FREEMAN

Operators Manual;
280-380 Self-Propelled
Baler

PB280380SP

A Product of
Allied Systems COMPANY
Sherwood, Oregon USA

For serial numbers: 380S14G712

⚠ WARNING

California Proposition 65 Warning

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer, birth defects, and other reproductive harm. Wash hands after handling.

Other chemicals in this vehicle are also known to the State of California to cause cancer, birth defects, and other reproductive harm.

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General Overview

Your decision to buy a Freeman Self Propelled (SP) Baler was a wise decision. When it comes to harvesting hay, Freeman is a solid investment. You will find your new baler comes from a long history of top quality haying equipment. At Allied Systems Company, our goal is to provide you with the most rugged, highest capacity, longest lasting equipment available on the market.

Freeman SP Balers, manufactured by Allied Systems Co., combine the best of Freeman and John Deere technologies. By using both Freeman and John Deere components, the best of both companies are integrated to produce the best SP Baler on the market today. The baler frame and all baling components are Freeman designed and built. The operators cab, engine and steering are from John Deere.

At Allied Systems Company, safety is not just a word, it is the Rule and we pride ourselves on an outstanding safety record. This concern for safety is displayed in the equipment that we build. Special care has been taken while designing your Freeman SP Baler to make it as safe as possible.

We recommend that you carefully read the entire manual before operating your new SP Baler. Becoming fully acquainted with its performance features, adjustments, controls and maintenance schedules will be repaid in a long, satisfactory life of the product.

General Information

The purpose of this manual is to assist the operator in maintaining and operating a Freeman SP Baler. Please read it carefully, as it provides important information and instructions that will help you achieve years of dependable equipment performance.

NOTE: Reference to left-hand and right-hand usage throughout this manual refers to the position when seated in the operator's seat, facing forward.

Replacement Parts: Only genuine Freeman replacement parts should be used to service the SP Baler. These parts are available from your authorized Freeman dealer. To ensure prompt and efficient service when ordering parts or requesting service repairs, remember to provide the dealer with the following information:

1. The correct part description or part number.
2. The model number of the baler.
3. The serial number of the baler.

Use the Freeman parts books you received with your SP Baler for ordering parts.

The serial number is very important in effectively transacting a parts order or service repair with the dealer. Use the serial number in all correspondence to ensure proper identification of your Freeman SP Baler. The serial number is located on the baling chamber as shown.

Side Feed Baler Serial Number Format

3 8 5 E 1 6 - 1 2 3

Twines/Bale
2 - 2-Tie
3 - 3-Tie

Model
7 - Base
8 - Premium

Knotter
0 - Conventional
5 - Tailless

Drive Type
E - Engine
H - Hydro
D - Driveline
S - Self Propelled
M - Modules

Plunger Size
14", 15", 16", 21"

Dash - No Option
G - Gearbox

Sequential Number

Figure 1. Baler Serial Number Location

Safety

General

The following pages contain general safety warnings which supplement specific warnings and cautions appearing elsewhere in this manual. All electrical and hydraulic equipment is potentially hazardous. You must thoroughly review and understand this Safety Section before attempting to operate, troubleshoot, maintain or service this baler.

Time, money and effort have been invested in making your Baler a safe product. The dividend from this investment is **YOUR PERSONAL SAFETY**.

However, it must be realized that no power-driven equipment can be any safer than the person behind the controls. If you don't operate and maintain your Freeman Baler safely, our efforts will have been in vain.

The safety instructions and warnings, as documented in this manual and shipped with the machine, provide the most reliable procedures for the safe operation and maintenance of your Baler. It's your responsibility to see that they are carried out.

Allied Systems Company cannot anticipate all worksite conditions, local regulations, etc. It is the responsibility of the end user to be aware of and obey any specific worksite, local, state, or national regulations or procedures that are applicable to operating this baler.

NOTE: All possible safety hazards cannot be anticipated so as to be included in this manual. Therefore, you must always be alert to potential hazards that could endanger personnel and/or damage the equipment.

Intended Use Statement:

This baler is intended to gather and compress loose, fibrous material (i.e., hay) and form it into rectangular bales. Use in any other way is considered to be contrary to the intended use. If you are unsure of the material you intend to bale, consult the factory.

Safety Symbols

The following symbols/terms are used to emphasize safety precautions and notices in this manual:

⚠ DANGER

The "DANGER" symbol indicates a hazardous situation which, if not avoided, will result in death or serious injury. Carefully read the message that follows to prevent serious injury or death.

⚠ WARNING

The "WARNING" symbol indicates a hazardous situation which, if not avoided, could result in death or serious injury. Carefully read the message that follows to prevent serious injury or death.

⚠ CAUTION

The "CAUTION" symbol indicates a hazardous situation which, if not avoided, could result in minor or moderate injury, or equipment damage. Carefully read the message that follows to prevent minor or moderate injury.

NOTICE

The "NOTICE" symbol alerts to a situation that is not related to personal injury but may cause equipment damage.

NOTE: …

The term "**NOTE**" highlights operating procedures or practices that may improve equipment reliability and/or personnel performance, or to emphasize a concept.

Operation Warnings

⚠ WARNING

Warning: Failure to observe the following safety rules may result in extreme personal injury, dismemberment or death. It is the operator's responsibility to understand the proper and safe use of this baler.

Make sure that you read, understand, and obey all of the safety precautions and operating instructions in this Operator's Manual.

- Keep this Operator's Manual and the Safety Card (Allied form #89-028) with the baler at all times.
- Do not operate the baler unless you are authorized and trained to do so. If it has been some time since you last operated the baler, re-familiarize yourself with the baler before starting, then proceed slowly.
- Do not operate the baler if you are aware of any malfunctions, needed maintenance or repairs.
- Stop the baler immediately if any problems arise.
- Never allow others to ride on the baler.
- Never allow anyone within 10 ft of the baler while the baler is in operation.

- Never operate the baler without all safety shielding in place.
- Keep hands, feet, hair, jewelry and clothing away from moving parts, including but not limited to the pickup, knotter, and flywheel.

- Avoid wearing loose clothing which can easily be caught in moving parts.
- Use appropriate signs (i.e., Slow Moving Vehicle sign), signals or warning lights when transporting on highways.
- Always use lights when working at night or in low light conditions.
- Know your job-site rules. Some have site specific directions and procedures. The methods outlined in this manual provide a basis for safe operation of the baler. Because of special conditions, your company's baling procedures may be somewhat different from those shown in this manual.
- Do not start the baler if the key has been marked with a "DO NOT START" or "RED" tag.
- Never operate any of the baler controls from anywhere other than the operator's seat.
- Alert personnel in the area before starting the engine, and make sure everyone is clear. Be sure that all controls are in neutral and the baler is disengaged before starting the engine.
- Each country has its own safety legislation. It is in the operator's own interest to be conversant with these regulations and to comply with them in full. This also applies to local bylaws and regulations in force on a particular worksite.
- Should the recommendations in this manual deviate from those in the user' country, the national regulations should be followed.
- Never attempt to disconnect any of the safety devices built into the baler.
- Maintain proper clearance from energized equipment, energized power lines or other power sources. High voltage electricity can discharge to ground without direct contact with the baler's structure. If the baler contacts energized equipment, or if electrical energy does discharge through the machine—stay clear, and prevent anyone else from coming in contact with the baler. If you are on the baler, stand fast, avoid contact with metal surfaces, and do not permit anyone to come into contact with the baler. Finally, **Do not jump off**.

Hydraulic Hazards

Be aware of the hazards of pressurized hydraulics:

- Wear personal protective equipment, such as gloves and safety glasses, whenever servicing or checking a hydraulic system.
- Assume that all hydraulic hoses and components are pressurized. Relieve all hydraulic pressure before disconnecting any hydraulic line.
- Never try to stop or check for a hydraulic leak with any part of your body; use a piece of cardboard to check for hydraulic leaks.

- Small hydraulic hose leaks are extremely dangerous, and can inject hydraulic oil under the skin, even through gloves.
- Infection and gangrene are possible when hydraulic oil penetrates the skin. See a doctor immediately to prevent loss of limb or death.

Maintenance Safety

- Perform all routine maintenance outlined in this Operator's Manual in the time intervals indicated.
- Maintenance, lubrication and repair of this machine can be dangerous unless performed properly. In order to ensure safety, each person working on this baler must have the necessary skills, information, tools and equipment, and satisfy himself that his work method is safe, correct, and meets his own company's requirements.
- Do not attempt to make adjustments, or perform repairs unless you are authorized and qualified to do so.
- Never attempt to service energized equipment.
- Do not rely on the hydraulic system to support any part of the baler during maintenance or lubrication. Never stand under a baler component that is supported only by the hydraulic system. Ensure components are resting on their mechanical stops or supported with appropriate safety stands during maintenance or lubrication.
- Never attempt servicing while the baler is moving. Shut off the baler and secure power.
- Disengage the baler and shut off engine, and wait for all movement to stop before adjusting, lubricating, cleaning, or servicing the baler.
- Tag the key switch with a "DO NOT START" sign and/or remove the key.
- Always perform all maintenance and lubrication procedures with the baler on level ground, parked in a safe area.
- Block the tires to keep the machine from rolling.
- Any unauthorized modifications made to the baler by the customer or parties other than Allied Systems will relieve Allied Systems Company and your Freeman dealer of any liability for damage or injury.
- Replace any worn parts only with genuine Freeman parts. Call your dealer for assistance.
- Unless specified in service procedures, never attempt maintenance or lubrication procedures while the baler is moving or the engine is running.

- Engine exhaust fumes can cause death. If it is necessary to run the engine in an enclosed space, remove the exhaust fumes from the area with an exhaust pipe extension. Use ventilation fans and open shop doors to provide adequate ventilation.

- DO NOT remove the radiator cap when the engine is hot. The coolant will be under pressure and can flash to steam with explosive force, causing severe burns. To prevent burns, remove the radiator cap only when the engine is cool.

- Batteries contain sulfuric acid which can cause severe burns. Avoid contact with skin, eyes or clothing.
- Batteries produce explosive gases. Keep sparks, flame and cigarettes away. Ventilate when charging or servicing in an enclosed space. Always shield your eyes when working near batteries. When removing battery cables, disconnect the negative (-) cable first. When installing a battery, always connect the positive (+) cable first. This procedure will help to prevent a spark which could cause an explosion.

- Before making adjustments to the engine or chassis electrical system, disconnect the battery. An electrical spark could cause a fire, explosion or severe burns.

Safety Equipment

- Ensure test equipment is in good condition.
- If an instrument must be held while taking measurements, ground the case of the instrument before energizing equipment.
- Do not touch live equipment or personnel working on live equipment while holding a multimeter. Some types of measuring devices should not be grounded—do not hold such devices while taking measurements.
- Prevent personal injury or equipment damage by using a lifting device with a lifting capacity greater than twice the weight of any equipment to be lifted.
- Always use personal protective equipment (PPE) appropriate to the situation. This may include the use of hearing protection, eye protection, a respirator, a hard hat, leather gloves, steel toed boots, etc.

Electrical Hazards

- An electric shock could be fatal. Ensure power to the baler is “OFF” before opening electrical panels.
- All electrical cables and connectors must be in good condition (free of corrosion, damage, etc). Use caution in wet weather to avoid danger from electrical shock. Never attempt electrical testing or repair while standing in water.

- Do not wear electrically conductive jewelry, clothing, or other items while working on the electrical system.

Hot Oil Hazards

- Burns from hot oil can be severe—Always allow lubricating and hydraulic oil to cool before draining.

Compressed Air Hazards

- When using compressed air to dry parts, pressure should not exceed 30 psi (200 kPa).
- Air pressure penetrating your skin can be fatal. Never direct compressed air at anyone.

Fire Safety

⚠ WARNING

Diesel fuel and hydraulic oil are flammable. Never smoke while handling fuel or working on the fuel system. The fumes in an empty fuel container are explosive. Never cut or weld on or near fuel lines, tanks, or containers. Keep open flames and sparks away from the machine.

Reduce the Risk of Fire

- Keep the baler free of oil, grease, hay, and trash accumulations. Regular cleaning is recommended for fire prevention and general safety. Use an approved solvent to clean machine parts. Never use gasoline or diesel fuel.
- Shut off the engine and electrical equipment while filling the fuel tank. Use extra caution when fueling a hot engine. Always ground the fuel nozzle against the filler neck to avoid sparks.
- Never overfill the fuel or hydraulic tanks. Any overflow could cause a fire. Immediately repair any hydraulic or fuel leaks and clean up any spills.
- Handle all solvents and dry chemicals according to procedures identified on manufacturer's containers. Work in a well-ventilated area. Make sure you know where fire extinguishers are kept and how to use them.
- Avoid spilling fuel or other hazardous liquids. If a spill occurs, follow local or state regulations for clean-up. Contact your state's OSHA office for details.
- Always ensure that excess grease and oil accumulation, including spillage, is cleaned up immediately.
- Inspect the baler daily for potential fire hazards and make any necessary repairs immediately.
- Check all the electrical wiring and connections for defects, and repair or replace as necessary. Keep battery terminals clean and tight.
- Never perform welding operations until the entire machine has undergone a thorough cleaning. In addition, cover rubber hoses, disconnect the battery, ECM (Electrinic Control Module) located on engine, XA2 module located on the chassis frame near the engine and ICM (In Cab Monitor). The ICM is located in the overhead console inside the cab but can be disconnected at bulkhead labeled X911 behind cab. Failure to disconnect these items could result in permanent damage. Have at least a fire extinguisher at hand. Contact your dealer with any questions.
- Hydraulic fluid is flammable. Do not weld on or near pipes, tubes, or hoses that are filled with fluid. Do not smoke when checking or filling the tank. Keep open flames and sparks away from the baler.
- Hay dust is combustible. Do not have an open flame or weld in dusty environments.
- Maintain the engine cooling system to avoid overheating.
- Remember, there is always a risk of fire.

Fire Fighting Equipment

- It is recommended to carry an "ABC" fire extinguisher on the baler at all times. Install it within easy reach of the operator in a position that protects it from damage. Use only a "quick release" type of mount. It is also recommended to carry a four gallon water container with a pump, or as required by local and state law.
- Keep your fire extinguisher(s) fully charged and in good working order. Know how to use them.

- Read and understand the instructions printed on the canisters and learn how to operate them. Learn how to remove the canisters from their mounting brackets in the shortest amount of time.
- Service the extinguisher according to the manufacturer's specifications. Service after every use, no matter how short a time.

Fire Suppression

- Do not panic. At the first sign of trouble (burning smell, smoke, visible flame, etc), stop the baler and turn off the engine in the clearest area available.
- If the fire cannot be extinguished safely, immediately evacuate the area. DO NOT attempt to extinguish it. DO NOT risk personal injury. Contact your local fire department.
- If you have determined that the fire may be safely extinguished, use the fire extinguisher according to the manufacturer's instructions, or use the water pump, aiming water at the base of the fire.
- When the baler has fully cooled, thoroughly inspect, and make all necessary repairs to return the baler to normal operation.
- Recharge or replace the extinguishers before returning to work.

Specifications

General:		
Engine	John Deere PowerTech 4045TF285	
Overall Length	20 ft., 7 in. (6.3 m)	
Overall Width	12 ft., 9 in. (3.9 m)	
Overall Height	11 ft., 4 in. (3.45 m)	
Weight	16,100 lbs. (7302.8 kg)	
Pickup Width with Flare	76" (1.93 m)	
Fuel Tank	30 gal. (113.5 L) standard; 50 gal. (189.3 L) optional	
Hydraulic Oil Tank	25 gal. (94 L) total system capacity ~ 35 gal. (133 L)	
Feed System	Adjustable feed arm, swings on tapered bearings in sealed tube	
Bullgears	On tapered roller bearings	
Tires:		
Front	18.4-26 46 psi (317 kpa)	
Rear	21.5L-16.1SL 28 psi (193 kpa)	
Max Road Speed	12 mph (19.3 kph)	**⚠ WARNING** Do not execute sharp turns over 8 mph (12 kph) to prevent damaging equipment, serious injury or death.
Max Baling Speed	8 mph (12.9 kph)	
Plunger:		
Plunger Speed	84 strokes per minute (SPM)	
Stroke Length	30 in. (76.2 cm)	
Drive	Bullgear (2-tie or 3-tie) or gearbox (3-tie only)	
Bale Chamber:	**2 Tie**	**3 Tie***
Height	14 in. (35.5 cm) or 16 in (40.6 cm)	16 in. (40.6 cm)
Width	18 in. (45.7 cm)	22 in. (55.9 cm)
Bale Length	18 to 52 in. (45.7 to 132 cm)	18 to 52 in. (45.7 to 132 cm)
Bale Weight	60 to 120 lbs. (27 to 54 kg)	90 to 180 lbs. (41 to 81 kg)
Knotter System:		
Knotters	2	3
Twine Storage Capacity	12 rolls	
Twine Type	200 to 280 knot strength	

*Chamber kits available for 3-tie chambers.

Instruments and Controls

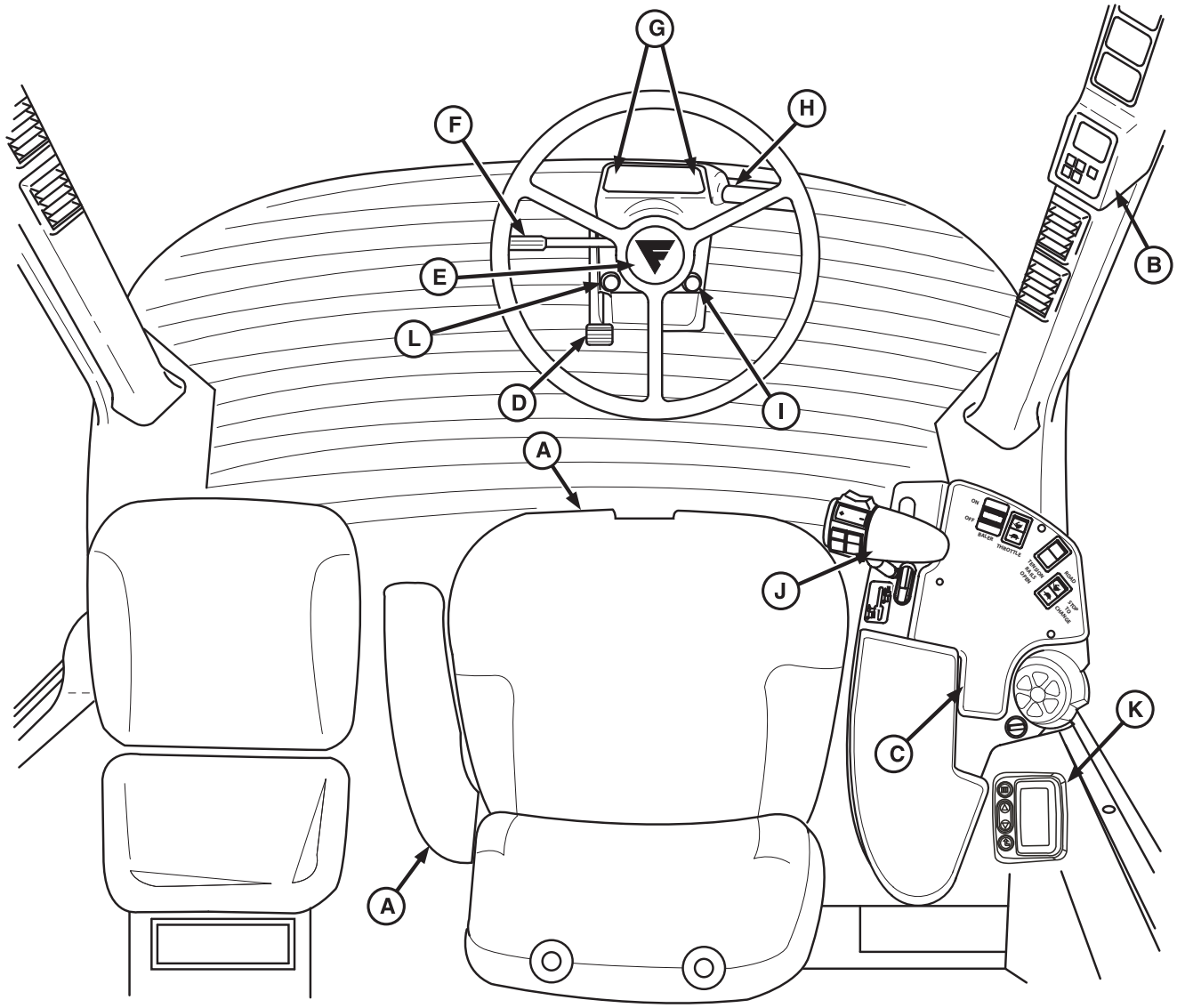


Figure 2. Cab Layout

A. *Seat controls*

B. *Corner post monitors*

C. *Armrest control panel*

D. *Steering column tilt pedal*

E. *Telescoping steering wheel lock knob*

F. *Turn signal lever*

G. *Turn signal indicators*

H. *Start switch*

I. *Horn button*

J. *Hydrostatic drive control lever (speed & direction)*

K. *Engine diagnostic gauge (see your manufacturer's engine manual)*

L. *Bullgear luber button (bullgear balers only)*

Overhead Instrument and Controls

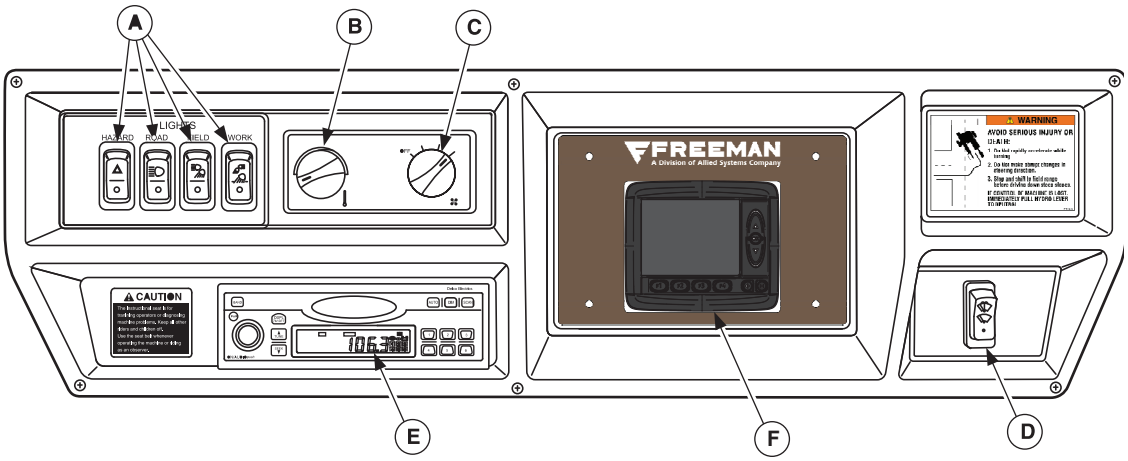


Figure 3. Overhead Controls

A. Light switch controls

B. Temperature control

C. Blower motor speed

D. Windshield wiper control

E. AM-FM/weather band radio

F. In-cab monitor (ICM)

Control Switch Colors

Before operating the self-propelled baler for the first time, become familiar with the controls and switches. These controls and switches are color-coded to help you quickly locate them when operating the self-propelled baler.

- **ORANGE** Ground drive speed range
- **YELLOW** Baler drive engagement
- **BLACK** Operating adjustment and engine speed

Figure 4. Armrest Control Panel

Armrest Control Panel

A. Hydrostatic drive control lever

B. Baler speed switch

C. Tension control

D. Pickup height switch

E. Baler drive engage switch

F. Engine speed adjustment

G. Tension rails open

H. Road/field switch

I. Power port (12VDC)

J. Engine diagnostic gauge (mounted near floor)

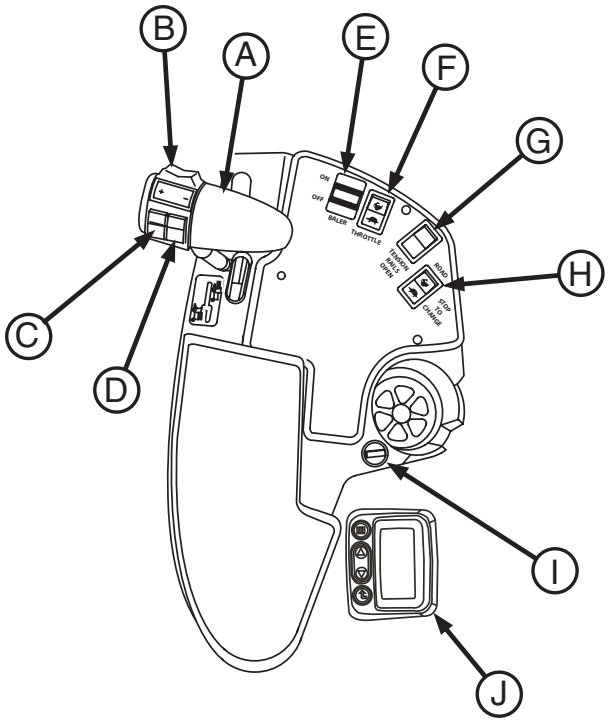


Figure 5. Armrest Control Panel

Hydrostatic Drive Control Handle Functions

The engine must be running to perform any of the following functions.

