi 152 kPa
Transport	14.9 R46 4* 10 Ply Radial	36 psi 221 kPa
Transport	320/85R38 Radial	52 psi 359 kPa

Tire Warranty Information

All tires are warranted by the original manufacturer of the tire. Tire warranty information is found in the brochures included with your Operator's and Parts Manuals or online at the manufacturer's websites listed below. For assistance or information, contact your nearest Authorized Farm Tire Retailer.

Manufacturer	Website
Firestone	www.firestoneag.com
Gleason	www.gleasonwheel.com
Titan	www.titan-intl.com

Torque Values

Bolt Size in-tpi ^a	Bolt Head Identification					
						
	Grade 2		Grade 5		Grade 8	
	N-m ^b	ft-lb ^d	N-m	ft-lb	N-m	ft-lb
1/4-20	7.4	5.6	11	8	16	12
1/4-28	8.5	6	13	10	18	14
5/16-18	15	11	24	17	33	25
5/16-24	17	13	26	19	37	27
3/8-16	27	20	42	31	59	44
3/8-24	31	22	47	35	67	49
7/16-14	43	32	67	49	95	70
7/16-20	49	36	75	55	105	78
1/2-13	66	49	105	76	145	105
1/2-20	75	55	115	85	165	120
9/16-12	95	70	150	110	210	155
9/16-18	105	79	165	120	235	170
5/8-11	130	97	205	150	285	210
5/8-18	150	110	230	170	325	240
3/4-10	235	170	360	265	510	375
3/4-16	260	190	405	295	570	420
7/8-9	225	165	585	430	820	605
7/8-14	250	185	640	475	905	670
1-8	340	250	875	645	1230	910
1-12	370	275	955	705	1350	995
1 1/8-7	480	355	1080	795	1750	1290
1 1/8-12	540	395	1210	890	1960	1440
1 1/4-7	680	500	1520	1120	2460	1820
1 1/4-12	750	555	1680	1240	2730	2010
1 3/8-6	890	655	1990	1470	3230	2380
1 3/8-12	1010	745	2270	1670	3680	2710
1 1/2-6	1180	870	2640	1950	4290	3160
1 1/2-12	1330	980	2970	2190	4820	3560

Bolt Size mm x pitch ^c	Bolt Head Identification					
						
	Class 5.8		Class 8.8		Class 10.9	
	N-m	ft-lb	N-m	ft-lb	N-m	ft-lb
M 5 X 0.8	4	3	6	5	9	7
M 6 X 1	7	5	11	8	15	11
M 8 X 1.25	17	12	26	19	36	27
M 8 X 1	18	13	28	21	39	29
M10 X 1.5	33	24	52	39	72	53
M10 X 0.75	39	29	61	45	85	62
M12 X 1.75	58	42	91	67	125	93
M12 X 1.5	60	44	95	70	130	97
M12 X 1	90	66	105	77	145	105
M14 X 2	92	68	145	105	200	150
M14 X 1.5	99	73	155	115	215	160
M16 X 2	145	105	225	165	315	230
M16 X 1.5	155	115	240	180	335	245
M18 X 2.5	195	145	310	230	405	300
M18 X 1.5	220	165	350	260	485	355
M20 X 2.5	280	205	440	325	610	450
M20 X 1.5	310	230	650	480	900	665
M24 X 3	480	355	760	560	1050	780
M24 X 2	525	390	830	610	1150	845
M30 X 3.5	960	705	1510	1120	2100	1550
M30 X 2	1060	785	1680	1240	2320	1710
M36 X 3.5	1730	1270	2650	1950	3660	2700
M36 X 2	1880	1380	2960	2190	4100	3220

- a. in-tpi = nominal thread diameter in inches-threads per inch
- b. N·m = newton-meters
- c. mm x pitch = nominal thread diameter in mm x thread pitch
- d. ft-lb = foot pounds

Torque tolerance + 0%, -15% of torquing values. Unless otherwise specified use torque values listed above.

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