Rocker switch (D) raises and lowers the height of the pickup.

Rocker switch (B) increases or decreases the speed of the plunger.

Handle (A) controls the hydrostatic drive.

- Move lever to the right and forward to go forward.
- Move lever to the right and backward to go backward.
- When the lever is in the left detent, the automatic parking brake is engaged and the steering wheel locked. The lever must be in this position to start the machine.

Figure 6. Hydrostatic Drive Control Handle

A. Hydrostatic drive control lever (speed & direction)

B. Baler speed mode switch (field/road)

C. Tension control

D. Pickup height switch

IMPORTANT! If the hydrostatic charge pressure light (see Figure 12 on page 21, Item D) comes on in the warning display panel when the lever is moved, check hydrostatic/ hydraulic oil level or replace filter. If this doesn't correct the problem, contact your Freeman dealer.

NOTE: Charge pressure light may activate if raising or lowering pickup with engine speed at idle.

To adjust handle angle (see Figure 7), turn handle (A) counterclockwise to loosen collar (B). Position handle, tighten collar with fingers, then turn handle clockwise to tighten collar firmly.

If additional tightening of the handle is required, position hydrostatic handle approximately 20 degrees counterclockwise from the desired position. Tighten collar with fingers. Hold collar with fingers and turn handle clockwise to desired position. Do not use pliers on collar, tighten with fingers only.

A. Handle

B. Collar

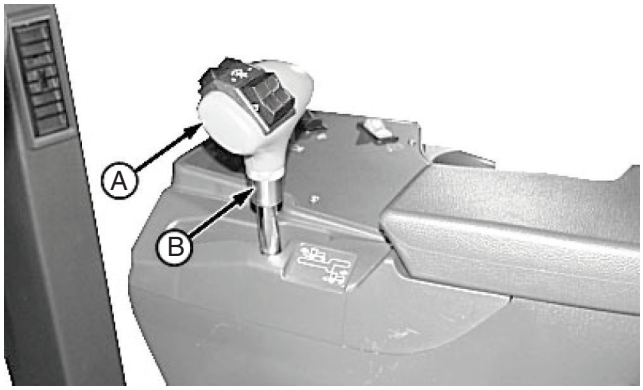


Figure 7. Adjusting Hydrostatic Drive

Baler Drive Switch

NOTE: Operator must be in the seat to engage baler. Baler will disengage if operator leaves the seat for more than 5 seconds.

Baler will disengage if engine is started with Baler switch in the ON position. If this happens, cycle the switch to the OFF position, then back to the ON position to engage the baler.

Operate the baler by engaging the yellow switch (see Figure 8). Push down on the switch and push forward to engage baler. Pull switch back to the OFF position to disengage baler.

Note: When the baler is engaged it will begin at 5 strokes per minute (SPM).

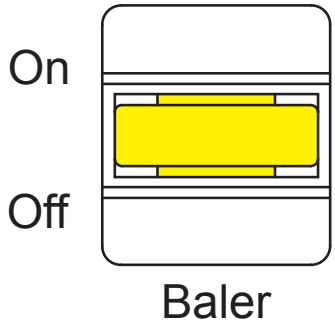


Figure 8. Baler Drive Switch

Engine Speed Adjustment Switch

The Engine Speed switch (see Figure 9) selects between two pre-set engine speeds. This adjustment will affect the unit's ground speed and operating speed of the Baler.

Depress the  for slow engine speed (idling).

Depress the  for high engine speed (working).

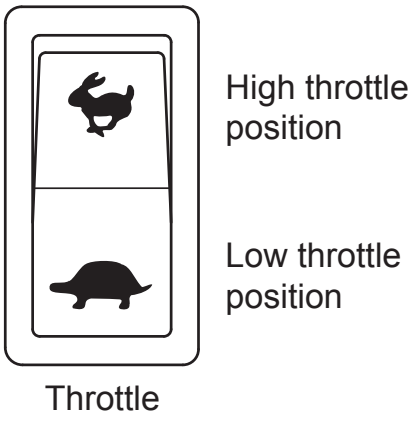


Figure 9. Engine Speed Switch

Ground Speed Switch

The Ground Speed Switch (see Figure 10) selects a higher  gear for transporting the baler, or a lower  gear for field operations (baling), without affecting engine speed.

To shift between ROAD and FIELD gears:

1. Bring the machine to a complete stop and return the hydrostatic drive control handle to the neutral park position.
2. Move the Ground Speed Switch to the desired setting.

⚠ CAUTION

Loss of Control.

Can result in impact that could cause injury or equipment damage.

Bring machine to a complete stop before shifting gears from FIELD to ROAD.

Note: Always shift to the slower  field gear before going down a steep slope.

Figure 10. Ground Speed Switch

Corner Post Monitors

(See Figure 11)

A. Warning Display Panel
12 displays with colors indicating existing condition and an audible alarm for when a serious condition exists (see "Warning Display Panel" on page 21).

B. Fuel Gauge
Indicates fuel level (see "Fuel Gauge" on page 22).

C. Engine Coolant Temperature Gauge
Indicates engine coolant temperature (see "Engine Coolant Temperature Gauge" on page 22).

D. Dual Digital Display
Indicates engine rpm, mph, or hours depending on function selected. Display is a dual display showing any combination of two functions at the same time (see "Dual Digital Display" on page 22)

E. Function Select
Selects the desired function to be displayed. Operator can select which function to display in the upper digital display or the lower digital display (see "Operating Dual Digital Display" on page 22).

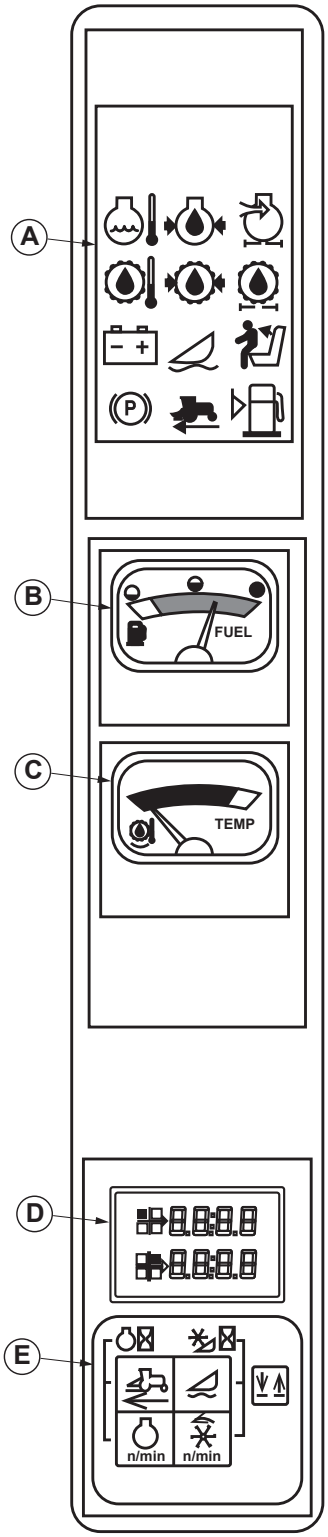


Figure 11. Corner Post Monitors

Warning Display Panel

(See Figure 12)

NOTE: To perform a bulb check, see "Checking Warning Lights" on page 50.

The display shows a red, yellow or blue light and may sound an audible alarm for the specific condition

- RED LIGHT Stop engine at once and correct problem
- YELLOW LIGHT Service or correct problem. Stop engine as required.
- BLUE LIGHT Be aware of condition. Listed below is the keyed designation of the warning lamp color displayed and if an audible alarm is present.

NOTE: Decal on the inside storage lid of the right-hand armrest identifies symbols used on the panel (see "Cab Storage Box & Decal" on page 29).

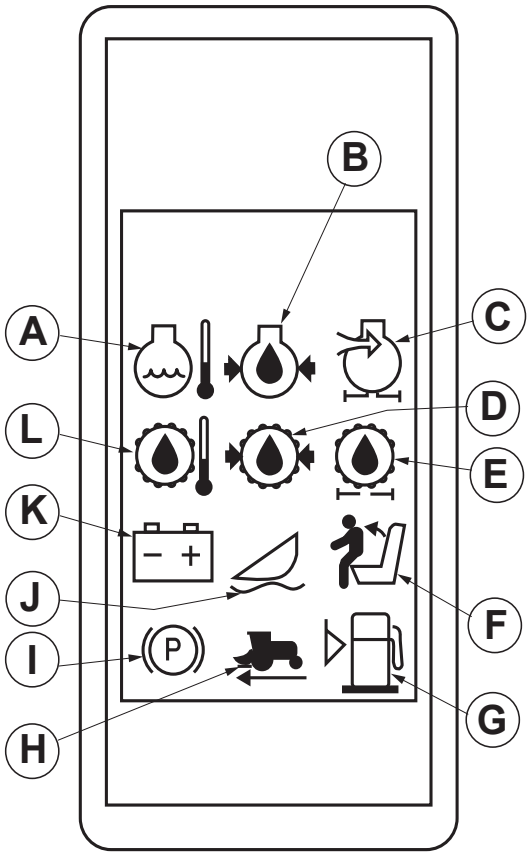


Figure 12. Warning Display Panel

KEY	FUNCTION	COLOR	ALARM
A	Engine Temperature	Red	Yes
B	Engine Oil Pressure	Red	Yes
C	Engine Air Filter	Yellow	No
D	Hydrostatic Charge Pressure	Red	Yes
E	Hydrostatic Oil Filter	Yellow	No
F	Operator Presence	Yellow	No
G	Low Fuel	Yellow	No
H	Road Shift Engage	Blue	No
I	Park Brake Applied	Blue	No
J*			
K	Alternator	Red	Yes
L	Hydrostatic Oil Temperature	Red	Yes

* Not applicable

Fuel Gauge

With key on, fuel gauge needle (see Figure 13) will move to the right showing amount of fuel in tank. Red/orange color shows low fuel. Green color shows fuel tank 1/4 full or more.

The needle may be in any position with the key off.

Fuel tank capacity is 113 L (30 U.S. gal).

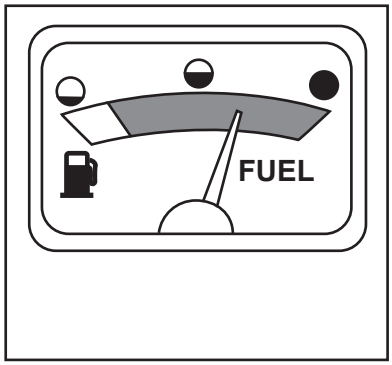


Figure 13. Fuel Gauge

Engine Coolant Temperature Gauge

Needle should be in the black zone during operation.

If the engine temperature red light on the WARNING DISPLAY PANEL turns on and the audible alarm sounds, turn off engine and check problem immediately.

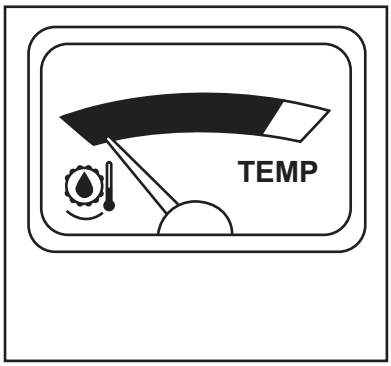


Figure 14. Temperature Gauge

Dual Digital Display

The dual digital display (see Figure 15) will display one function in the upper display (H) and another function in the lower display (K) simultaneously.

When the key is turned on, the dual digital display will show the functions selected the last time the baler was operated.

The dual digital display will display three different functions on the digital displays (H) and (K): Ground Speed (C), Engine RPM (D) and Engine Hours (B).

The tachometer is accurate within ± 10 rpm in displaying rpm. If ground speed drops below 3/4 kph (1/2 mph) digital display shows 0.0.

The engine hour meter is accurate to ± one hour. Only full hours are shown, but the computer memory is updated in quarter hours.

The dual digital displays (H) and (K) will dim by 50% when the headlights are on.

Operating Dual Digital Display

> NOTE: Any combination of functions may be displayed in the upper (H) and lower (K) displays. Ground speed (C) could be shown in the upper display and Baler hours shown in the lower display. The digital indicator (J) arrow shows on which display the function selected will be shown.

Press and hold display selector (I) until display indicator arrow (J) is pointing at either the upper display (H) or lower display (K).

Select function to be displayed and press symbol. Square (A) will move to show the function displayed.

Press and hold display selector (I) until display indicator (J) arrow is pointing at the other display.

Select function to be displayed and press symbol. Square will move to show the function displayed.

Pressing ground speed (C) and engine speed (D) at the same time will display the engine hours (B).

Note: Items E, F, G are not used in this application. Pressing these buttons will result in the display showing "0".

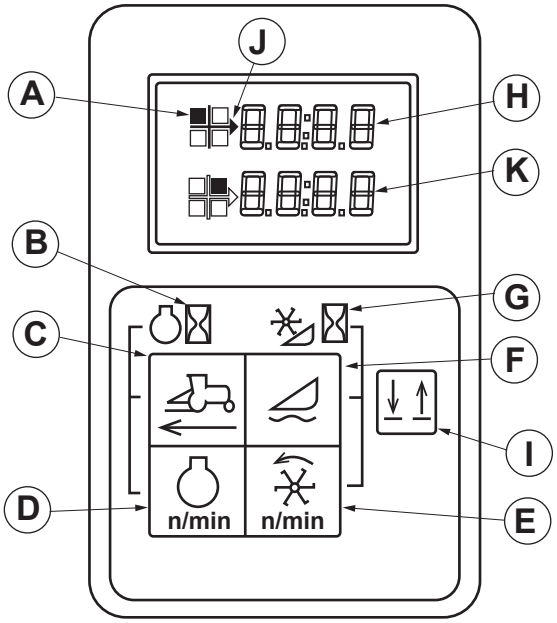


Figure 15. Dual Digital Display Panel

A. Function selected

B. Engine hours

*C. *Ground speed (MPH)*

D. Engine speed

E. N/A

F. N/A

G. N/A

H. Upper digital display

I. Display selector

J. Display indicator

K. Lower digital display

* Note: Ground speed is only accurate while driving straight.

Heater and Air Conditioning Controls

The recirculating fan controls air flow through the louvers (see Figure 17). Knob B (see Figure 16) selects one of three recirculating fan speeds or the off position. Knob (B) also turns on the A/C compressor in all positions except for off position.

Temperature Control

Rotate the temperature control knob (A) to control the air temperature.

Heater

To increase air temperature move knob 3 mm (1/8 in.) into the red. Wait 3 to 4 minutes, allowing the air temperature to stabilize, before repeating the procedure if needed.

Air Conditioning

If maximum cooling is needed, turn temperature control knob (A) to the maximum position in the blue area and turn fan control knob (B) to the fastest fan position. Lower the fan speed to medium as the cab cools, then lower the fan speed to low if necessary. Wait 3 to 4 minutes between adjustments, allowing the air temperature to stabilize. Move fan control knob (B) to the off position to turn off the air conditioning.

Defogging

To defog the windshield, turn fan control knob (B) on and adjust temperature with temperature control knob (A).

If the cab is still too cool, turn temperature control knob 3 mm (1/8 in.) toward the red. Wait 3 to 4 minutes, allowing the air temperature to stabilize, before repeating the procedure if needed.

If the A/C compressor stays off 3 to 4 minutes and the air smells musty, move temperature control knob (A) slightly toward the red and increase fan speed one position.

A. Temperature control knob

B. Fan speed knob

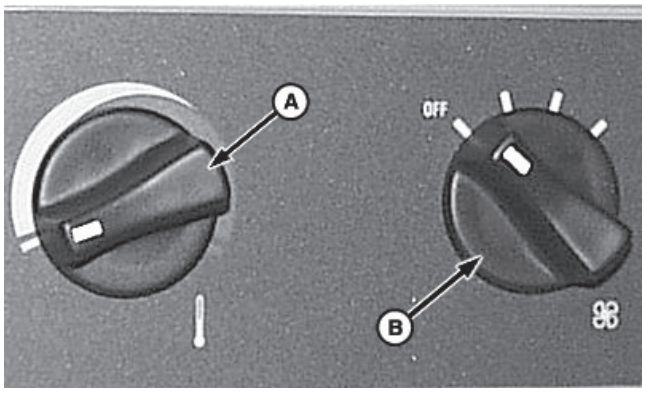


Figure 16. Heater and Air Conditioning Controls

Adjust air louvers (see Figure 17) with tabs (C) to prevent damage to louvers.

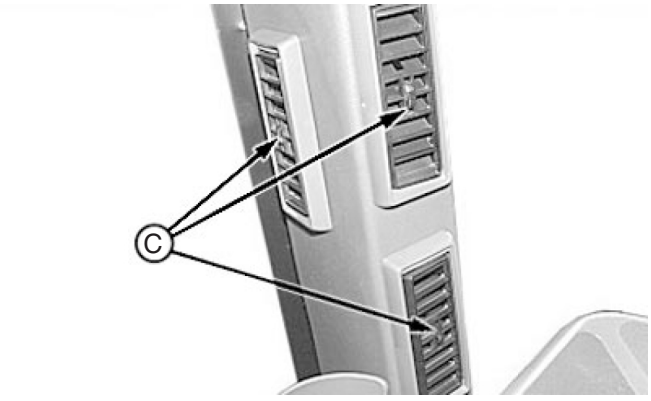


Figure 17. Air Louvers

Windshield Wiper Switch

To operate the wiper, depress the switch (see Figure 19) to the ON position.

The windshield wiper will stop on the left-hand side of the machine, when the switch is returned to the OFF position.

The machine does not have a windshield washer.

Figure 18. Wiper

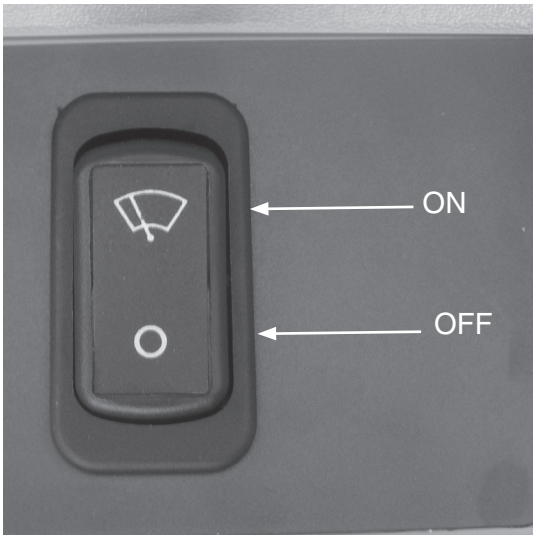


Figure 19. Windshield Wiper Control Switch

Light Control Switches

(See Figure 20)

A. HAZARD: Flashing amber/red in front and flashing amber/red in rear of machine. The hazard lights will come on automatically when the orange ground speed switch is in the ROAD position.

B. ROAD: Four headlights, front and rear red lights, and rear amber flashing lights.

NOTE: When the Field/Road Speed Switch is in the ROAD position, the machine's lights will automatically go to the ROAD setting, regardless of the light switch positions.

C. FIELD: Six headlights and rear red lights.

D. WORK: First Position - Left rear work light. Second Position - Right & left rear work lights.

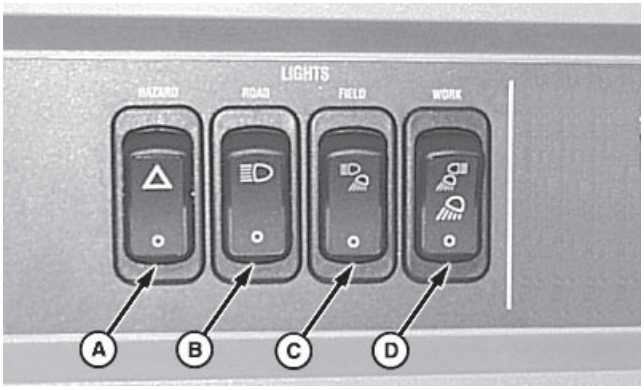


Figure 20. Light Control Switches

Cab Interior Lights

(See Figure 21)

E. Front Console and Armrest Console Light. This is a green light for use while baling at night. Field or Road lights must be on for the Console light to illuminate.

F. Dome Light

G. Dome Light Switch:
Left = Console Light
Center = Off
Right = Dome Light

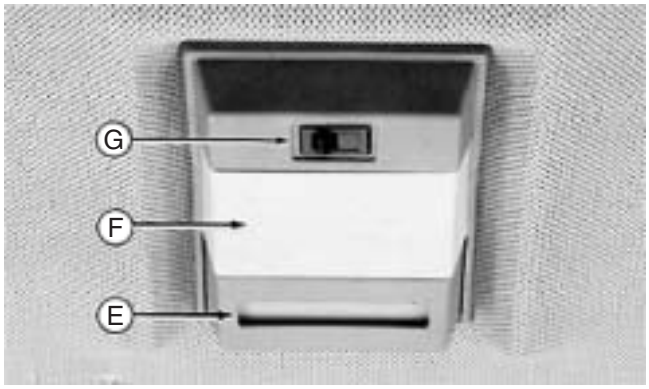


Figure 21. Interior Lights

Start Switch

See "Operating Engine" on page 51 before starting the engine.

⚠ CAUTION

Sound horn before starting engine to clear people away from the baler.

Start switch (E) is located on right side of steering column (see Figure 22).

NOTE: To perform a bulb check, see CHECKING WARNING LIGHTS in the Operating Engine section.

NOTE: When starting the machine, if the key is held in the "ON" position for more than 1 to 2 seconds before advancing to the "START" position, the ICM (In Cab Monitor) may have time to completely boot up. If this happens, then when the key is held in the "START" position, the ICM may measure voltage below 9 volts resulting in an informational message that must be cleared before further operating the baler.

This message is considered normal when it appears immediately at start up. **However**, if this message appears after the machine has been started, with the engine running or while baling, it might indicate a possible problem with the battery or charging system. It is suggested that these systems be inspected for proper function.

Turn key (F) from off position (A) to position (D) to start.

When released, it will return to run position (C).

If engine will not crank, check for:

- Hydrostatic lever in neutral park
- Steering wheel centered and locked

If accessories are to be operated, turn key to accessories position (B).

A. Off

B. Accessories

C. Accessories and run

D. Start

E. Switch

F. Key

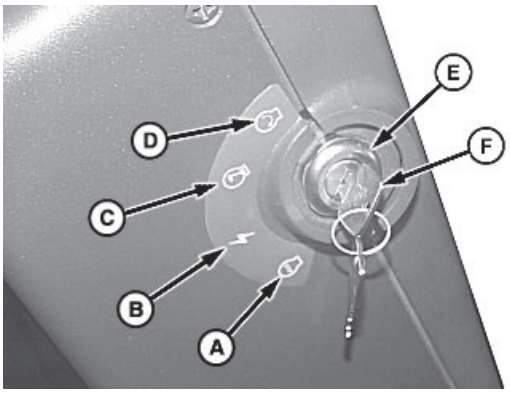


Figure 22. Key Switch

Horn

Press button (A) to sound horn (see Figure 23).

Figure 23. Horn

Bullgear Luber Button (not available on Gearbox Balers)

Press button (A) to distribute grease on bullgears (see "Bullgear Luber (if applicable)" on page 82 for more information). This button is not available on gearbox bailers.

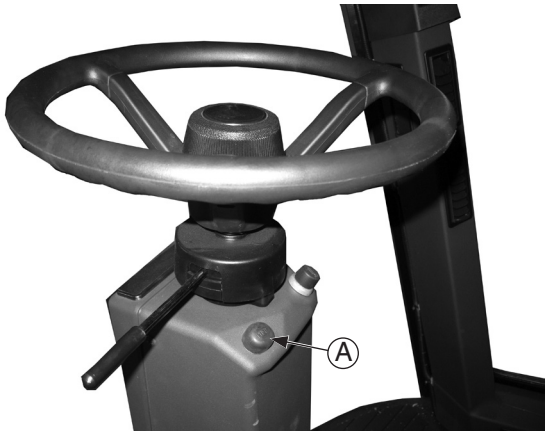


Figure 24. Bullgear Luber Button

Turn Signals

NOTE: The turn signals are not self cancelling. Right and left turn indicator lights (A) glow steadily in direction of indicated turn.

Turn signals (see Figure 25) are operable whenever ignition key is in ACCESSORIES or ACCESSORIES AND RUN position.

When operating the baler on the road or highway, use the turn signals when turning the baler.

Amber lights in front, and amber and red lights at rear of machine, will flash at 90 flashes a minute in direction of indicated turn.

Corresponding lights on the opposite side of the machine will burn steady.

A. Turn Indicator Lights

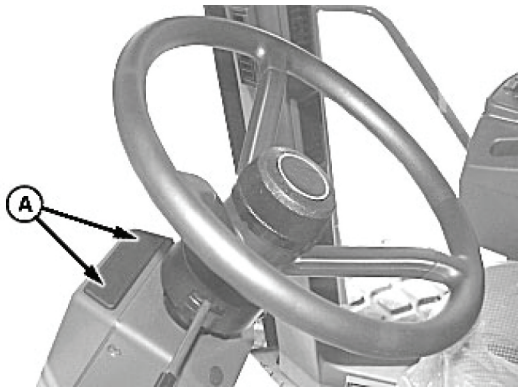


Figure 25. Turn Signals

Steering Wheel Height Adjust

⚠ CAUTION

To prevent loss of control, adjust steering wheel only when baler is stopped.

NOTE: Only a slight tightening of the hub (A) is needed to hold steering wheel in position.

Loosen hub (A). Push or pull wheel to desired position. Tighten hub to lock (see Figure 26).

A. Hub

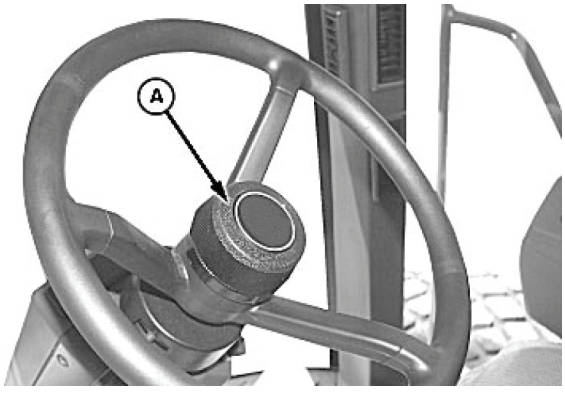


Figure 26. Steering Wheel

Steering Column Tilt Adjust

⚠ CAUTION

To prevent loss of control, adjust steering wheel only when baler is stopped. Column is spring loaded to the upward position. Do not step on pedal without holding the steering wheel in both hands.

Press pedal (A) to release lock on steering column. Put column in desired position. Column locks when pedal is released (see Figure 27).

A. Pedal

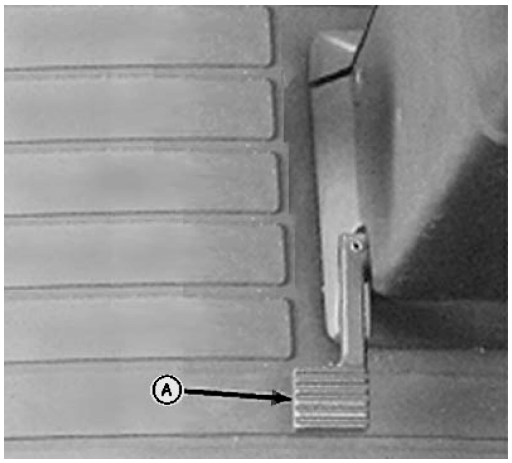


Figure 27. Steering Wheel Tilt Adjust Pedal

Storage Tray/Cab Air Filter

A tray is located in left rear corner of cab. Remove tray for access to the cab recirculating air filter (see Figure 28).

Figure 28. Storage/Cab Air Filter

Manual Storage

Keep your manuals in the holder (A) at rear of cab (see Figure 29).

A. Holder

Figure 29. Manual Storage

Cab Storage Box & Decal

The decal (A) shows the following information (see Figure 30):

- Identifies function of lights in warning display panel.
- Service interval reset procedure.

A. Decal

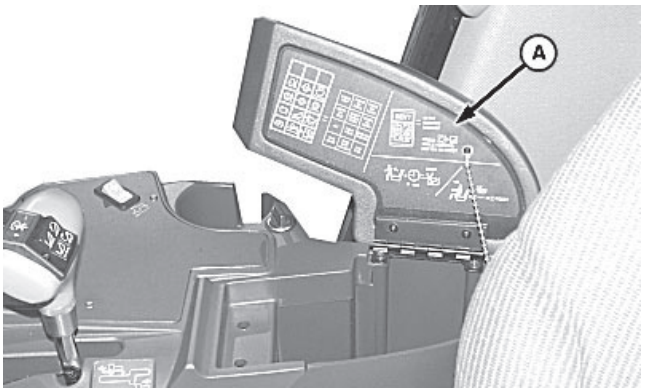


Figure 30. Storage

Cab Door Lock

This lock uses the ignition key (see Figure 31).

Figure 31. Door Lock

Emergency Exit (Right-Hand Cab Window)

Pull tab (A) to begin removal of rubber rope (B).

Continue to pull until rope (see Figure 32) is removed from around right-hand cab window. The window can now be pushed out and allowed to fall free.

A. Tab

B. Rope

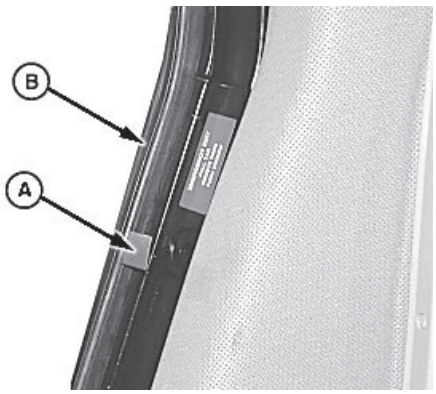


Figure 32. Emergency Exit

Operator's Seat

The COMFORT COMMAND operator's seat (see Figure 33) has an air suspension system for added operator comfort. The seat has a self-contained electric compressor to adjust the seat suspension to match the operator's height and weight.

Seat adjustments are as follows:

- Vertical shock dampener
- Height adjustment
- Fore/aft adjustment
- Fore/aft attenuator lock-out
- Seat bottom tilt
- Seat bottom fore/aft adjustment
- Seat back tilt
- Seat back Lumbar support
- Left hand armrest height
- Left hand armrest tension

Figure 33. Operator's Seat

Checking Operator Presence System

IMPORTANT! If the operator presence fails to function properly, contact your dealer.

To check the function of the operator presence (see Figure 34), start baler and engage baler switch. With baler operating, proceed as follows:

- Rise up off the seat for 3 seconds, then sit down again. The baler should continue to operate normally.
- Rise up off the seat for 5-6 seconds. The baler should stop operating. If baler stops, operator presence is functioning properly. If the baler does not stop, see your contact your dealer.

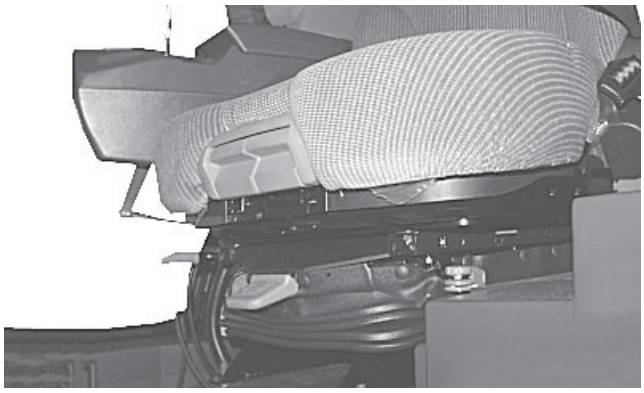


Figure 34. Operator's Seat

Seat Suspension and Forward and Rearward Adjustment

Vertical shock dampener handle (A) allows the operator to limit the amount of "upward motion" the seat suspension provides (see Figure 35).

Push the control forward for the softest ride. Move the handle back for the firmest ride. Between these two positions is the medium firmness position.

Height adjustment is made with handle (B). To raise the seat, pull up on the handle. To lower the seat, push down on the handle.

NOTE: The suspension can be adjusted to reach limits in the minimum and maximum heights which, in effect, locks out the suspension system, making it rigid. The suspension height control will also hit the limits if adjusted too close to the extremes.

The forward/backward adjustment handle (C) allows the seat to slide forward or backward for best working position.

Seat bottom tilt control handle (D), allows the front of the seat cushion to be raised or lowered for the best working position.

Attenuator lockout lever (E) locks out or releases the forward or rearward movement. Pull up on the handle to lock; push down on the handle to release.

The forward/rearward adjustment handle (F) allows the seat bottom to slide forward or backward for the best working position.

NOTE: If the seat does not float or "pump" up, contact your Freeman dealer.

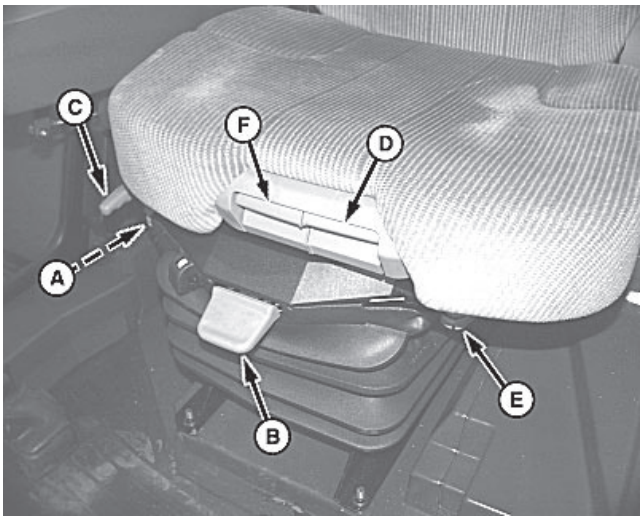


Figure 35. Operator's Seat

A. Vertical shock dampener control

B. Height adjustment knob

C. Forward/rearward adjustment handle

D. Seat bottom tilt control handle

E. Forward/backward attenuator lock-out lever

F. Seat bottom forward/backward adjustment handle

Adjusting Left-Hand Armrest and Seat Back

To adjust the left-hand armrest (see Figure 36) up or down, use knob (G). Rotate the knob clockwise to lower and counterclockwise to raise.

Pull up on handle (H) to adjust seat back angle. Release handle when seat back is in desired position.

Turn knob (J) clockwise or counterclockwise to adjust lumbar back support.

Turn knob (K) clockwise or counterclockwise to adjust left-hand armrest tension.

G. Left-hand armrest height adjustment knob

H. Seat back angle adjustment handle

I. Lumbar back support adjustment knob

J. Left-hand armrest tension adjust knob

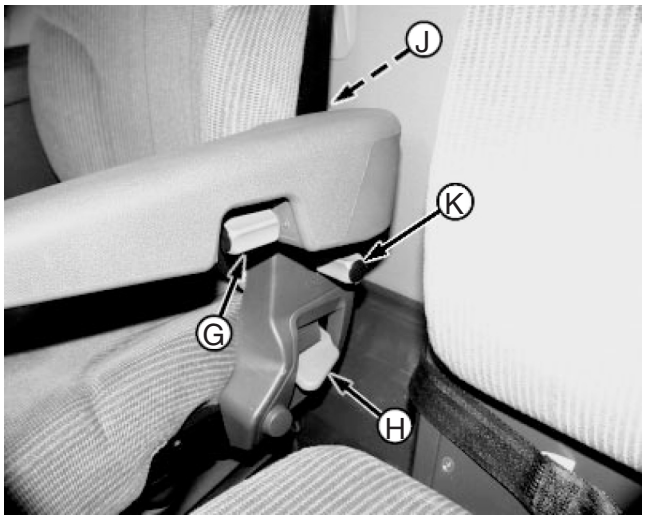


Figure 36. Armrest

Seat Belts

Seat belts are standard equipment on both the operator and instructional seats. The lap type seat belts have push button quick release and automatic belt retraction to allow unrestricted exiting and entering of the seats (see Figure 37).

⚠ CAUTION

Inspect the seat belt and mounting hardware on your machine at least once a year. If the seat belt system, including the mounting hardware, buckle, belt or retractor, shows any sign of damage such as cuts, fraying, extreme or unusual wear, discoloration or abrasion, the entire seat belt system should be replaced immediately. For your safety, replace the belt system only with replacement parts approved for your machine (see parts manual).

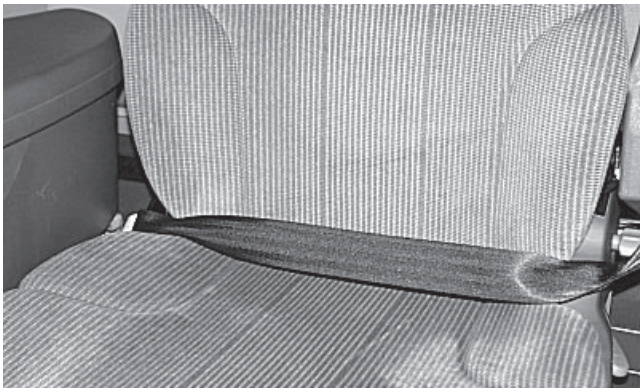


Figure 37. Seat Belt

In Cab Monitor (ICM) Overview

Introduction To The Baler Monitoring System

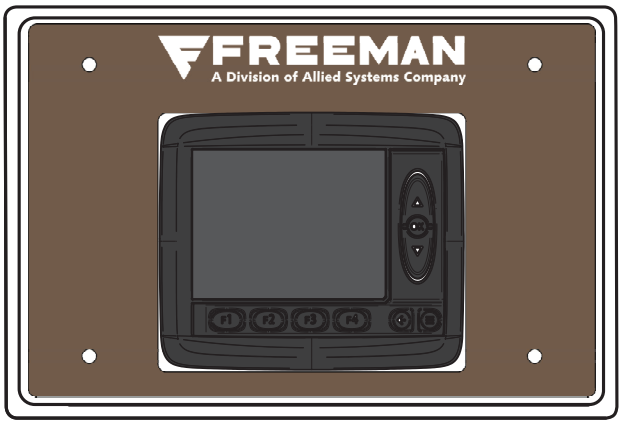


Figure 38. In-Cab Monitor (ICM)

The Baler Monitoring System consists of:

- In-cab monitor (ICM)
- Input/output control module (XA2)

Machine / Baler Sensors

The In-Cab Monitor (ICM) is used to control the functions of the baler and provide a display of its performance during operations. Multiple screens are utilized to monitor the baler and make adjustments to its operation.

The ICM screens are divided into two groups; Baling and Main. The first screen displayed on start up is the baling screen.

The baling screens consist of two (2) screens; Baling, and Bale Count. Use the back arrow to toggle between these two screens.

The Main group consist of Adjust, Measure, Preferences and Info screens.

Pressing the Menu Button will switch between the Main and Baling screens.

The XA2 module receive instructions from the ICM to drive hydraulic and electrically operated components. It also interfaces with sensors on the machine and communicates this information back to the ICM.

Baling Screen

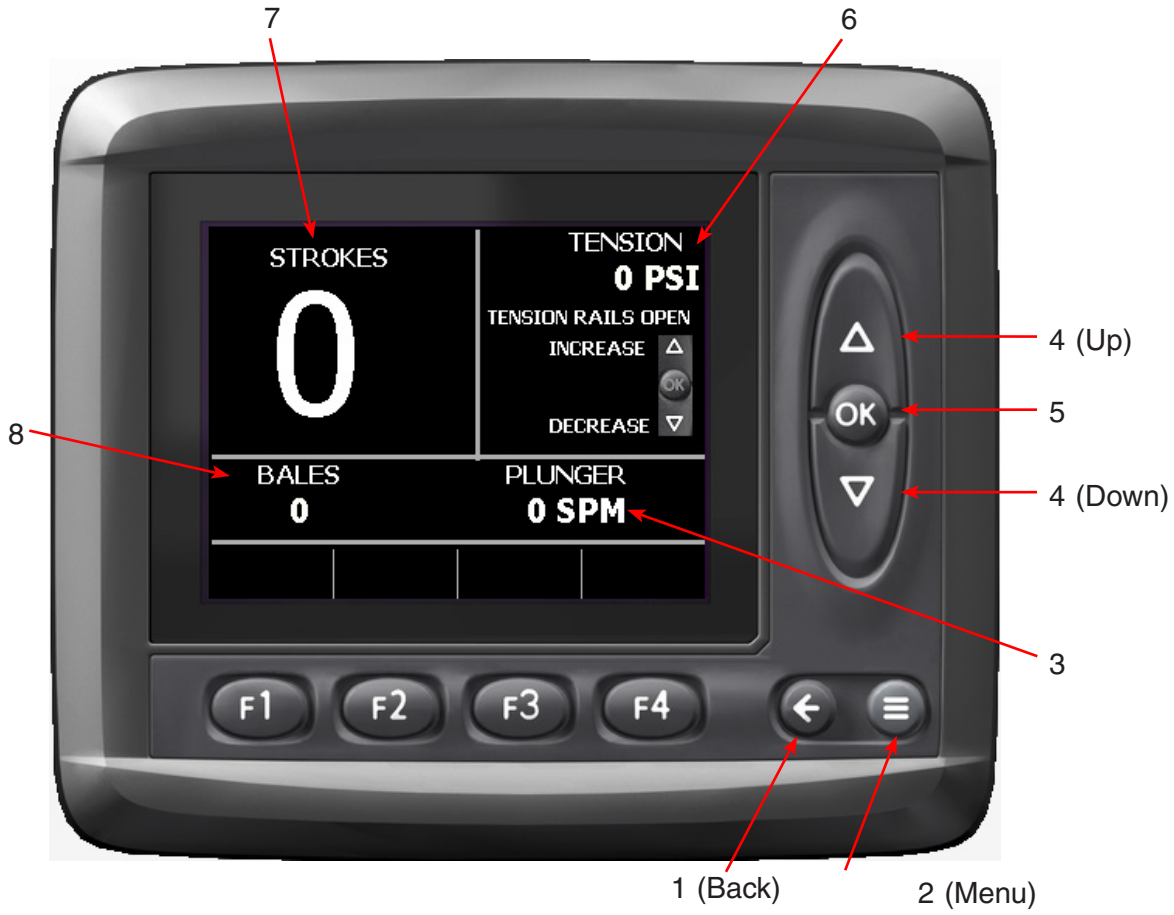


Figure 39. Baling Screen

The ICM is powered when the baler key switch is turned to the ON position. When powered on, the ICM will display the Baling screen. The main bale screens may always be accessed by pressing the Menu button.

Buttons F1 thru F4 are not used on this screen.

1. **BACK ARROW** Press to switch between the Bale Count screen, and the Baling screen.

2. **MENU** Press to display the Main screen. From the Main screen, you can access the; Adjust, Measure, Preferences, and Info screens.

3. **PLUNGER** Displays the plunger speed in strokes per minute. Adjust the plunger speed with the Baler Speed Switch on the Hydrostatic Control Lever.

4. **UP/DOWN ARROWS** Used to adjust the Tension Pressure (Item #6).

5. **OK** This button is not used on this screen.

6. **ENSION** Displays the amount of tension applied to the bale chamber. This can be set to read in either psi or % (see Tension Value Display Format on page 38 for how to change between psi & %).

7. **STROKES** Displays the number of plunger strokes that were used to make the last bale.

8. **BALES** Displays the number of bales made since the bale counter was last reset (see page 35 for how to reset the counter).

Bale Count Screen

Figure 40. Bale Count Screen

The system has two bale counters; Bale Count, which can be reset by the operator at any time, and Lifetime Bales, which can only be reset by a Freeman Service representative.

1. **RESET BALE COUNT** Press and hold F1 to reset Bale Count.

2. **Lifetime Baling Hrs** Measures the time that the key is in the on position and the flywheel is turning.

3. **Lifetime Hrs** Measures the time that the key is in the on position, whether or not the flywheel is turning.

4. **Lifetime Bales** This counter can only be reset by a Freeman Service representative.

5. **Bale Count** Displays the number of bales made since the bale counter was last reset (see Item #1 for how to reset the counter).

Main Screen

Figure 41. Main Screen

The Main screen can be accessed from either of the baling screens by pressing the Menu button.

1. **ADJUST** Pressing F1 will access the Adjust screen where changes can be made to the tension system (see "Adjust Screen" on page 37).

2. **MEASURE** Pressing F2 will access the Measure screen where Machine Sensor and Module Diagnostics information can be viewed (see "Measure Screen" on page 39).

3. **PREFERENCES** Pressing F3 will access the Preferences screen where changes can be made to the displays appearance, the date and time, and language (see "Preferences Screen" on page 40).

4. **INFO** Pressing F4 will display information about the system and software (see "Info Screen" on page 42).

Adjust Screen

Figure 42. Adjust Screen

From the Adjust screen, the user may access the Tension - User Adjustable menu. Only a Freeman Service Representative can make changes to the Tension, Manual Tension, Tension PID, and Lifetime Counters settings.

Tension - User Adjustable - This is used to change the tension units displayed on the Baling Screen between psi and %.

Use the Up/Down Arrow buttons to highlight Tension - User Adjustable, then press the OK button to select it.

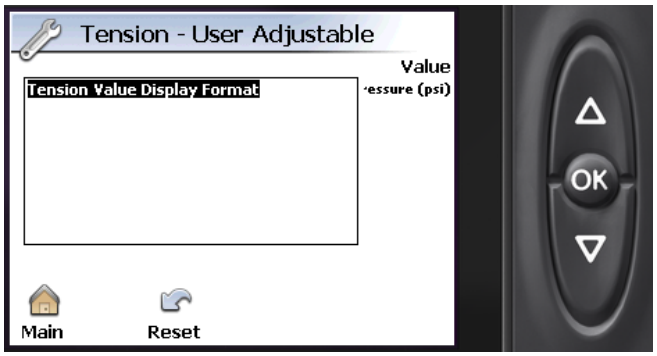


Figure 43. Tension - User Adjustment Screen

From the Tension - User Adjustable screen (see Figure 44) press the OK button to select Tension Value Display Format.

Tension Value Display Format Screen

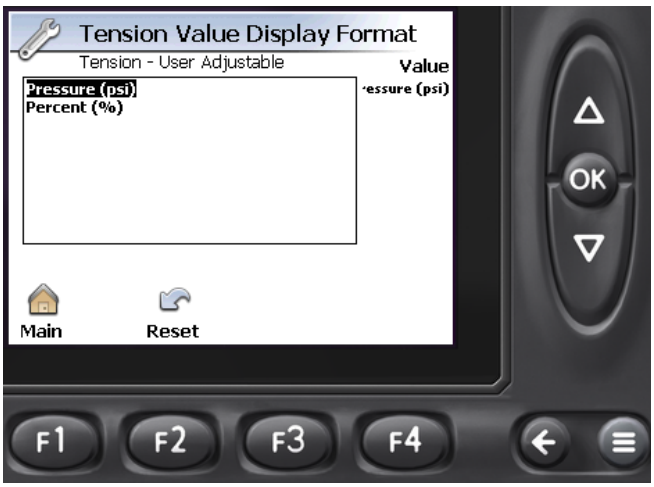


Figure 44. Tension Value Display Format Screen

Once in the Tension Value Display Format screen (see Figure 44) use the Up/Down Arrow buttons to toggle between Pressure (psi) and Percent (%).

Press the OK button to accept your selection and return to the previous screen.

Pressing F2 will reset the system to the default value of Percent (%).

NOTE: When displayed in psi, this is a calculated number based on the maximum 2000 psi of the system, it is not an actual system pressure reading.

The Back button is used to return to the previous screen, and pressing F1 will return to the Main screen.

Measure Screen

Figure 45. Measure Screen

From the Measure Screen, the Machine Sensors, Module Diagnostics, and System Outputs (XA2) values can be viewed. Use the Up/Down Arrow buttons to highlight the desired selection, then press the OK button to select it.

The Back button is used to return to the previous screen, pressing F1 will return to the Main screen, and in the Machine Sensors or Module Diagnostics screens, F2 will toggle to the raw values.

Preferences Screen

Figure 46. Preferences Screen

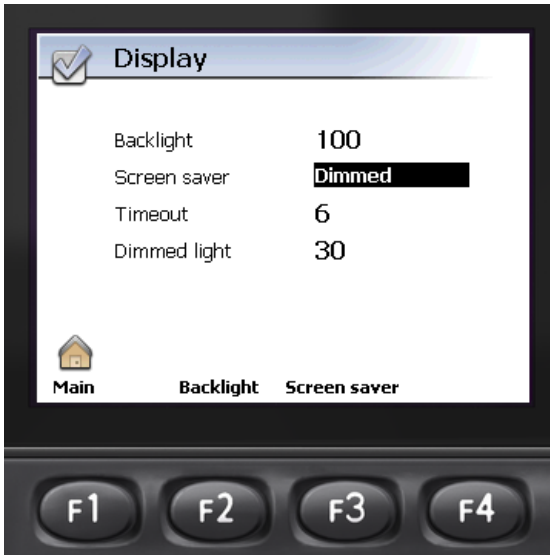
From the Preferences Screen, the Display, Date/Time and Language settings can be adjusted.

1. **Display** Pressing F1 will bring up the Display screen (see Figure 47). Once in the Display screen:

Pressing F2 will highlight the Backlight setting. When highlighted, the brightness of the back-lighting of the display can be adjusted by using the Up/Down arrows. Press OK to save your settings. The range is from 10 to 100, the factory setting is 100.

Pressing F3 will highlight the Screen saver setting. Use the Up/Down Arrows to select one of three settings:

- **Off** - no screen saver (Factory Setting).
- **Dimmed** - After the "Timeout" period (in minutes), the screen will fade to the "Dimmed light" setting until any button is pressed.
- **Black** - After the "Timeout" period (in minutes), the screen will go black until any button is pressed.



Preferences Screen

Once the desired screen saver setting has been selected, press OK. If “Dimmed” or “Black” was selected, the Timeout period will be highlighted. Use the Up/Down Arrows to select the amount of time (in minutes) before the screen dims or goes black. Press OK to save. If “Dimmed” was selected, the Dimmed light setting will be highlighted. Use the Up/Down Arrows to set the brightness of the display when it is dimmed. Press OK to save the settings.

Use the Back button to return to the Preferences screen.

F2 2. **Date/Time** Pressing F2 will bring up the Date/Time adjustment screen (see Figure 48). Once there, press:

- F1 to adjust the Date, the year will be highlighted. Using the Up/Down Arrows, adjust the year, then press OK to move to the month. Use the Up/Down Arrows to now adjust the month, then press OK to move to the day. Use the Up/Down Arrows to set the day, then press OK to save the setting and exit the screen.
- F2 to adjust the Time, the hour will be highlighted. Use the Up/Down Arrows to adjust the hour (a 24 hour clock is used), then press OK to move to the minute. Use the Up/Down Arrows to set the minutes, then press OK to save the setting and exit the screen.

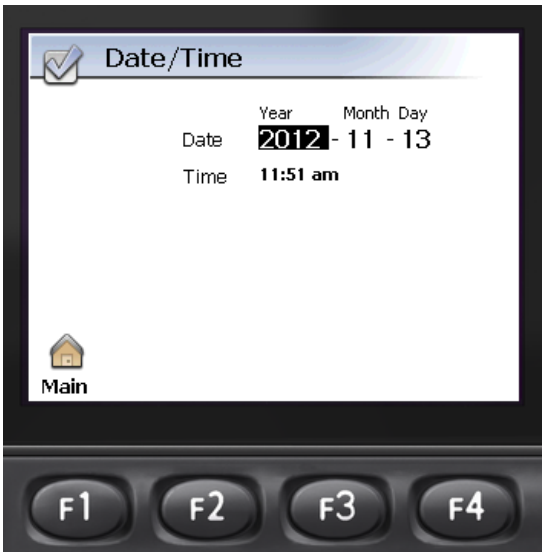


Figure 48. Date/Time Adjustment

F3 3. **Language** Pressing F3 will bring up the Language selection screen. Use the Up/Down Arrows to select the language preference. Press OK to save the setting.

The Back button is used to return to the previous screen.

Info Screen

Figure 49. Info Screen

The Info screen displays program version.

F1 Pressing F1 will bring up another screen, where you can select to view information for the ICM or the Control Module.

F3 1. Pressing F3 brings up the System log screen. The system logs are only accessible by Freeman Service Technicians.

INTENTIONALLY BLANK

Machine Break-In

The engine is ready for normal operation. However, you should use extra care during the first 100 hours of operation.

IMPORTANT! Do not let fuel tank run dry. Check fuel gauge frequently.

During the first 20 hours, avoid sustained maximum load operation.

1. To promote good ring seating and prevent cylinder wall glazing, put the engine to work as soon as possible. Avoid unnecessary idling. Turn off engine if baler must be idled longer than 5 minutes.
2. Watch coolant temperature gauge (see Figure 50) closely. If gauge goes into the RED zone, slow ground speed to reduce load.

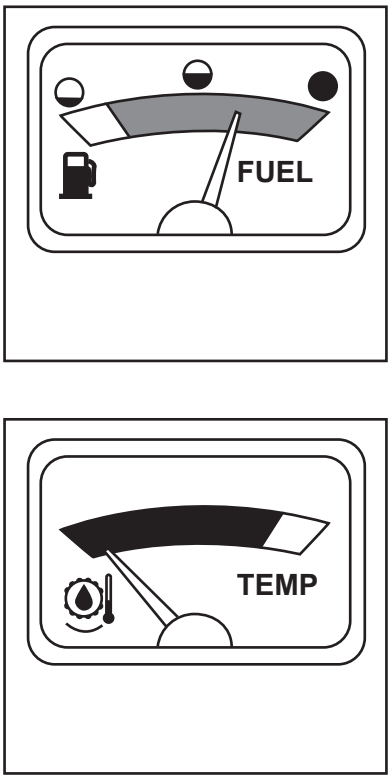


Figure 50. Fuel and Temperature Gauge

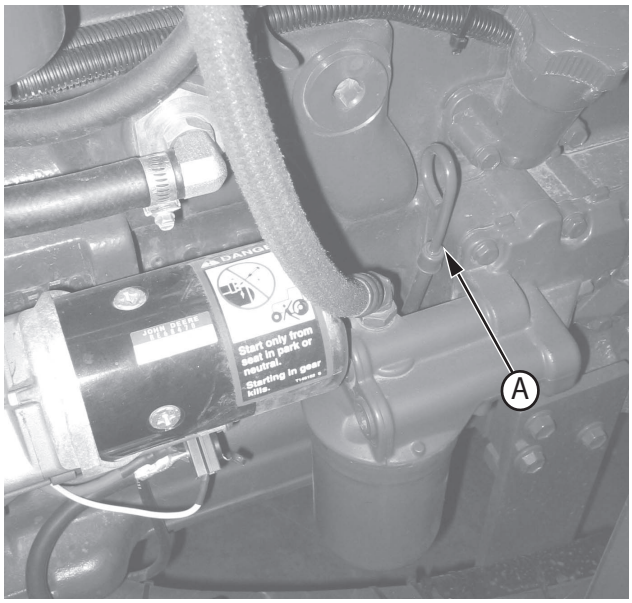


Figure 51. Engine Oil Dip Stick

IMPORTANT! Check engine oil and coolant levels frequently. After starting the engine, do not accelerate or apply load until the engine oil pressure warning light is out.

Turn off engine by idling at least 1-3 minutes before stopping engine.

Refer to Fuel, Coolant and Lubricants section in your Engine Manufacturer's Operator's Manual for types of fluids and oils to use.

3. This engine is factory-filled with special break-in oil. Operate the engine at heavy loads with minimal idling during the break-in period.

IMPORTANT! DO NOT add additional oil until the oil level is BELOW the ADD mark on the dipstick. Engine Break-In Oil (Allied Systems part number 907811) should be used to make up any oil consumed during the break-in period. DO NOT use regular engine oil during the break-in period of a new engine or engine that has had a major overhaul. Regular oil will not allow a new or overhauled engine to properly wear during the break-in period. DO NOT fill above the cross hatch pattern on the dipstick. Oil levels anywhere within the cross hatch are considered in the acceptable operating range.

B. Coolant Overflow Tank

Figure 52. Coolant Overflow Tank (tank may vary between models)

NOTE: Some increase in oil consumption may be expected when low viscosity oils are used. Check oil levels more frequently.

4. Check engine oil level (see Figure 51 on page 44) with dipstick (A) more frequently during engine break-in period. If oil must be added during this period, Break-In Oil part number 907811 is preferred. (See ENGINE BREAK-IN OIL in Fuel, Coolant, and Lubricants section of Engine Manufacturer's Operator's Manual.)

5. After the first 100 hours (maximum), change engine oil and replace the oil filter. (See CHANGING OIL FILTER in Engine Manufactures Operators Manual.) Fill crankcase with seasonal viscosity grade oil. (See DIESEL ENGINE OIL in Fuel, Coolant, and Lubricants section of your Engine Manufacturer's Operator's Manual.)

6. Check coolant level (see Figure 52) in reservoir (B). Level must be between the HOT and COLD marks.

7. Follow fluid recommendations in Fuel, Coolant, and Lubricants section very closely.

8. Check the hydraulic oil level in the tank located behind the operator's cab (see Figure 53). The oil level must be between the two sight gauges. Investigate cause for any loss of hydraulic fluid.

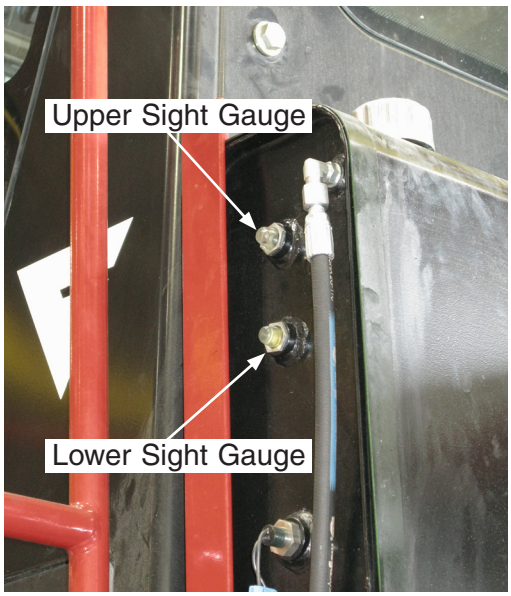


Figure 53. Hydraulic Oil Level

9. Follow fluid recommendations in Fuel, Coolant, and Lubricants section very closely in your Engine Manufacturer's Operator's Manual.

After One Hour of Operation

IMPORTANT! Check torque on front wheel nuts (see Figure 54) and rear wheel cap screws.

Tighten after first hour of operation. Check and tighten every 4 hours of operation thereafter until the specified torque level is maintained.

Check torque after every 50 hours of operation.

Specification

Front wheel nuts

Torque 163 N•m (120 lb-ft)

Rear wheel cap screws

Torque 150 N•m(110 lb-ft)

Figure 54. Wheel Nuts

After 50 Hours of Operation

IMPORTANT! See the EVERY 50 HOURS service requirements in the Lubrication and Maintenance section on page 96. Perform all maintenance required at this service interval.

1. Drain gear oil from the wheel drives and refill. (See "Wheel Drives; Checking, Draining & Filling" on page 63)
2. Torque wheel drive screws to 75 N•m (55 lb-ft). Tighten screws starting at twelve o'clock then six o'clock, one o'clock then seven o'clock, etc.

A. Screws

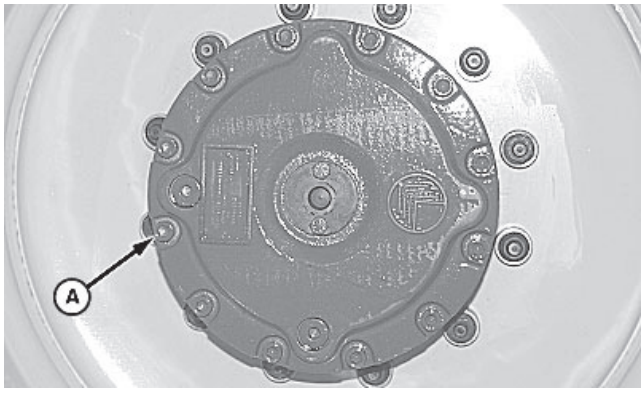


Figure 55. Tighten Screws

After 100 Hours of Operation

Change engine oil and filter.

IMPORTANT! See the EVERY 100 HOURS service requirements in the Lubrication and Maintenance section on page 96 for required service intervals. Perform all maintenance required at each of the specified service intervals when due.

Pre Starting Checks

A. Dipstick

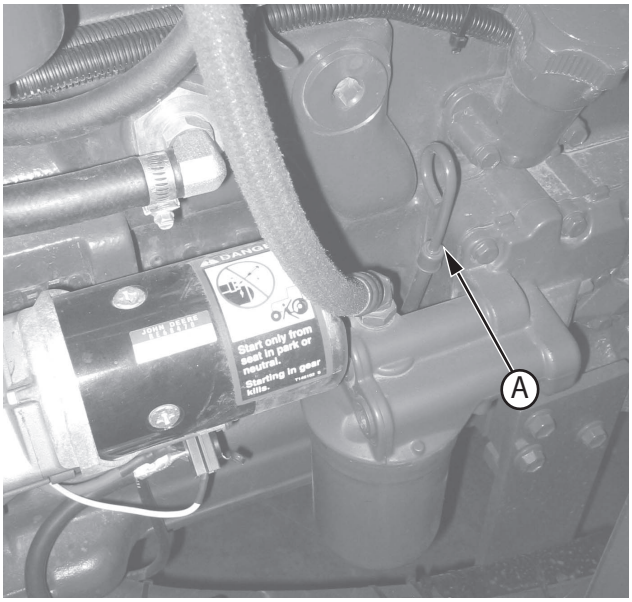


Figure 56. Engine Oil Dip Stick

1. Before starting the engine check the engine oil level (see Figure 56). Do not operate the engine when oil level is below the low mark on dipstick (A).

IMPORTANT! Do not operate the engine when coolant level is below the COLD mark on the overflow tank.

A. Coolant Reservoir

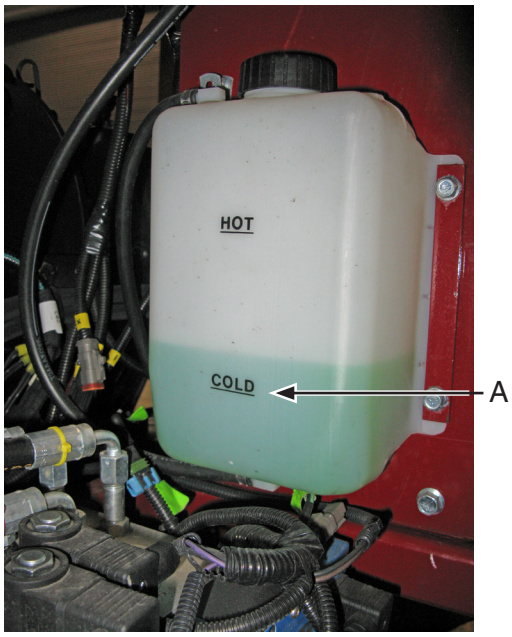


Figure 57. Coolant Overflow Tank (tank may vary between models)

2. Check coolant level (A). It must be visible in the overflow tank between the HOT and COLD marks (see Figure 57).

3. Be sure baler has plenty of fuel. Do not allow a diesel engine to run out of fuel (see Figure 58).

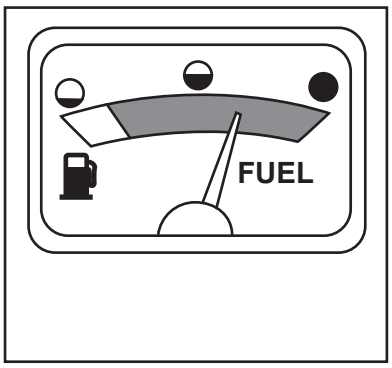


Figure 58. Fuel Gauge

4. Open air pre-cleaner flapper valve, and check for debris (see Figure 59).

Figure 59. Flapper Valve

5. Check the hydraulic oil level in the tank located behind the operator's cab. The oil level must be between the two sight gauges (see Figure 60). Oil should always be visible in the lower sight gauge and never visible in the upper sight gauge, when parked on level ground.

   If there is no oil visible in the lower sight gauge, add the appropriate oil immediately (see "Fuel, Coolant And Lubrication" on page 90) until you can see oil in the lower sight gauge. Stop adding oil before it becomes visible in the upper sight gauge.

   NOTE: Check hydraulic oil level with baler on level ground and the pickup in the down position.

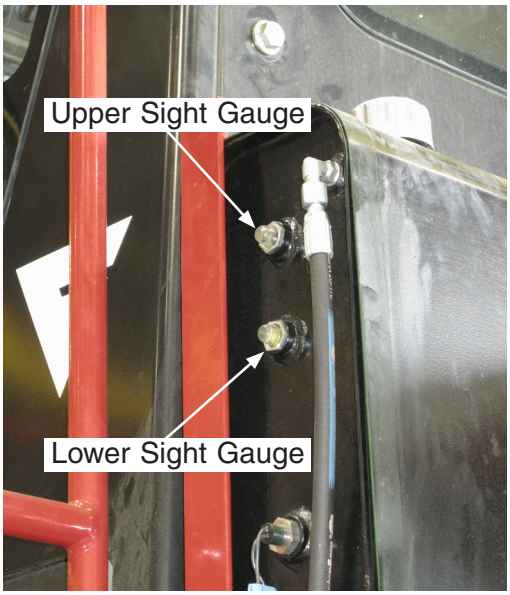


Figure 60. Hydraulic Oil Site Gauge (tank may vary between models)

6. Perform bulb check to insure all warning lights and audible alarms are functioning. (See "Checking Warning Lights" on page 50.)

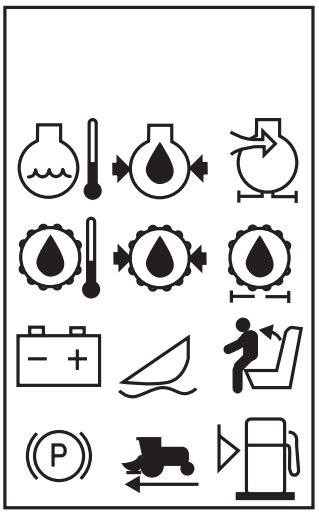


Figure 61. Warning Display Panel

7. Move Ground Speed switch to field position (see Figure 62).

Figure 62. Ground Speed Switch

⚠ CAUTION

Loss of Control.

Can result in impact that could cause injury or equipment damage.

Bring machine to a complete stop before shifting gears between FIELD to ROAD modes.

8. Move engine speed switch to low throttle position (see Figure 63).

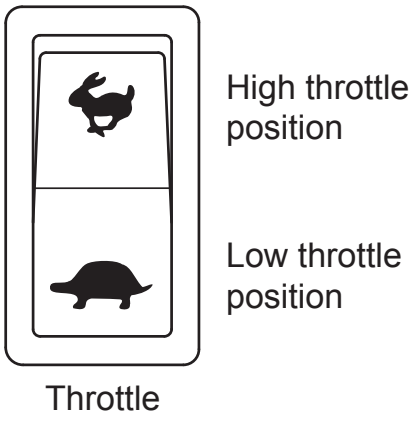


Figure 63. Engine Speed Switch

9. Move the Baler Drive Switch (see Figure 64) to the OFF position (disengaged).

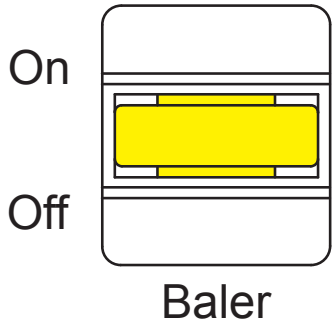


Figure 64. Baler Drive Switch

10. Place hydrostatic drive control ever in neutral park position (see Figure 65 on page 50).

11. Make sure steering wheel is locked in centered position.

Checking Warning Lights

(See Figure 66)

Figure 65. Hydrostatic Control Lever in "PARK" position

- *A. Hydrostatic drive control lever*
- *B. Neutral start switch*
- *C. Engine air filter*
- *D. Hydrostatic charge*
- *E. Hydrostatic oil filter*
- *F. Operator presence*
- *G. Low fuel*
- *H. Engine oil pressure*
- *I. Engine coolant temperature*
- *J. Hydrostatic oil temperature*
- *K. Alternator*
- *L. Tension pressure low*
- *M. Park brake applied*
- *N. Road shift engaged*

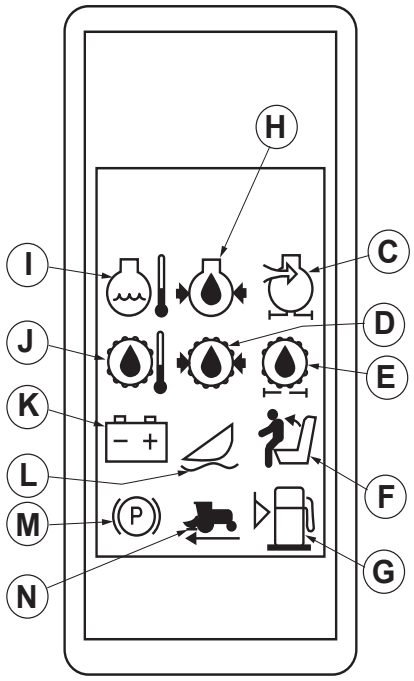


Figure 66. Warning Display Panel

NOTICE

Failure to replace a failed light bulb could lead to serious machine failure. Replace any failed light bulbs before starting the engine.

NOTE: The warning light check is only checking the operation of the light bulbs in the warning display panel.

- Road Shift Engaged (N) will only light if the Field/ Road switch is in the ROAD position.
- Park Brake Applied (M) will only light when the control lever is fully to the left activating the neutral start switch (B).
- The Road Shift Engaged and Park Brake Applied lights (blue) are informational only, not indicating a hazard when on.

Check Warning Lights:

With hydrostatic drive control lever (A) in neutral park position (see Figure 65), move lever to the right to release neutral start switch (B).

Operating Engine

⚠ CAUTION

Do not attempt to start the engine with the hydrostatic drive control lever not in the "PARK" position (See Figure 65).

15. Turn ignition switch to the START position.

16. Warning lights (C-L) should light. Return ignition switch to OFF position and allow hydrostatic drive control lever to move into park position.

Consult engine operator's manual that came with your machine for proper engine operation procedures.

Starting Engine

⚠ WARNING

Avoid possible injury or death from machinery runaway. Do not start engine by shorting across starter or starter solenoid terminals. Machine will start and move with hydrostatic drive control lever in forward or reverse drive position, or with the steering wheel not centered, if normal starting circuitry is bypassed.

ONLY start the engine from the operator's seat, with the hydrostatic drive control lever (see Figure 67) in neutral park position and baler drive switch disengaged. Before starting engine, be sure area is well ventilated.

NOTE: The hydrostatic ground drive lever must be at rest to the left in the neutral park position. This will trip the neutral switch (E), allowing the unit to start.

NOTE: When starting the machine, if the key is held in the "ON" position for more than 1 to 2 seconds before advancing to the "START" position, the ICM (In Cab Monitor) may have time to completely boot up. If this happens, then when the key is held in the "START" position, the ICM may measure voltage below 9 volts resulting in an informational message that must be cleared before further operating the baler.

This message is considered normal when it appears immediately at start up. **However**, if this message appears after the machine has been started, with the engine running or while baling, it might indicate a possible problem with the battery or charging system. It is suggested that these systems be inspected for proper function.

1. Read entire manual before operating.
2. Move hydrostatic drive control lever (A) to neutral park.
3. Move engine speed switch (B) to low  .
4. Move field/road switch (C) to field position.
5. Move the Baler Drive Switch (see Figure 64) to the OFF position (disengaged) (D).
6. Make sure steering wheel is locked in center position.

IMPORTANT! Do not operate starter more than 30 seconds at a time. If engine does not start, wait at least two minutes before trying again. If engine does not start in four attempts, refer to engine manufactures engine Troubleshooting section.

7. Turn ignition switch to the start position until engine starts. Release switch.

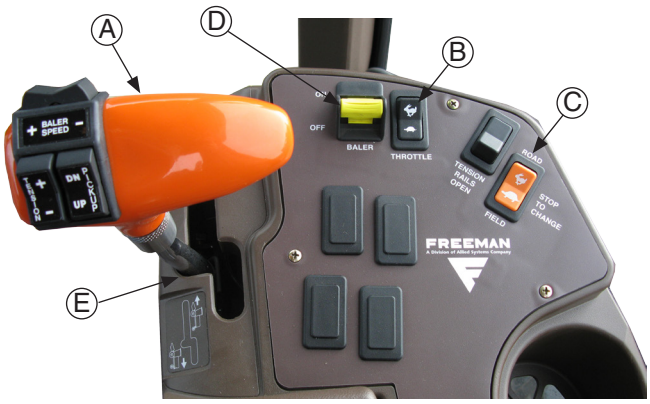


Figure 67. Arm Rest Control Panel

A. Hydrostatic drive control lever

B. Engine speed switch

C. Field/road switch

D. Baler drive

E. Neutral switch position

After Engine Starts

1. Check engine oil pressure lamp (A) as soon as engine starts. If warning lamp is on, stop the engine and determine the cause.

IMPORTANT! Avoid prolonged idling. Prolonged operation at low rpm may cause the engine coolant temperature to fall below the normal operating temperature. This will cause an accumulation of engine sludge and unburned fuel in the exhaust system.

2. Increase engine speed to BALE (see Figure 67 on page 52).
3. Check hydrostatic pressure lamp (B) and alternator lamp (C). If warning lamps are on, stop the engine and determine the cause.
4. Leave engine speed at mid-range, allowing the engine to warm up.
5. Check all warning lamps with engine running. If any lamp is on or if the audible alarm is on, turn off the engine and determine the cause.

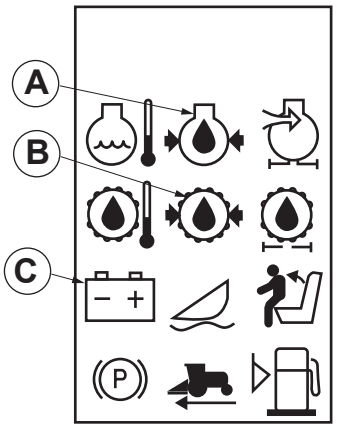


Figure 68. Warning Display Panel

A. Oil pressure lamp

B. Hydrostatic pressure lamp

C. Alternator lamp

Stopping Engine

NOTE: The hydrostatic ground drive lever must be at rest to the left in the neutral park position. This will engage the neutral switch (E).

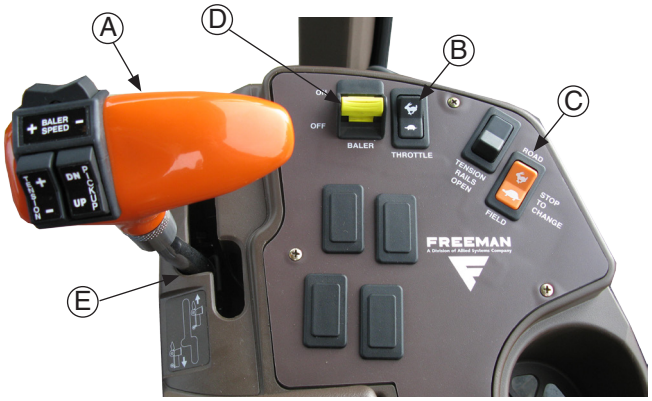


Figure 69. Arm Rest Control Panel

A. Hydrostatic drive control lever

B. Engine speed switch

C. Field/road switch

D. Baler drive

E. Neutral park position

The steering is locked and the park brake is hydraulically applied while the neutral switch is engaged.

1. Move hydrostatic drive control lever (A) to neutral (left position as shown in Figure 69) park (E).
2. Move field/road switch (C) to field position 
3. Move engine speed switch (B) to low throttle position  . Allow the engine to operate at low rpm for 1-3 minutes.
4. Lower pickup to the ground.

IMPORTANT! After engine has stopped, remove the key to prevent unauthorized operation or tampering. Key cannot be removed unless switch is in OFF position, preventing accidental battery discharge.

5. Turn OFF engine and remove the key.

Hot Weather Operation

IMPORTANT! Liquid coolant conditioner is NOT an antifreeze or a cooling system sealer.

Protect the engine cooling system against corrosive action by using 50% antifreeze (ethylene-glycol type without a stop-leak additive) and 50% clean, soft water. **DO NOT** use a high silicate automotive grade antifreeze.

Refer to your engine manual for recommended fuels, lubricants, and coolant. Also available are necessary additives for use when operating engines in tropical, arctic, or any other adverse conditions.

Practice in a large, open area that is smooth, level and free of obstacles and people.

NOTE: When in Reverse, the steering input is backwards; turn the wheel to the right (clockwise) to turn to the left, and turn the wheel to the left (counterclockwise) to turn to the right.

⚠ CAUTION

The rear wheel of the machine can swing in a wider path than the front wheels (this is more pronounced the sharper the turn). Give yourself plenty of room when turning so as not to run into a person or object with the rear of the machine.

The machine will react very quickly to steering inputs, so start at slow speed with very small inputs until you learn how the machine reacts.

Place the Engine Speed Switch in the low throttle position  and start the machine (see Figure 70).

Learning To Operate the Baler

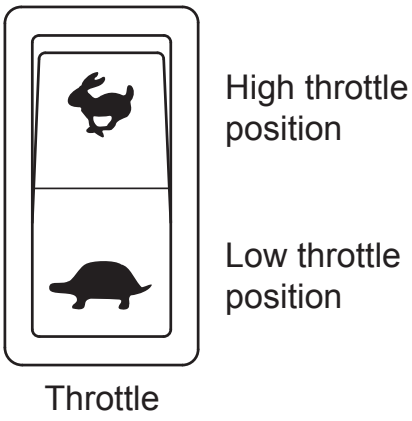


Figure 70. Engine Speed Switch

After letting the engine warm up, place the Ground Speed Switch in the FIELD position (see Figure 71).

Figure 71. Ground Speed Switch

1. Look around the machine to make sure there is no one in your way.
2. Very slowly, move the hydrostatic drive control lever out of the neutral detent and push it forward or rearward a small amount to get the machine moving. At this point, do not exceed a walking speed.
3. Do not execute sharp turns at speeds over 3 mph on smooth, level ground. Go even slower when on rough, uneven, or sloped ground.
4. Become smooth and comfortable starting, stopping, steering and backing up at very slow ground speeds before going to the next step.
5. After you are comfortable operating the machine at walking speeds, advance the hydrostatic drive control lever a little bit to increase your speed and become comfortable with how the machine reacts at this speed.
6. Repeat this procedure through the range of the hydrostatic drive control lever until you can start, stop and maneuver the machine smoothly.
7. Bring the machine to a stop, with the hydrostatic drive control lever in the neutral position.
8. Place the Engine Speed Switch in the high throttle position. This will increase the engine RPM and the speed of the machine (see Figure 70).
9. Repeat steps 1 through 7 above.
10. Now that you are stopped, leave the Engine Speed Switch in the high position and place the ground speed switch in the ROAD position. This is like shifting into high gear and the machine will move faster and react quicker than it did in the FIELD position.

⚠ WARNING

Do not to operate the baler in the ROAD mode at speeds above 10mph while learning the operation of the baler.

11. Repeat steps 1 through 7 above.
12. When you are done, place the Throttle Switch in the low position and let the machine engine cool for one (1) to three (3) minutes before shutting it off.

Operating The Baler

Preparing For The Field

1. Load and route twine (see "Twine Routing (3 tie shown)" on page 87).
2. Adjust pickup height (See "Pickup" on page 85).
3. Set bale length (See "Gearbox (if applicable)" on page 83).
4. Set tension to 300 lbs initially, then raise as needed by pressing the Tension +/- button on the hydrostatic drive control lever (. The tension can also be adjusted from the bale screen (see "Baling Screen" on page 34).
5. Seat is adjusted and comfortable. (See "Operator's Seat" on page 30).
6. Steering column tilt and height are adjusted and in a comfortable position (See "Steering Wheel Height Adjust" on page 27).

Operating Speed

The baler is designed for operation at or near maximum capacity. This requires the feeder house to be full at all times. To achieve this, increase ground speed when the hay volume is low and reduce ground speed when hay volume is high.

When bailing, the engine speed switch needs to be in the high throttle position. The baler should maintain a plunger speed of 84 strokes per minute in this position. If the plunger slows below this, reduce the ground speed to lower the volume of hay entering the feeder.

The ground travel speed should be regulated according to the volume and condition of the hay. To check this, count the number of plunger strokes in each bale. There should be 12 to 16 plunger strokes in each bale under normal conditions. The plunger strokes are counted between each time the knotter ties a bale. The baler should not be run at high speeds when it is empty.

A quality bale can be produced by adhering to the above instructions. Consistent bale length is of great importance when using any automatic stacking system. Consistent bale length will occur as a result of following the above instructions. For easy, efficient stacking and hauling, set and maintain the bale length at 46 inches (117 cm) (see "Gearbox (if applicable)" on page 83).

Starting Baler

1. **Read this entire manual before operating!**

   IMPORTANT! When the hydrostatic drive control lever and steering are locked out, to prevent damage to the linkage and mechanism, do not try to move them or apply any force against them.

   NOTE: The hydrostatic ground drive lever (A) must be at rest to the left in the neutral park position, engaging the neutral switch (B), allowing the unit to start (see Figure 72 on page 56).

2. Start the engine. (See "Operating Engine" on page 51).

- When the unit is running, the steering wheel is locked and the parking brake is applied when the hydrostatic drive control lever is at rest in the neutral park position.
- When the unit is running, moving the hydrostatic drive control lever to the right, still in neutral position, will release the steering and brakes. Turning the steering wheel at this time will cause the baler to pivot (spin turn) between the drive wheels. Moving the drive lever forward while turning, will increase the turning radius.

A. Hydrostatic drive control lever

B. Neutral park position

Figure 72. Arm Rest Control Panel

3. Raise pick-up (see "Raising And Lowering Pick-up").

4. Move hydrostatic drive control lever forward for forward travel and rearward for reverse travel. The farther the lever is moved, the faster the machine will travel.

⚠ CAUTION

When backing, steering is reversed. Turning the wheel clockwise will result in the machine backing to the left & turning the wheel counterclockwise will result in the machine backing to the right.

Raising and Lowering Pick-up

A. Hydrostatic drive control lever

C. Baler speed switch

D. Tension control

E. Pickup height control

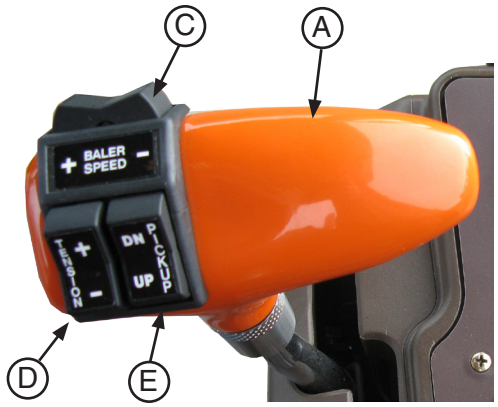


Figure 73. Hydrostatic Drive Control Lever

Pressing up and down on Pickup Height Switch raises and lowers the pickup (see Figure 73).

Engaging Baler

Note: Before engaging the baler, the bullgears must be lubricated (See "Bullgear Luber (if applicable)" on page 82)

To engage the baler, push down and forward on the yellow Baler Drive Switch (see Figure 74).

Pull back to disengage the baler.

The baler will not engage if the Baler Drive Switch is ON when engine is started. If this happens, cycle switch to OFF, then to ON position to engage baler.

When the baler is engaged, it will start at a reduced speed (20 SPM). The operator can increase or reduce the baler speed using the Baler Speed Switch on the control lever.

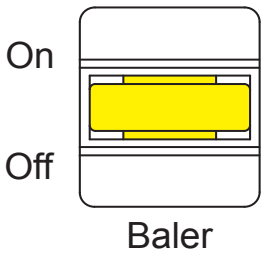


Figure 74. Baler Drive Switch

If the operator is not present in the seat, the baler will engage but will disengage after 5 seconds. If the operator leaves the seat for more than 5 seconds, the baler will disengage. Cycle the BALER drive switch to the off position to reset.

NOTE: Operator presence and resetting baler information is on the decal (A) under the lid of the right-hand armrest (see Figure 75).

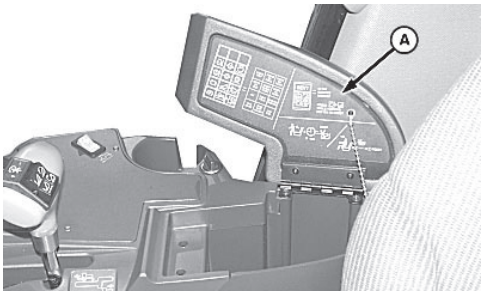


Figure 75. Storage

Towing SP Baler

⚠ CAUTION

The SP Baler is free to move when the wheel drive hubs are disengaged. The parking brakes are inoperative.

Do not exceed a maximum speed of 10 mph (16 kph) while towing the baler.

IMPORTANT! If it is necessary to tow the SP baler, disengage the front wheel drive wheel hubs.

1. Park the SP baler on flat, level ground.
2. Block both drive wheels (block the front and the rear of the front wheels).
3. Push in the center plunger to disengage the planetary drive (see Figure 76). The two outer plungers will extend and the center plunger will stay retracted (see Figure 77).
4. Repeat on the other side.

⚠ CAUTION

The drive wheels are now disengaged and parking brakes are inoperative.

5. When done towing, block the drive wheels (block the front and the rear of the front wheels).
6. Push in the two outer plungers at the same time, to engage the planetary drive (see Figure 77). The center plunger will extend and the outer plungers will stay retracted (see Figure 76).
7. Repeat on the other side.
8. The center plungers will fully extend once the machine is started and placed into forward or reverse.
9. The wheel blocks may now be removed.

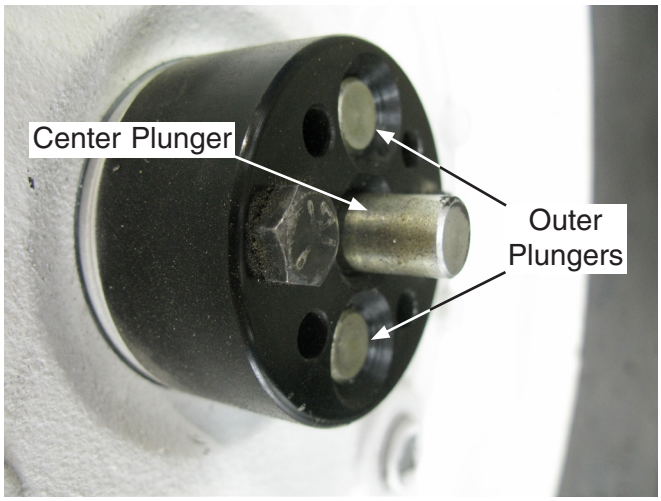


Figure 76. Planetary Drive Engaged

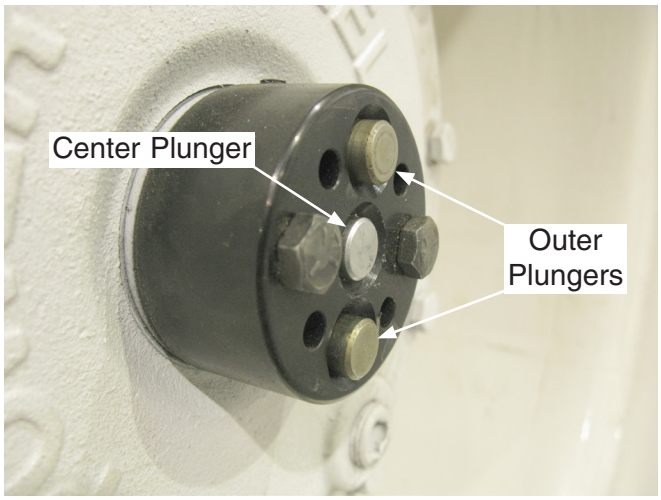


Figure 77. Planetary Drive Disengaged

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Settings And Adjustments

Service Tires Safely

⚠ WARNING

Explosive separation of a tire and rim parts can cause serious injury or death.

Only attempt to mount a tire if you have the proper equipment and experience to perform the job. Otherwise, have it done by a qualified repair service.

Always maintain the correct tire pressure. Do not inflate the tires above the recommended pressure.

When inflating tires, use a clip-on chuck and extension hose long enough to allow you to stand to one side and NOT in front of or over the tire assembly. Use a safety cage if available.

Inspect tires and wheels daily. Do not operate with low pressure, cuts, bubbles, damaged rims or missing lug bolts and nuts.

Tire Inflation Pressures

IMPORTANT! Never operate baler with tires at shipping pressure. Keep valve caps screwed down finger tight on valve stems to prevent foreign material from accumulating in the valve core.

IMPORTANT! Both front tires must have equal pressure in order for the SP Baler to drive straight.

Check tire pressure with cold tires before operating baler.

Check tire pressure frequently and inflate or deflate, both front and rear tires, to obtain proper pressure.

Item	Recommended Inflation Pressure
Front: 18.4 - 26	317 kPa (3.17 bar) (46 psi)
Rear: 21.5L-16.1SL	193 kPa (1.93 bar) (28 psi)

IMPORTANT! The baler is calibrated with the size tire that came with the baler. The baler will not function correctly if wrong size tires are used. Only use Front: 18.4 - 26, Rear: 21.5L-16.1SL. See inflation pressure above.

Checking Wheels

IMPORTANT! Maintain proper torque on wheel hardware according to specifications.

Whenever a wheel is removed, check torque after one hour of operation. Check cap screws or nuts every 4 hours until the torque is maintained. Thereafter, check torque every 50 hours.

Specification

Front wheel nuts: torque 163 N•m (120 lb-ft)

Rear wheel cap screws: torque 150 N•m (110 lb-ft)

Figure 78. Front Wheel

Steering, Hydrostatic Controls and Linkage

Steering and hydrostatic controls are located behind cowling below front of cab (see Figure 79).

Figure 79. Steering & Hydrostatic Controls Location

Steering controls are combined with forward and reverse hydrostatic ground drive controls and use a common linkage (D) (see Figure 80).

IMPORTANT! Any attempt to move the steering wheel or ground drive lever while locked will result in damage to the controls and linkage.

Ground drive cable (A) is connected to the ground drive control lever in the cab .

Index link (B) keeps the steering and ground drive synchronized. This allows decreasing or increasing ground speed without turning the machine. It also prevents the unit from speeding up or slowing down when making a turn.

Hydraulic cylinder (C) releases the locking device when the engine is started and the ground drive lever is moved out of the neutral park position. The locking device locks out the steering wheel and the ground drive control lever.

Steering/hydrostatic linkages (D) are used to move the control levers on the hydraulic pumps supplying oil to the left-hand and right-hand hydraulic motors on the ground drive. The index link (B) controls the movement of the common linkage.

Centering cables (E) will return steering wheel and steering controls to center position when steering wheel is released (see Figure 80).

A. Ground drive cable

B. Index link

C. Hydraulic cylinder

D. Steering/hydrostatic linkages

E. Centering cables

F. Dampener

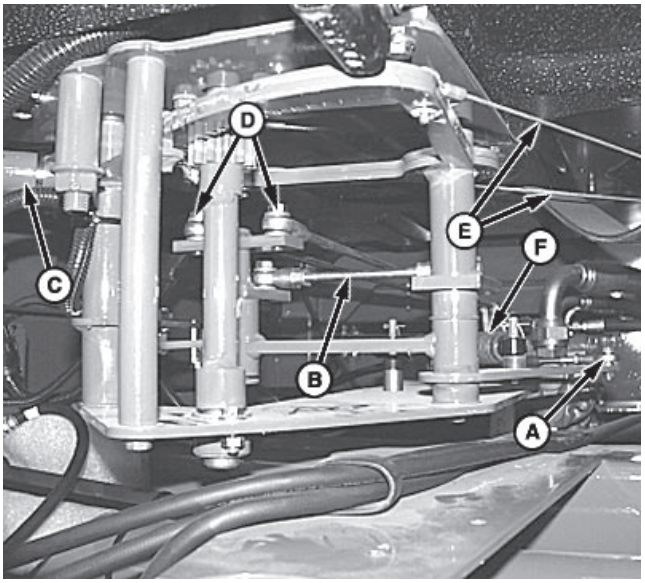


Figure 80. Steering/Hydrostatic Linkages

⚠ CAUTION

To prevent bodily injury and machine damage, do not remove dampener (F) or fail to replace the dampener if not functioning properly.

NOTE: Dampener (F) will allow the unit to be safely stopped in a very short distance. There is no need to try and over-power the dampener (see Figure 80).

Dampener (F) prevents accidental quick movement of ground drive control lever causing 'jack rabbit' starts or loss of control from stopping too quickly.

For steering or ground drive neutral adjustments, contact your Freeman dealer.

Steering Adjustments

Adjustment for veering to the right/left, creeping at stop, and maximum ground speeds are done at the Pump Control Levers located at each right and left wheel pumps pump (see Figure 81 and Figure 82).

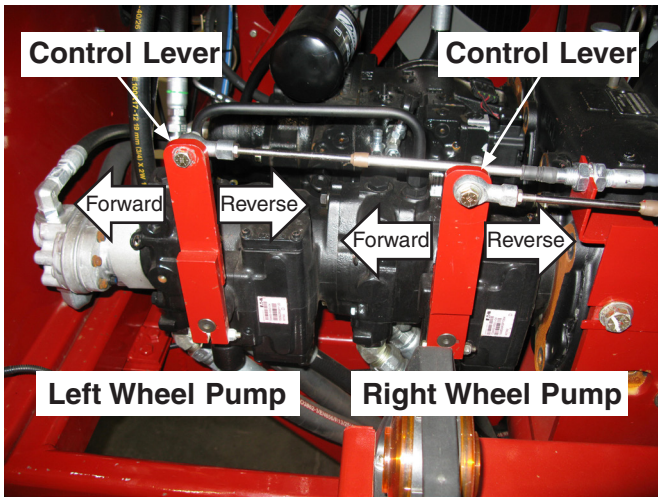


Figure 81. Rod Ends and Control Levers

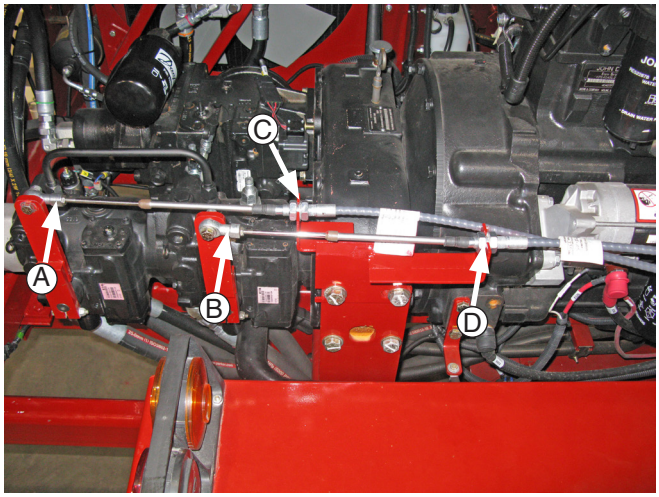


Figure 82. Rod Ends and Control Levers

A. Left steering wheel fine adjustment

B. Right steering wheel fine adjustment

C. Left steering wheel course adjustment

D. Right steering wheel course adjustment

Check Neutral, Forward and Reverse Positions

To check Neutral position, move the hydrostatic drive control lever into Neutral (not park position). Are both wheels stopped?

To check Forward position, move the hydrostatic drive control lever slightly forward. Drive the SP Baler in a straight direction, release the steering wheel, and see if the baler drifts to either the right or left side. Are both wheels rotating at the same speed?

To check Reverse position, move the hydrostatic drive control lever back to neutral, and then into reverse. Are both wheels rotating at the same speed?

If the answer is no to any of the above questions then do one of the following adjustments.

Fine Adjustment

If SP Baler is veering in either direction, first check that the tire pressure in both tires are equal.

If veering to the right, the right wheel should be speed up by making a fine adjustment at the right wheel pump control lever (see Figure 83). Loosen jam nut, remove hardware connecting rod end to control lever and rotate the rod end CCW a half turn. Reconnect rod end to control lever, tighten hardware and jam nut. This should push the right wheel control lever further toward the rear of the SP Baler causing the right wheel to speed up.

If veering to the left, the left wheel should be speed up by making a fine adjustment at the left wheel pump control lever (see Figure 83). Loosen jam nut, remove hardware connecting rod end to control lever and rotate the rod end CCW a half turn. Reconnect rod end to control lever, tighten hardware and jam nut. This should push the left wheel control lever forward causing the left wheel to speed up.

If making fine adjustment did not correct the issue, repeat above process.

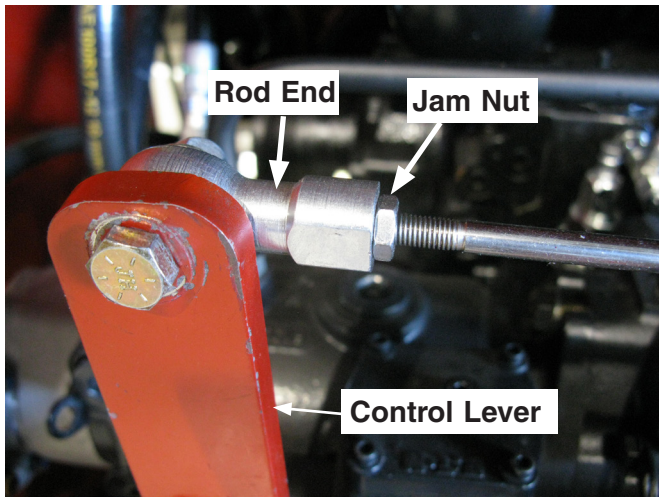


Figure 83. Fine Adjustment at Control Lever

Coarse Adjustment

Typically a coarse adjustment would be required if there is no further "Fine" adjustment available.

Make coarse adjustments by loosening the forward and reward jam nuts and moving the cable forward or back. Re-tighten jam nuts.

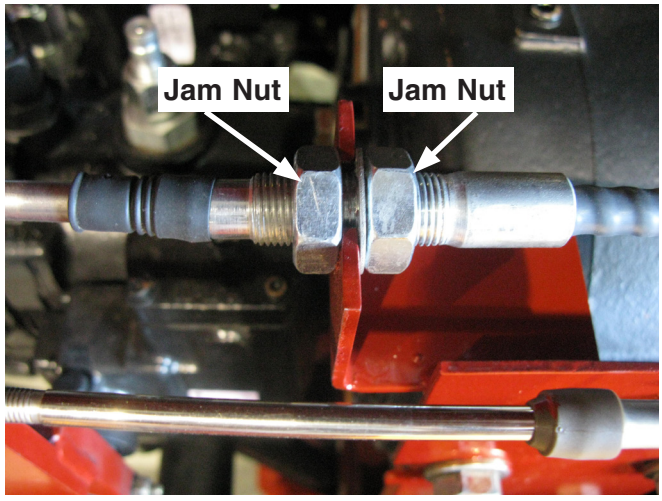


Figure 84. Coarse Adjustment

Internal Park Brakes

The internal park brakes (A) are located inside the wheel drives and are applied when there is a drop in hydraulic pressure when one of the following occurs (see Figure 85):

- The engine is turned off.
- Loss of hydraulic pressure.
- Ground drive control lever is in neutral park.

When baler is started and ground drive control lever is moved out of neutral park, hydraulic pressure releases the internal park brakes.

A. Internal park brake

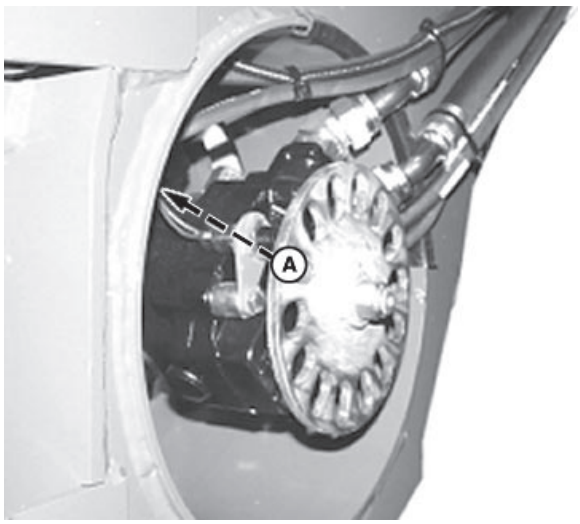


Figure 85. Internal Park Brakes

Wheel Drives; Checking, Draining & Filling

NOTE: Replace oil after first 50 hours of use.

Check oil level every 100 hours.

Replace oil every 1000 hours or each season.

Check and fill (every 100 hours, or whenever the planetary is removed from the wheel motor).

1. Park machine on a flat level surface with wheels positioned such that the two largest plugs are in the vertical position (see Figure 86).
2. Turn off engine and remove key.
3. To check the fluid level, remove the small plug (see Figure 86). Oil level should be at same level as bottom of hole.
4. If necessary, remove the top large plug and add oil until it starts to come out the small, middle plug hole. (See WHEEL DRIVE OIL in Fuel, Coolant, and Lubricants section for recommended oil.)
5. Clean and install plugs. Tighten to 25 N•m (18 lb-ft).
6. Repeat Steps 3-5 on opposite wheel drive.

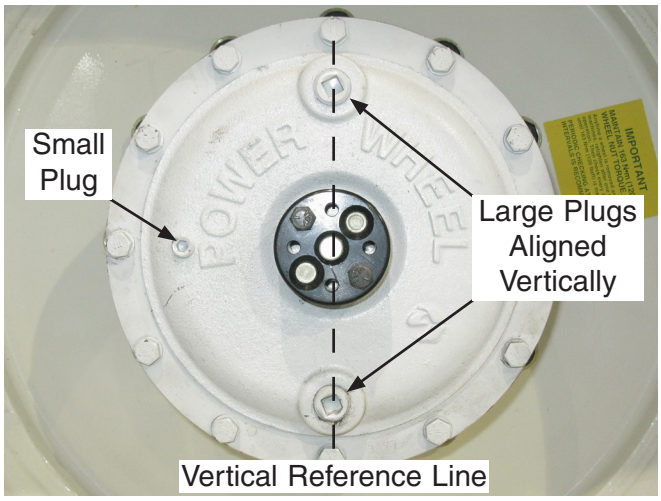


Figure 86. Wheel Drive

Replace Oil (After first 50 hours of use and then every 1000 hours or each season)

1. Park machine on a flat level surface with wheels positioned such that the two largest plugs are in the vertical position (see Figure 86).

2. Turn off engine and remove key.

3. Place an approved container to catch the oil under the drive.

4. Remove both the top and bottom large plugs and drain oil into the container.

5. Clean and install the bottom large plug. Tighten to 25 N•m (18 lb-ft).

6. Remove the small plug.

7. Fill wheel drive through the top plug hole with new, clean oil until oil level is at same level as bottom of small plug hole. (See WHEEL DRIVE OIL in Fuel, Coolant, and Lubricants section for recommended oil.)

8. Clean and install the top large plug and the small plug. Tighten to 25 N•m (18 lb-ft).

9. Repeat steps 3 - 8 on the other side.

NOTE: Wheel drive oil capacity is approximately 1.8 L (3.8 U.S. pt).

Air Conditioning and Heating System

Air is drawn into the cab through air intake vents (A). This air flows down air duct (B) and into the pressurizer fan (C). The air is then pushed through the pre cleaner (D) where the majority of dirt and a small amount of air is discharged out through the cab floor. Be certain this opening is clear (see Figure 87).

This cleaned air then passes through fresh air filter (E) into the evaporator compartment. The air is now mixed with air from inside the cab, being drawn into the evaporator compartment through the recirculating filter (F) and the evaporator filter. The air is then drawn through the evaporator / heater core (I).

Treated air (heated or cooled) is now drawn into the recirculating blower (G) and discharged into the cab through air vents (H). Air conditioning system low pressure switch (J) is located left of the evaporator compartment.

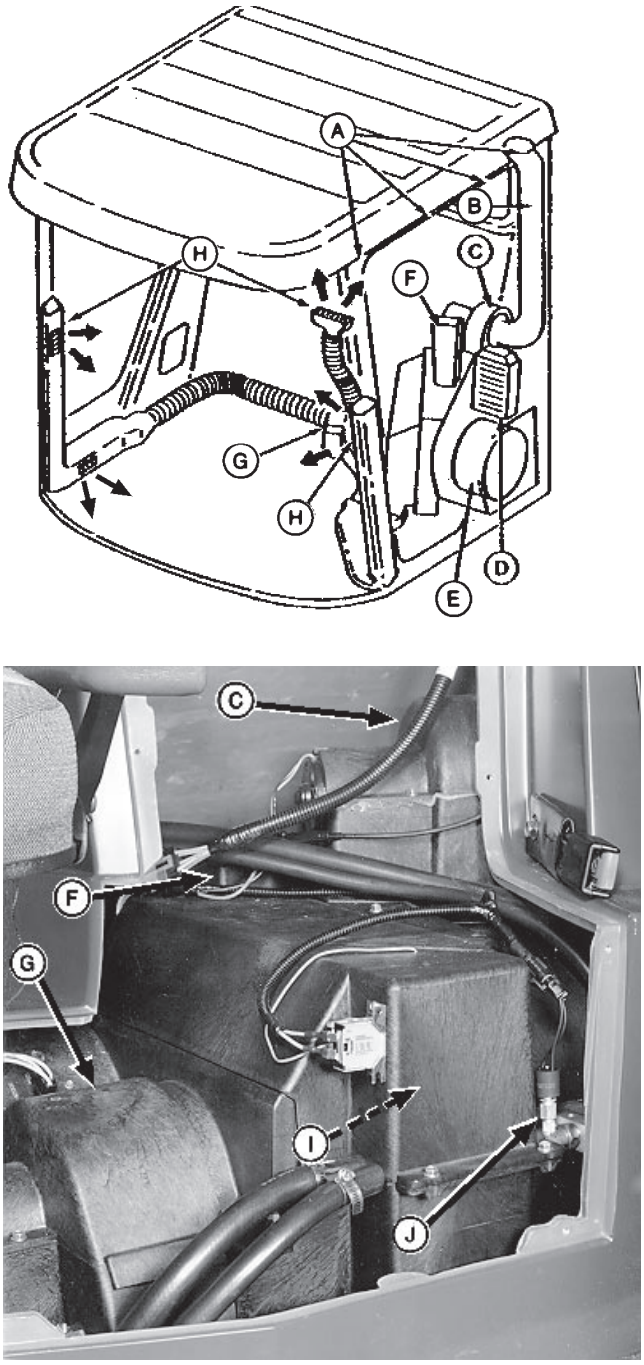


Figure 87. Air Conditioning

Observe Air Conditioning/Heating Precautions

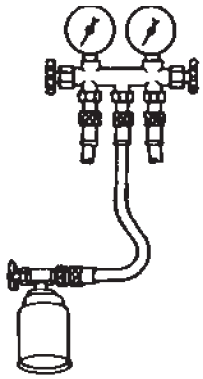


Figure 88. Have Your A/C System Serviced Only By A Trained Technician

⚠ CAUTION

Refrigerant (R134a) is under pressure. Improper servicing may cause refrigerant to penetrate eyes and skin or cause burns.

Special equipment and procedures are required to service air conditioning system (contact your Freeman dealer).

Removing Fresh Air Filter and Tray

(See Figure 89)

IMPORTANT! In dusty conditions, check every day. Normal service is 50 hours.

1. Loosen knob (A) and remove cover.
2. Lift out and dump dirt tray (B) attached to cover.
3. Remove wing nut (C) and fresh air filter (D).
4. Clean fresh air filter. (See CLEANING FRESH AIR AND RECIRCULATING FILTERS in this section.)
5. Remove and clean pre cleaner. (See REMOVING PRE CLEANER in this section.)
6. Install filter and tray in reverse order as removed.

IMPORTANT! Do not over tighten knob (A).

A. Knob

B. Dirt tray

C. Wing nut

D. Fresh air filter

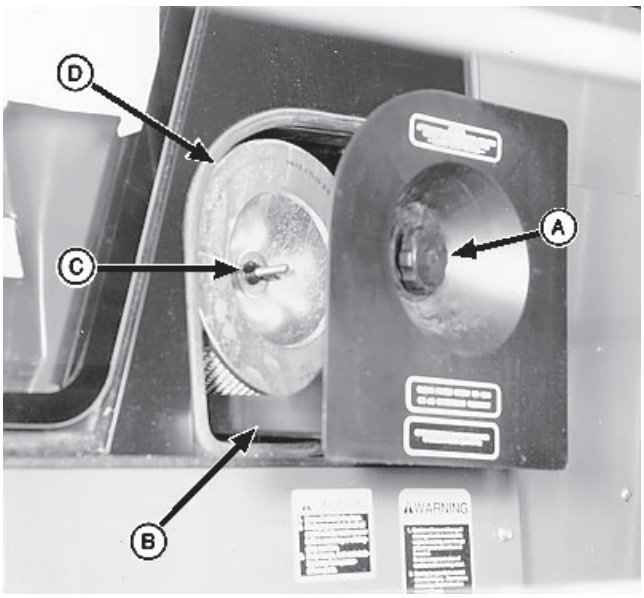


Figure 89. Fresh Air Filter

Removing Pre Cleaner

Whenever the fresh air filter is serviced, clean the pre cleaner as follows:

1. Remove fresh air filter and tray. (See REMOVING FRESH AIR FILTER AND TRAY in this section.)
2. Push down on pre cleaner (A) and pull it out from the top. Hole in floor under pre cleaner must be kept open (see Figure 90).
3. Wash and dry pre cleaner.
4. Install pre cleaner in reverse order as removed.

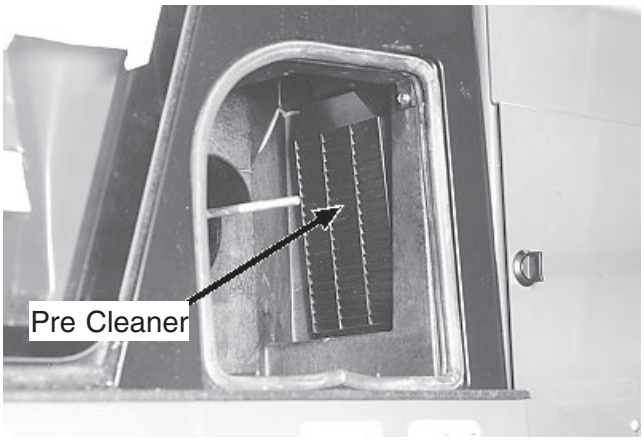


Figure 90. Pre cleaner

Removing Recirculating Filter

IMPORTANT! In dusty conditions, check this filter often and service as required. Normal recommended service is 200 hours.

1. Remove storage tray in left rear corner of cab (see Figure 91).
2. Reach in opening and pull out filter.
3. Clean recirculating air filter. (See CLEANING FRESH AIR AND RECIRCULATING FILTERS in this section.)
4. Install filter in reverse order as removed. When replacing filter, it should drop easily into place. Do not force it. Be certain filter is installed as shown on the filter.

Figure 91. Storage Tray

Cleaning Fresh Air and Recirculating Filters

Clean filter by one of the following methods:

- Tap gently on flat surface, dirty side down. Do not tap on a tire.
- Blow compressed air through filter in opposite direction of arrows on filter.

Removing Evaporator Filter

Clean this filter only if other service does not provide enough cooling. The evaporator filter (A) can be inspected from outside the cab after removing the fresh air filter (see Figure 92).

(See REMOVING FRESH AIR FILTER AND TRAY in this section.) If it looks clean, do not remove and clean it.

A. Filter

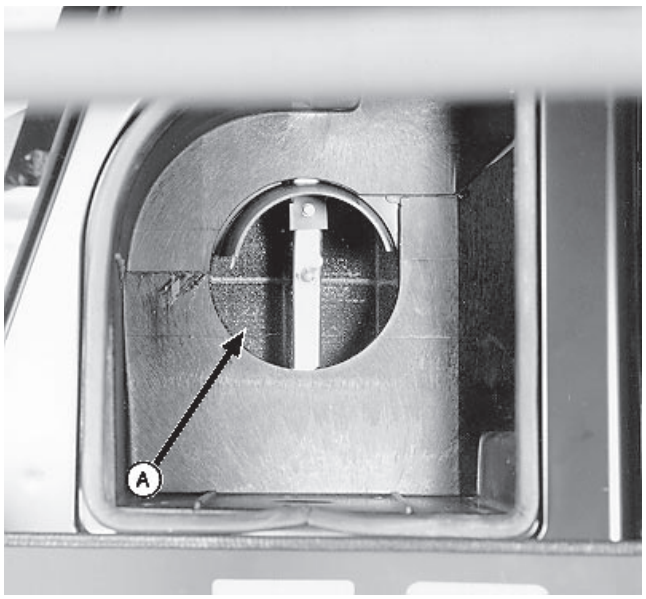


Figure 92. Evaporator Filter

Cleaning Dirty Evaporator Filter:

(See Figure 93)

Evaporator filter is located under passenger seat.

1. Remove five screws (B) in seat console.
2. Remove six screws (C) and evaporator cover.
3. Remove evaporator filter (D).
4. Clean as you would the other filters. (See CLEANING FRESH AIR AND RECIRCULATING FILTERS in this section.)
5. Install filter in reverse order as removed.

B. Screw (5 used)

C. Screw (6 used)

D. Filter

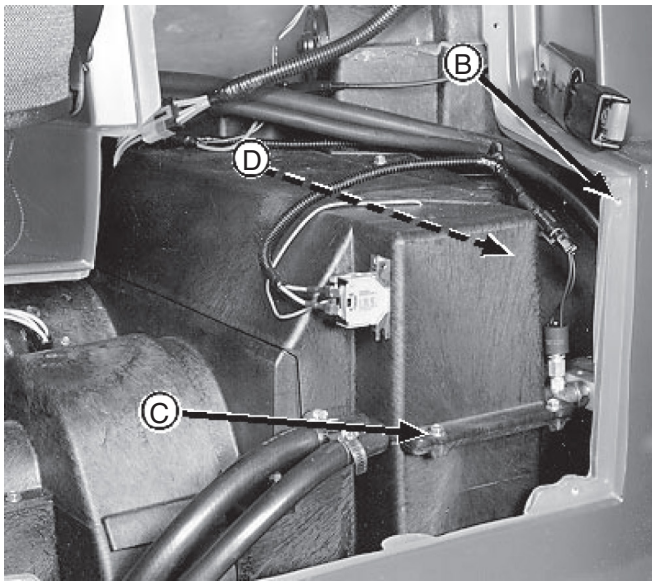


Figure 93. Evaporator Cover

Cleaning Air Intake Panel

Clean this panel only when it looks plugged (see Figure 94). Air is brought in through the left-hand side panel only. The right-hand side panel does not provide cab air.

1. Remove six screws (A) and remove panel (B).
2. Clean with compressed air or water.
3. Install panel and screws.

    A. Screw (6 used)

    B. Panel

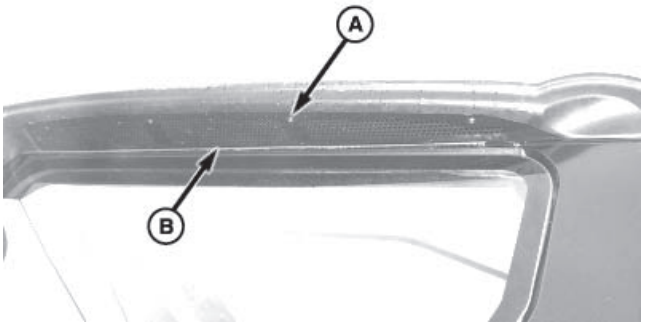


Figure 94. Air Intake Panel

Cleaning Condenser

See Engine Manufacture's Operator's Manual.

Checking Compressor and Drive Belt

⚠ WARNING

To prevent injury, never service baler while it is running. Engine must be off and key removed.

1. Turn off engine and remove key.
2. Inspect serpentine drive belt. If worn, see Engine Manufacture's Operator's Manual.

⚠ CAUTION

Do not start engine.

3. Turn ignition switch to RUN, turn cab fan switch on and place temperature knob to coldest setting.
4. Check compressor pulley (A) for magnetism by placing a metallic object next to it. If area is not magnetic, contact your Freeman dealer.
5. Turn ignition switch to OFF position and remove key.

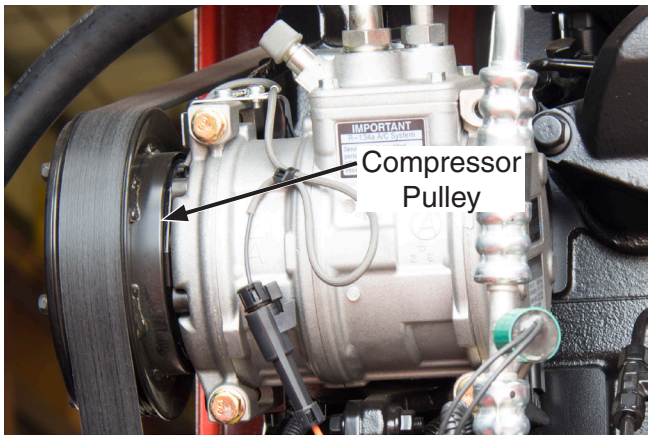


Figure 95. Compressor

High Pressure Switch

A high pressure condition can result from insufficient air flow across the condenser. When this happens, the high pressure switch shuts off the compressor (see Figure 96).

1. Turn off engine and remove key.
2. Clean condenser and cab air filters.
3. Check recirculating blower.
4. Check for a worn or broken serpentine engine belt.
5. Check compressor clutch and magnetism at compressor pulley with air conditioning switch on.

6. Start engine and turn on air conditioning. If switch shuts off compressor again, contact your Freeman dealer.

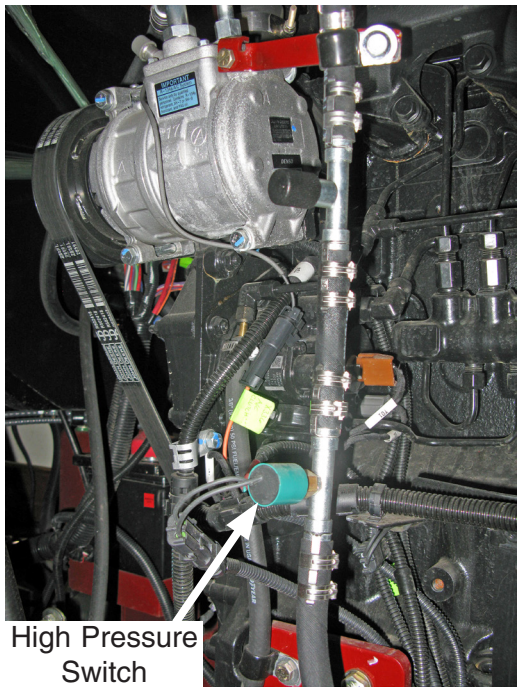


Figure 96. High Pressure Switch

Low Pressure Switch

The low pressure switch (located under passenger seat) protects the compressor if refrigerant is lost. The switch can also activate if there is insufficient air flow across the evaporator. It can also cause the compressor to cycle on cool days or if there is a slow leak in the system (see Figure 97).

1. Clean condenser and cab air filters.
2. Check recirculating blower.
3. Check for a worn or broken serpentine engine belt.
4. If the compressor cycles excessively, or if there is no cooling, contact your Freeman dealer.

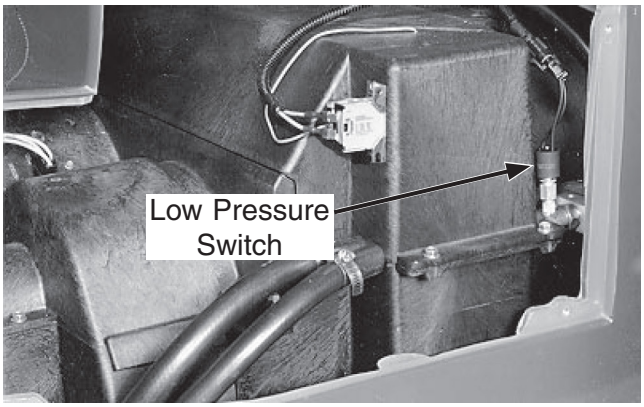


Figure 97. Low Pressure Switch

Knotter Settings

Knotter Settings

The following instructions will help you understand the twine knotter and the adjustments necessary to maintain and keep the system tying at the optimum level of performance. Periodic checks of these adjustments will help alleviate tying problems and reduce the risk of equipment damage.

NOTE: Adjustments may vary for different crops.

Needle

NOTE: Before timing the needles, be sure the needles are in adjustment. For adjusting the needles see "Twine Needle Adjustment" on page 74.

To Check Needle Timing:

Trip the knotter clutch (see Figure 99) by raising the trip bar (see Figure 101 on page 72) until the notch is positioned over the knurl. Turn the flywheel counterclockwise until the tips of the needles are even with he bottom of the bale chamber (see Figure 98).

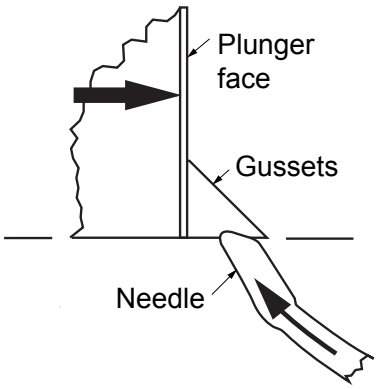


Figure 98. Needle and Plunger

The leading edge of the plunger's gussets must be 1/4" to 4" past the tips of the needles when the plunger is on the compression stroke. The needles are late if the leading edge of the plunger gussets is more than 3" past the tips of the needles. The needles are early if they are less than 1/4" past the leading edge of the plunger gussets. Consult the decal on the left-hand side of the baler.

Needle Timing Adjustment

If the needles are late, retard the knotter drive chain on the knotter sprocket one link. If the needles are early, advance the chain one link.

Replace the chain on the sprocket and connect it. Be sure that the clutch pawl roller (see Figure 99) is seated in the notch in the clutch and that the chain is connected on the idle side and on top of the idler sprockets (see Figure 100).

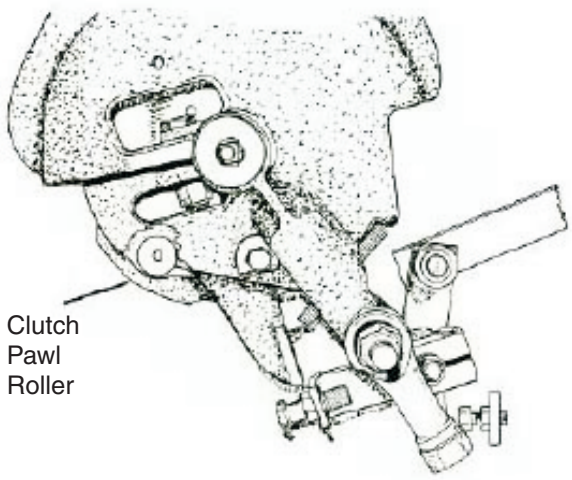


Figure 99. Knotter Clutch

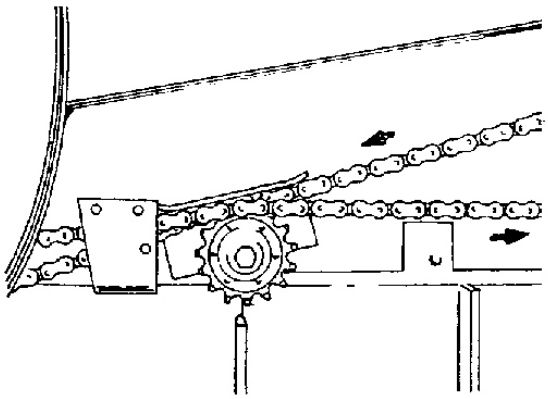


Figure 100. Knotter Drive Chain

Trip the knotter clutch and turn the flywheel counterclockwise. Recheck the timing. Repeat the above procedures until adjustment is correct.

Meter Trip Bar

Trip the knotter clutch by raising the trip bar (see Figure 101) until the notch is positioned over the knurl, then turn the flywheel counterclockwise until the needles are near top dead center (see Figure 110 on page 74). The meter trip bar should have 1/8" clearance from the knurl, (A, see Figure 101), when it is in the resting position. Adjust by loosening the bolts on the bearing support (B) and moving foreward or backward as needed. The trip bar should not bind on guide washers when in the tripped position.

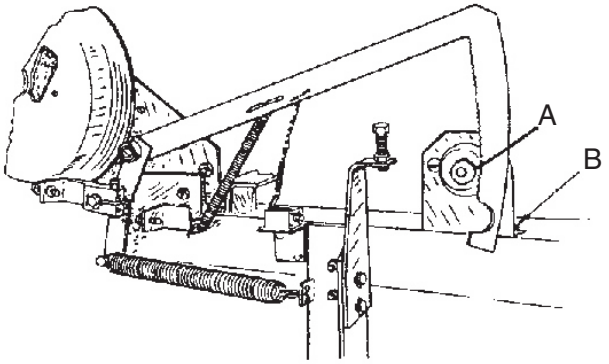


Figure 101. Meter Trip Bar

Knotter Clutch

1. With needles in the home position, set the needle yoke drive bolt (A) 1/4" to 1/2" past center between (B) and (C) (see Figure 102). To obtain this setting, adjust saddle roller (A) on the opposite side of the knotter (see Figure 8-6).

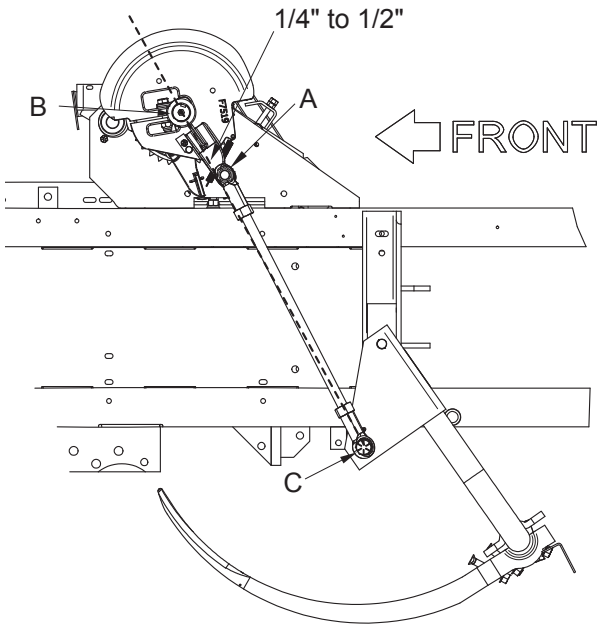


Figure 102. Needles In Home Position

2. Loosen clamp bolt “A,” (see Figure 105) to position stop bolt “B,” (see Figure 104) square to the face of clutch pawl “A,” (see Figure 104).

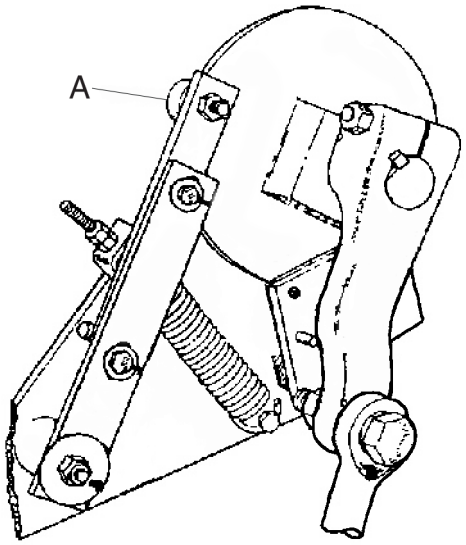


Figure 103. Saddle Roller

3. The clutch pawl (A) must have approximately 1/2" clearance at (C) when depressed. The clutch pawl roller should have 1/8" clearance at (D) when the notch in the clutch disc is not near the clutch pawl roller. Adjust with bolt (B) (see Figure 104).

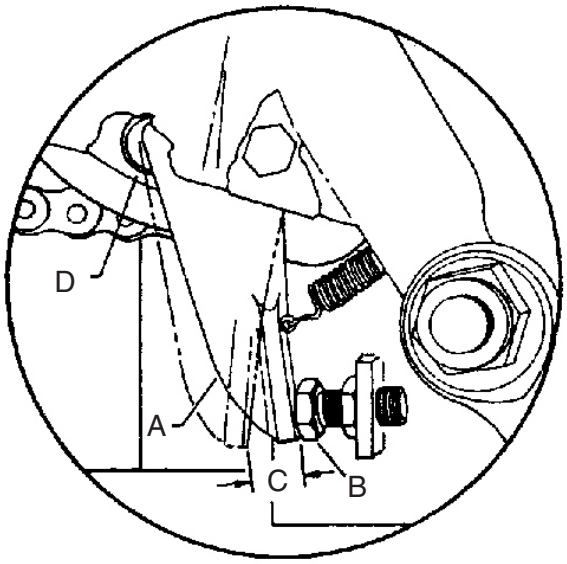


Figure 104. Clutch Pawl

4. Trip the knotter clutch and rotate the clutch. The clutch pawl must have 1/8" clearance from the stop lever at (B). Adjust with stop bolt (G) (see Figure 105).

Knotter Brake

Adjust the brake shoe tension springs so that the springs are fully depressed, (A) (see Figure 106).

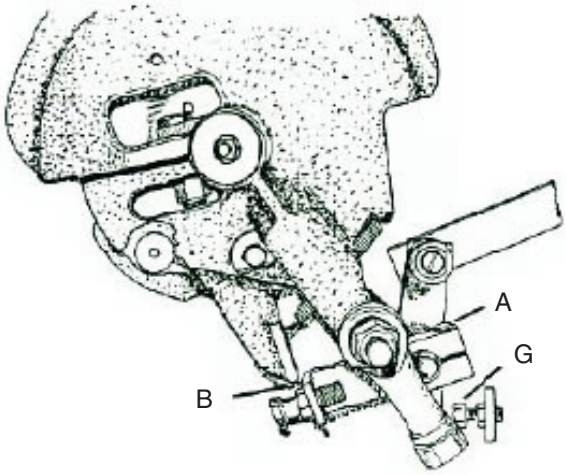


Figure 105. Tying Holder Bolt

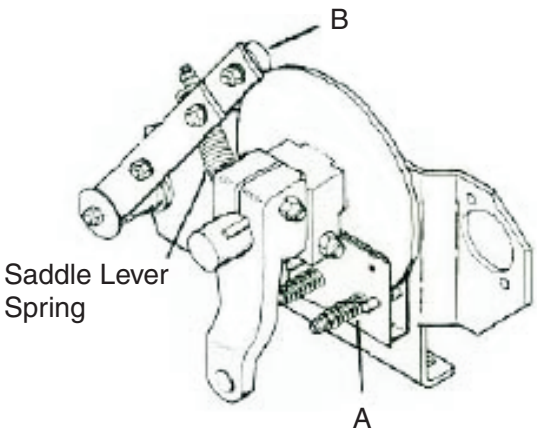


Figure 106. Saddle Lever Spring

The saddle spring is properly adjusted when roller (B) is in the notch and there is 1/2" of adjusted tension on the saddle lever spring (see Figure 106).

Twine Needle Adjustment

1. Trip the knotter clutch and swing the needles up through the bale chamber by turning the flywheel counterclockwise by hand. The needles should be adjusted left or right so that there is 0 to 1/32" clearance between the needle and the knotter bill hook pinion, (see Figure 107). Adjust by sliding the needle left or right on the needle yoke.

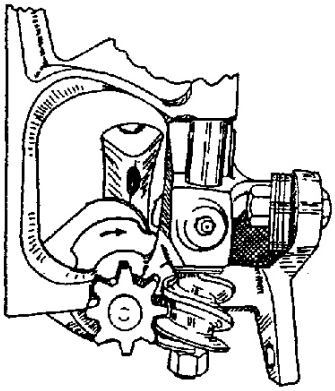


Figure 107. Knotter

2. The needles should clear the twine disc cleaner 1/8". To increase the distance between the needle and the twine disc cleaner, loosen the front and tighten the rear needle anchor bolts (A), Figure 108. To decrease the clearance reverse the procedure.

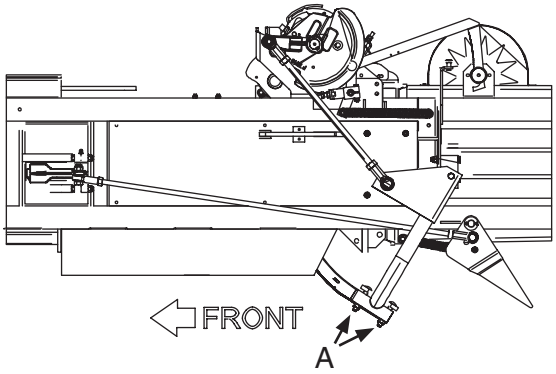


Figure 108. Needle Anchor Bolts

3 Trip the knotter and turn the flywheel counterclockwise, by hand, until the needles are in the uppermost position. The distance from the bottom of the needle eye to the twine disc should be 4 -1/2" (see Figure 109).

4. Adjust needle height by loosening the lock nuts on the needle yoke drive rod (see Figure 110). Turn the rod to the right or left for desired setting. All of the Freeman self propelled balers have a needle yoke drive rod on each side. Be sure both are adjusted for equal load on each rod at top dead center.

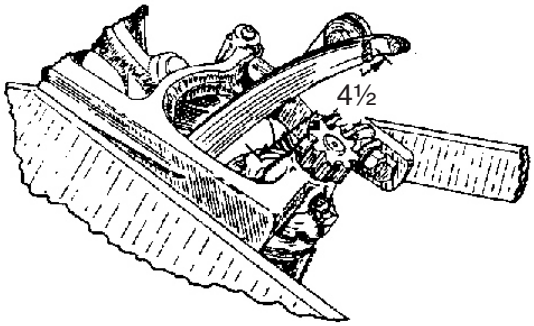


Figure 109. Needle Eye To The Twine Disc

Top Dead Center (TDC). TDC is when the needles are at the highest point of travel. At this time the Needle Yoke Drive Rod is in the 11 o'clock position (see Figure 110).

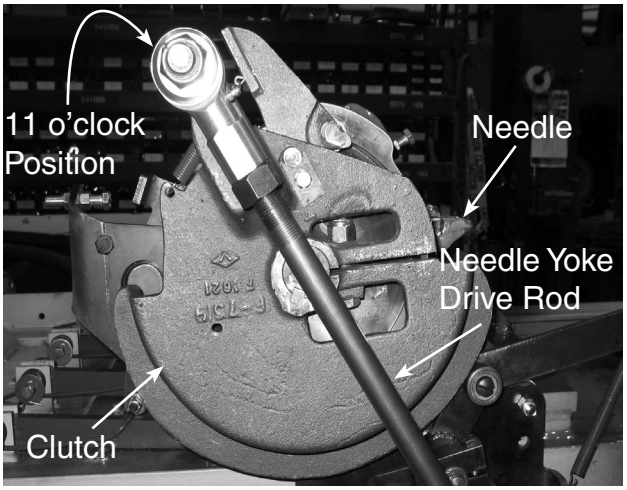


Figure 110. Needles at TDC, left-hand view

Twine Finger Adjustment

1. Trip the knotter and turn the flywheel counterclockwise until the point of the twine finger is just passing the inside edge of the needle. The point of the twine finger should clear the needle by 1/8", (see Figure 111).

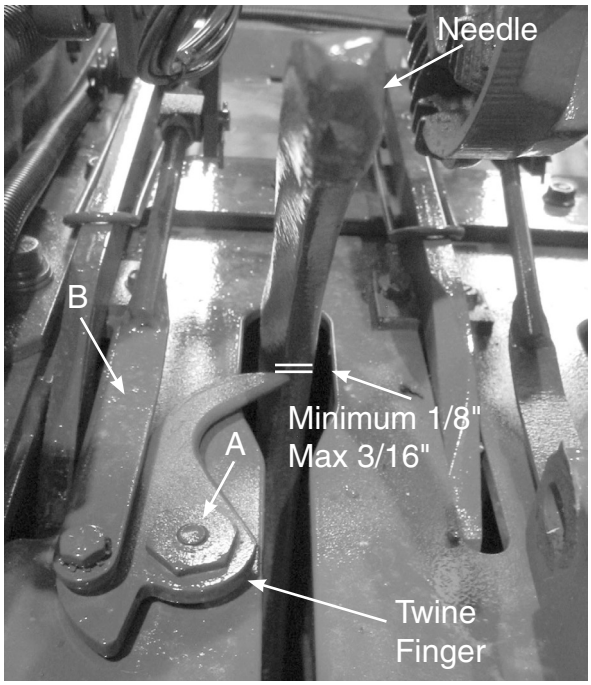


Figure 111. Needles In Home Position

Make this adjustment by loosening the twine finger anchor bolts and sliding them to the front or back in the slotted holes in the bale chamber top (A) (see Figure 111).

2. Continue to turn the flywheel counterclockwise until the twine fingers reach the far point of their travel. Measure the distance from the tip of the twine fingers back to the knotter support angle (see Figure 112). This measurement should be 6 -1/2" on the model 2 tie and 5 -1/2" on 3 tie balers. This adjustment is made by lengthening or shortening the twine finger drive rods (B) (see Figure 111).

After adjusting the twine fingers, turn the flywheel counterclockwise until the twine fingers are in the returned position. Check to see that there is 1/8" from the tips of the twine fingers to the edge of the needle slots (see Figure 113).

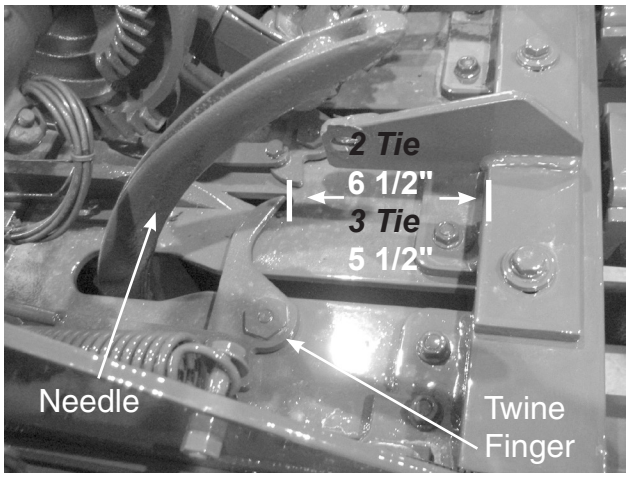


Figure 112. Adjusting Twine Fingers

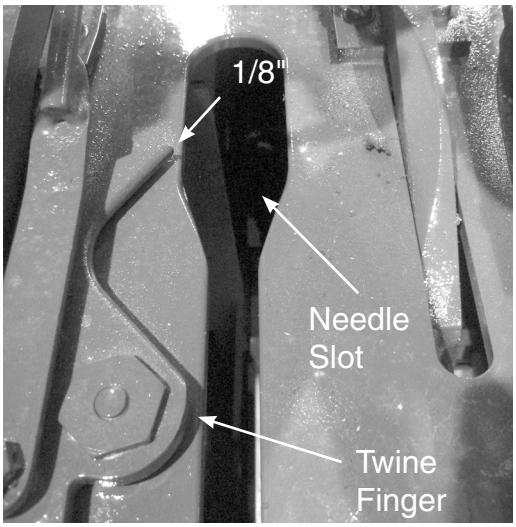


Figure 113. Twine Guide and Twine Finger Extended

Adjust the position of the twine fingers at the needle slots with the stop bolt (see Figure 114).

Knotter Adjustment

⚠ WARNING

Always shut baler off when inspecting, adjusting, lubricating, or servicing the baler.

Twine Holder

The twine holder holds the twine in the twine disc while the bale is being made and tied. The pressure is regulated by bolt (C) (see Figure 115).

Adjust the twine holder only as tight as necessary to prevent the twine from pulling from the disc and/or producing bow knots.

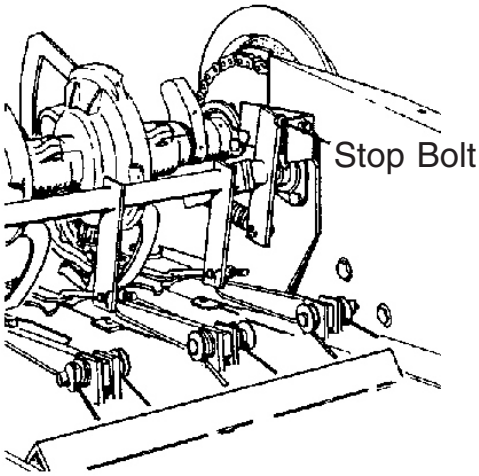


Figure 114. Stop Bolt

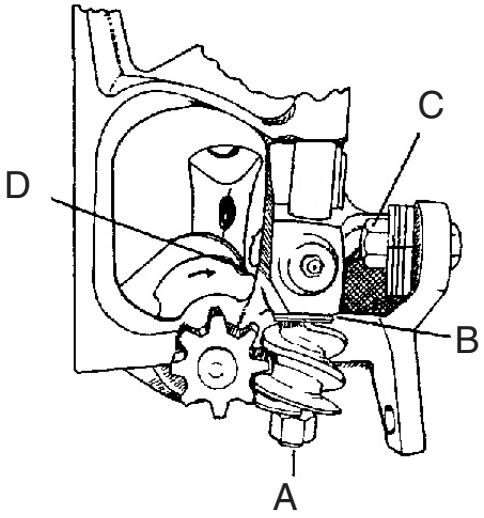


Figure 115. Knotter

A. Nut

B. Spacer Washers

C. Bolt

D. Cleaner

Make adjustments on bolt (C) in 1/6 of one turn increments. Proper adjustment is achieved when the knotter is producing a clean and smooth knot.

Twine Disc

Be sure the twine disc cleaner is free. Adjust the twine disc notch so the left-hand side of the notch is even with the cleaner (D) (see Figure 115). Do this by loosening nut (A) several turns. Tap the nut end of the shaft to loosen the worm. After the disc is set, turn the worm against the spacer washers (B) (see Figure 115), and tighten the nut. After the knotter has completed one cycle check the notch setting again.

Knife Arm

The knife arm cuts the twine and strips it off of the bill hook during the knotter's tying process.

The stripper flange on the knife arm should just touch the bill hook with firm pressure as the stripper flange advances the knot past the end of the bill hook (see Figure 116).

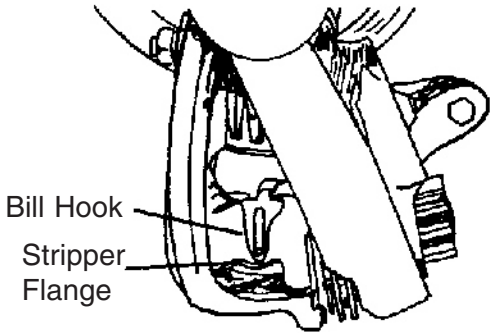


Figure 116. Knotter

The knife arm should be 1/4" to 3/4" past the end of the bill hook when the knife arm is in the most extreme position (see Figure 117). Correct the adjustment of the knife arm by replacing it.

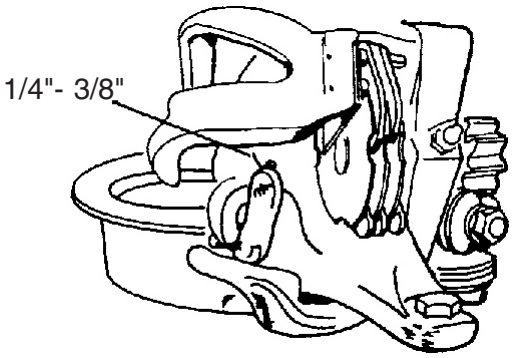


Figure 117. Knotter

Cam Gear Adjustment

Both flat surfaces of the knotter hook and worm gear pinions must be held flat with 0 to .005 interference on the smooth face of the cam gears (see Figure 118).

Make this adjustment with shims between the cam gears and knotter frames. Shimming must be done between the cam gears and the knotter frames any time a knotter is assembled. Take out excess space between the cam gears and the knotter frames by adjusting nut (A), see Figure 119. Tighten nut until knotters will just hold their own weight when rotated up to horizontal.

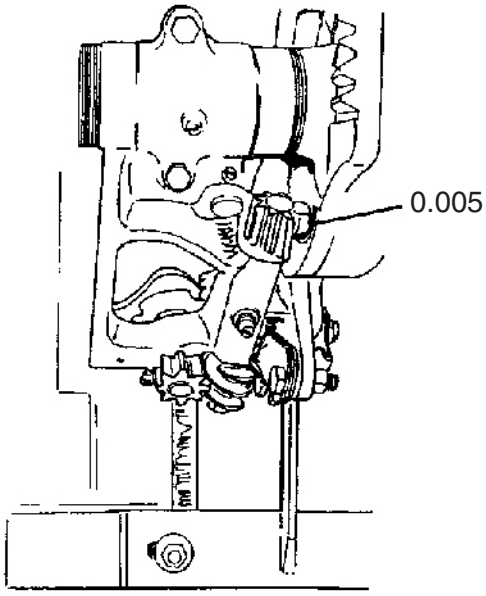


Figure 118. Knotter

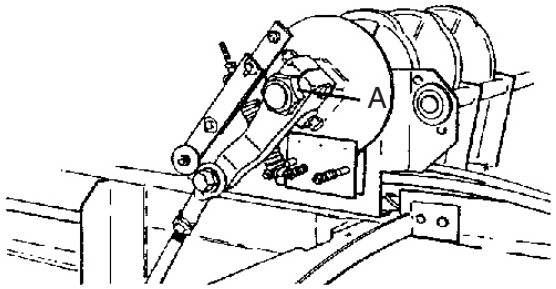


Figure 119. Adjusting Nut

Feed Fork

The two forward tines on the feed fork are adjustable. The tines can be fastened to the feed fork in position A, B or C, Figure 120. The normal position is (B).

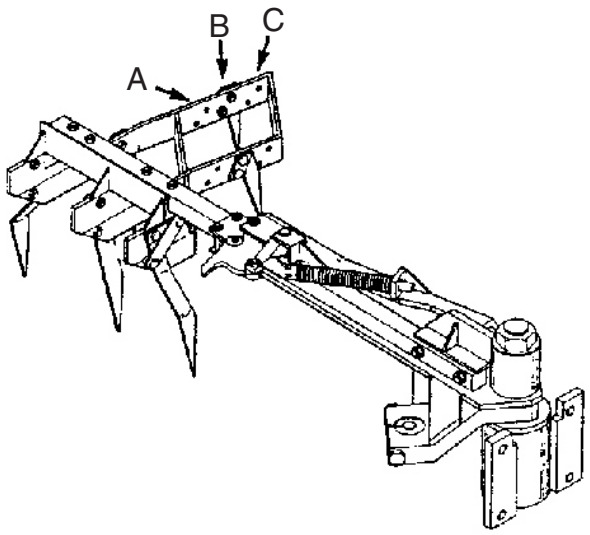


Figure 120. Feed Fork

If the bales are not uniform and more hay is needed on the left-hand side of the bale chamber, move both tines to position (B). If more hay is needed on the right-hand side of the bale chamber, move both tines to position (A). Some experimenting may be required to properly adjust the tines.

After adjusting the feed fork tines, run the feed arm through one complete cycle by turning the flywheel counterclockwise to make sure it does not interfere with any other parts.

Additional adjustments can be done with the feed arm.

Feed Arm

The normal position of the arm is parallel to the bale chamber when fully extended. Feed fork travel into the bale chamber can be adjusted so that the distance is retarded or advanced. Feed arm adjustment can affect the shape of the bales. By retarding the feed arm, you put more hay to the right-hand side of the bale chamber. By advancing the feed arm, you put more hay to the left-hand side of the bale chamber.

Loosen bolt (A), and rotate rod (B) to give desired position of the feed fork (see Figure 121). There should be no end play in rod at (C).

The feed arm connecting rod swivel is adjusted by loosening jam nut (C). Rotate the swivel nut clockwise until tight. Then loosen the swivel nut in a counterclockwise rotation 1/12" of a turn. To secure, hold the swivel nut in position and retighten the 2" jam nut (see Figure 121).

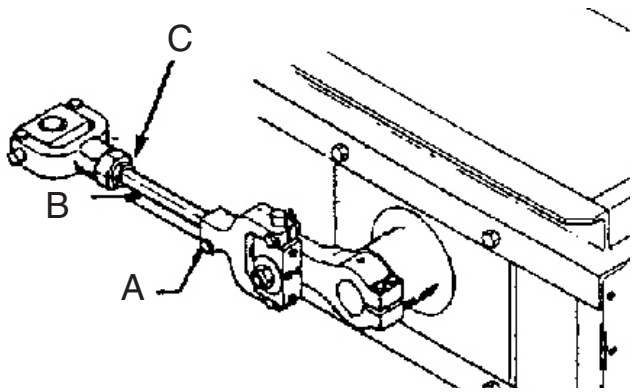


Figure 121. Feed Arm

Feed Arm Safety Latch

The feed fork will automatically release from the feed arm under extreme conditions of overfeeding the pickup. When this happens, the feed fork locks into the feed fork catch (A) (see Figure 122).

After removing any excess hay or foreign material from the feeder house, unlatch the feed fork from the feed fork catch, and attach it back to the latch on the feed arm (B).

The feed arm latch should be adjusted to break away at 120 lb-ft torque. Measure this adjustment with a torque wrench applied to the end of the latch (B). Raise the torque by adding washers on the trip spring rod (C). Lower the torque by decreasing the number of washers.

⚠ WARNING

Always shut baler off when inspecting, adjusting, lubricating, or servicing the baler.

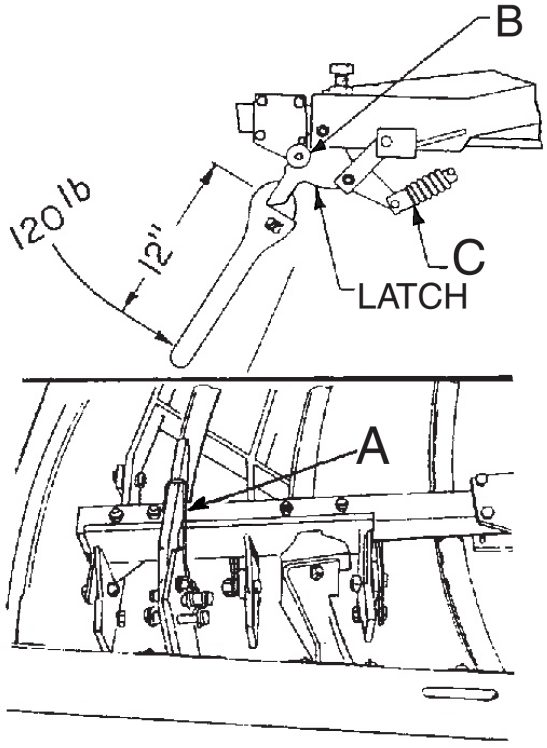


Figure 122. Feed Fork Catch

Plunger

The plunger can be adjusted to remove both side play and up/down play. Keep the plunger in adjustment to avoid unnecessary wear.

To adjust the up/down play, be sure the top plunger roller is up to the top rail angle. Adjust the roller by loosening nut (A). Move the roller and shaft up or down as needed (see Figure 123). Lock it with nut (A).

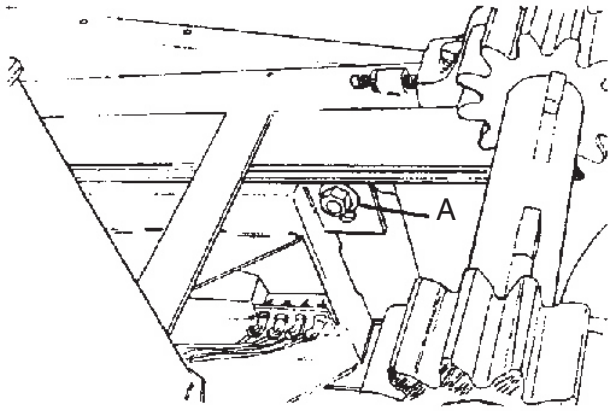


Figure 123. Top Plunger Roller Nut

Remove plunger side play by adjusting the top and bottom hard slide mounting angles on the left-hand side of the plunger. Complete the following steps (see Figure 124):

1. Loosen the eight hold-down bolts (A).
2. Slide the plunger over to the right-hand side of the bale chamber. Use a leverage bar to do this.
3. Adjust the four set screws, (B) (two top and two bottom), until there is 1/32" (the width of a thin knife shim) between the hard slides and slide rails, (C)
4. Tighten the eight hold-down bolts.
5. Remember, the plunger must travel free. Run the plunger back and forth by hand to ensure it is not binding.

⚠ WARNING

Always shut baler off when inspecting, adjusting, lubricating, or servicing the baler.

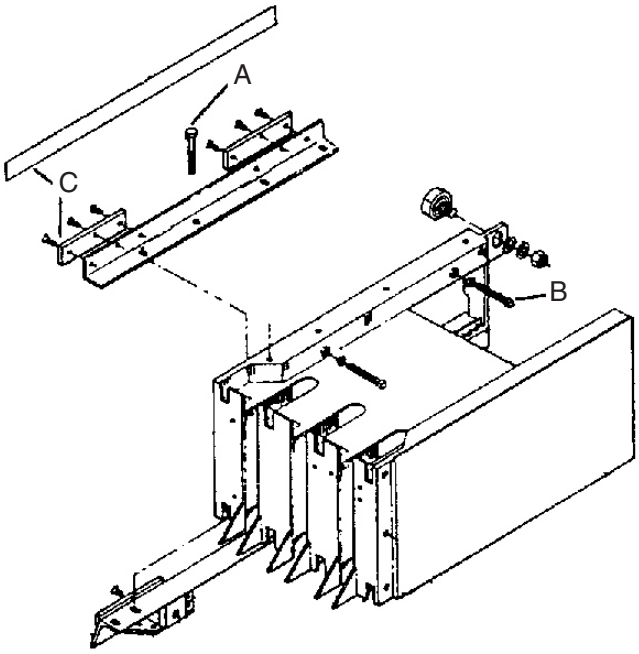


Figure 124. Plunger

Plunger Safety Latch

⚠ CAUTION

Always check the needle timing with the plunger before adjusting the safety latch.

Needles will break if they are blocked by foreign material in the needle slots, foreign material in the chamber, or if they enter the chamber prematurely because of early timing.

The plunger safety latch (A) helps protect the needles against breakage (see Figure 125). If, for any reason, the needles remain in the bale chamber while baling, the plunger stop dog stops the plunger and the flywheel shear bolt is sheared.

Before replacing the flywheel shear bolt, always pull the stop dog out of the bale chamber. Do this by pulling the needle yoke back to the home position. Adjust the safety latch by lengthening or shortening the latch rod at (B). As the needles leave the bale chamber and the tips of the needles are even with the bottom of the bale chamber, adjust the latch rod length so the plunger stop dog (A) is just leaving the chamber and is flush with the inside of the dog plate.

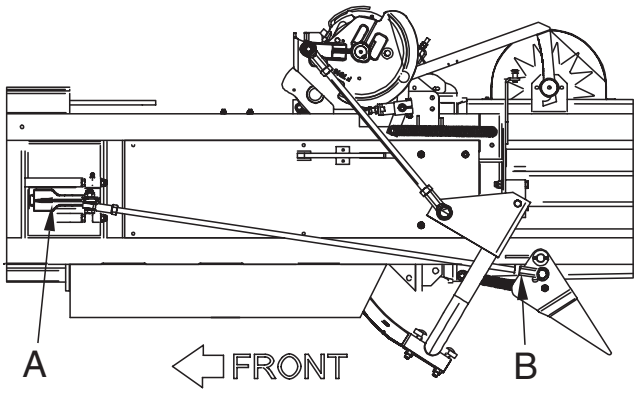


Figure 125. Plunger Safety Latch

Plunger Knife

⚠ WARNING

Always shut baler off when inspecting, adjusting, lubricating, or servicing the baler.

The baler should have sharp knives at all times. When replacing worn knives with new or re-sharpened knives, make sure they are adjusted as described below to avoid serious equipment damage.

Before adjusting the knife, adjust the plunger as described in the Plunger section on page 79.

After adjusting the plunger, shim the stationary knife (see Figure 126, D), so the two knives clear each other by 1/16" at the top, (E). Do not attempt to shim the plunger knife.

Rotate the flywheel until the knives are even. Use a leverage bar to slide the plunger over to the right side. Adjust the bottom of the knives so that they have 1/32" clearance at (A). Do this by loosening bolt (B), and adjusting set screw (C) which is under the stationary knife bolts, and set screw (F) which is about six inches forward under the feeder house.

If adjustment cannot be achieved with bolts (C) and (F), remove or install shims behind the stationary knife. It is important to feather any shims.

After adjusting the bottom of the knives, adjust the top until there is 1/16" clearance between the two knives. The top of the knives can only be adjusted with shims.

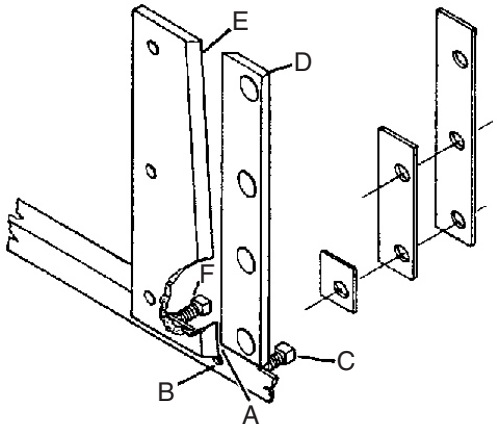


Figure 126. Plunger Knife

Check these adjustments carefully and run the plunger back and forth by hand to insure the knives are properly adjusted. Use a leverage bar to force the plunger to the right side of the chamber, with great pressure to ensure the knives do not lock up.

Pinion and Bullgear (if applicable)

The flywheel (see Figure 127) should be parallel to the frame plus or minus 1/8", with pinions meshing evenly with the bullgear teeth (A).

The lash of the pinion gears should have between 1/8" and 3/8" of free play on the rim of the flywheel at (B). Measure this when the connecting rod is fully extended and blocked to prevent bullgear movement.

Correct excessive free play by adjusting set screws (C). Be certain both sides are adjusted evenly to avoid serious equipment damage.

⚠ WARNING

Always shut baler off when inspecting, adjusting, lubricating, or servicing the baler.

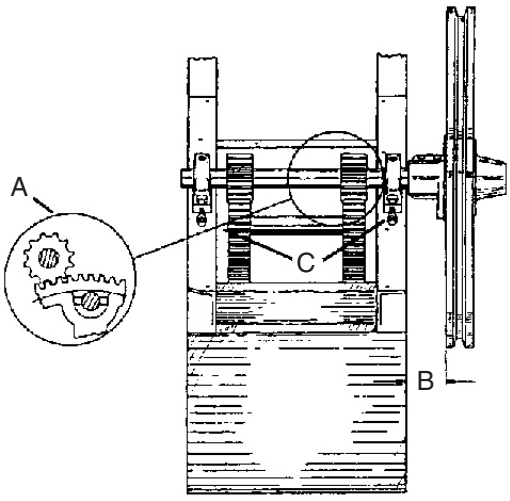


Figure 127. Pinion Gears

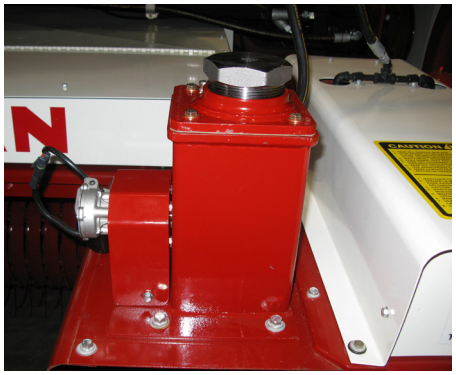


Figure 128. Bullgear Luber Tank (if applicable)

Bullgear Luber (if applicable)

Establish a good coating of grease on the bullgears before the the baler is used for first time, to ensure long bullgear life. A container of bullgear grease is included with your baler to get you started.

The bullgear luber (see Figure 128) distributes grease onto the bullgears through a manifold under the bullgear hood.

Before initial baler operation, the bullgears must be completely coated with Freeman bullgear grease, F000007626. Do not bale until the bullgears are covered with grease.

During the first 48 hours of bailing, grease bullgears every 30 minutes, and again at the end of each shift. Greasing at the end of the shift gives the bullgear grease an opportunity to set up and adhere to the warm bullgears.

Once you have established a good coverage of grease on the bullgears, greasing every four hours of baling is usually adequate. Always grease at the end of each shift.

NOTICE

The bullgear luber works best when the bullgear grease is in a liquid state. If it has hardened, the luber will not be able to apply the grease.

⚠ WARNING

Stop the baler engine and wait for all motion to cease before servicing or adjusting the machine.

Applying Bullgear Grease - First time Baling & End Of The Day

DANGER

Shields are for your protection. Always have shields in place before starting or operating the baler.

1. Park the SP Baler on level surface and put the hydrostatic drive control lever in the park position.

Figure 129. Hydrostatic Drive Control Lever in Park Position

A. Hydrostatic drive control lever

B. Hydrostatic drive control lever in park position

2. Start the SP Baler, and leave it running with the throttle at idle.

3. Engage the baler with the SP Baler at idle. Press the bullgear luber button for 5 seconds (see "Figure 24. Bullgear Luber Button" on page 27), and then release for 5 seconds. Repeat until the bullgears get a full film of lubricant covering the working surfaces of the gear teeth.

   Subsequent lubrication should be done at the end of the bailing shift to allow the lube time to set up and minimize the "flinging" off of the product.

During Baling

1. Lower plunger speed to 20 SPM.

2. Press Bullgear Luber button (see "Figure 24. Bullgear Luber Button" on page 27) for approximately 5 seconds. Repeat until the bullgears get a full film of lubricant covering the working surfaces of the gear teeth.

3. Repeat steps 1 and 2 every 30 minutes during break-in period, every 4 hours after break-in period (break-in period is first 48 hours of bailing).

Gearbox (if applicable)

WARNING

Chock baler wheels to prevent baler from moving and make sure baler and tractor are both turned off and all moving parts have come to a complete stop before starting any maintenance. Contact with moving equipment can cause serious injury or death.

Use Mobilube HD Plus 80W-90 Gear Oil, Allied P/N 235720.

Check oil level daily:

With the baler sitting level, remove the fill/check plug. Oil should be level with the bottom of the opening (see Figure 7131). Add oil as necessary through the same opening. Replace plug and tighten securely.

Change oil after first 50 hours, then every 250 hours:

1. Place a catch pan beneath the gearbox, under the drain plug.

2. Remove the drain plug from the bottom of the gearbox (see Figure 7131) and let oil drain into catch pan.

3. Replace the drain plug.

4. Add new oil through the fill/check plug opening until the oil is level with the bottom of the opening (see Figure 7131.) Replace plug and tighten securely.

5. Dispose of used oil in accordance with local regulations.

Check Bolts on Crank Arm Every 3 months/125 hours/25,000 bales, whichever comes first (see Figure 12).

1. Torque the four (4) retaining cap bolts to 340 ft-lbs.
2. Torque the one (1) clamp bolt to 750-755 ft-lbs.

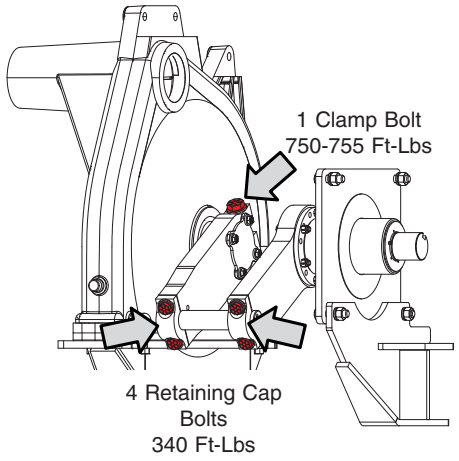


Figure 130. Crank Arm Torque

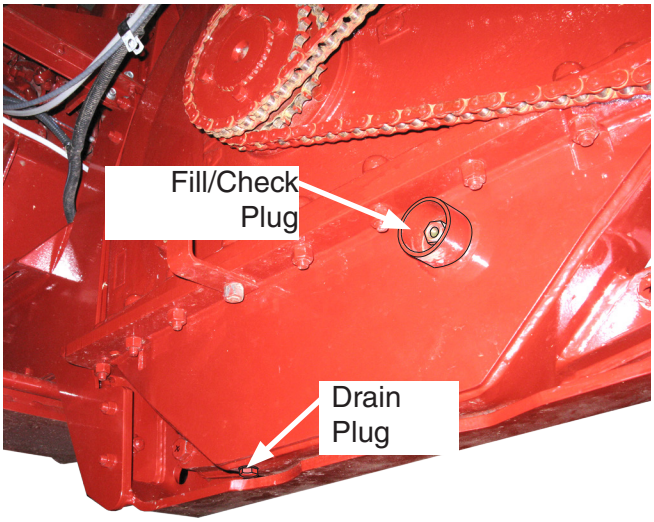


Figure 131. Gearbox

Connecting Rod/Crank Arm:

Grease the connecting rod bushing daily until you just see grease emerging from around the bushing (see Figure 132).

Grease the gearbox crank arm bearings at the beginning of every season, and then every 50 hours (see Figure 132).

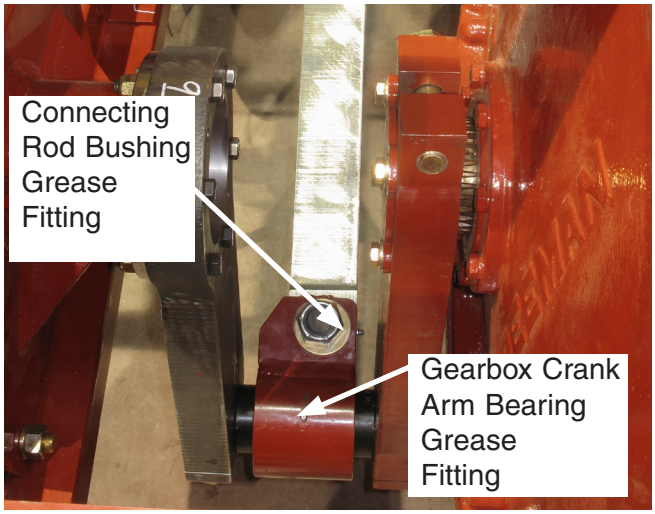


Figure 132. Gearbox Lubrication (Top View)

Bale Length

The operating speed of the baler has a direct effect on the bale length. To help maintain a consistent bale length, adhere to baler "Operating Speed" on page 55.

Bale length is adjusted by changing the height of the trip bar stop bolt (see Figure 133). Raising the bolt decreases bale length and lowering the bolt increases bale length.

If no more adjustment is available with the trip bar stop bolt, change the height of the meter trip bar stop. Use the holes provided to adjust the meter trip bar stop. If the meter trip bar stop is moved, the meter trip bar bolt will need adjustment.

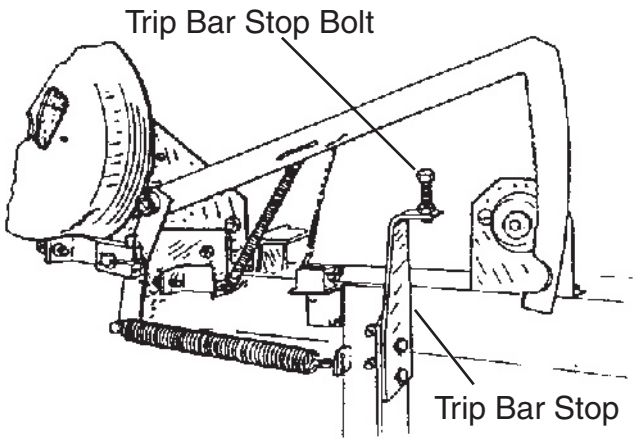


Figure 133. Bale Length

Pickup

When the pickup is in the baling position, be sure the pickup fingers clear the ground by at least one inch. Do not rotovate the ground with the pickup fingers. The pickup height may be adjusted by the pickup lift link (see Figure 1344). Turn adjusting nuts until pickup teeth are one inch off the ground. Tighten adjusting nuts.

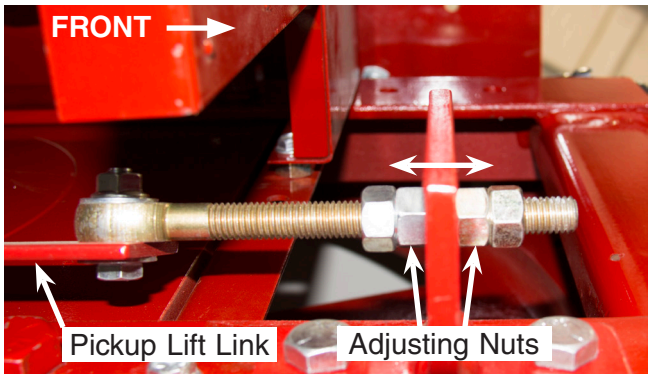


Figure 134. Pickup Lift Link

Adjust the balance springs (see Figure 1355), located behind the pickup under the baler, so the pickup may be lifted with one hand, or approximately 35 pounds of force, with the hay saver wheel in the baling position (see Figure 137).

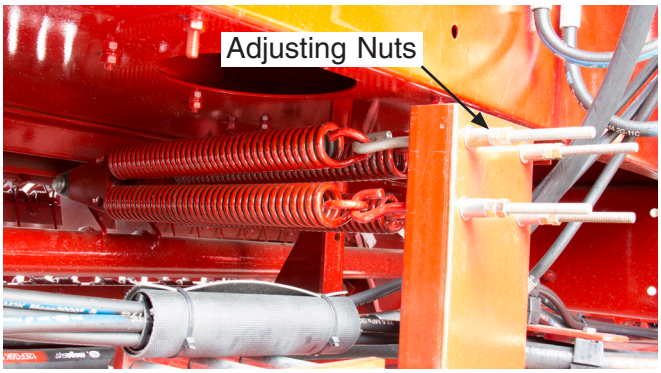


Figure 135. Balance Springs

Hay Saver Wheel

The hay saver wheel should be in the raised position when transporting the baler (see Figure 136). Once the baler is in the hay field, change the Hay Saver Wheel to the baling position (see Figure 137).

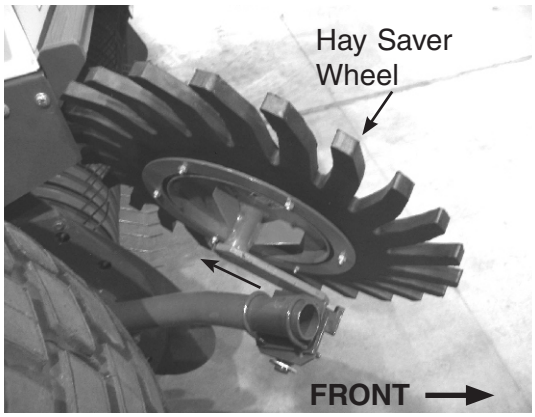


Figure 136. Road Position

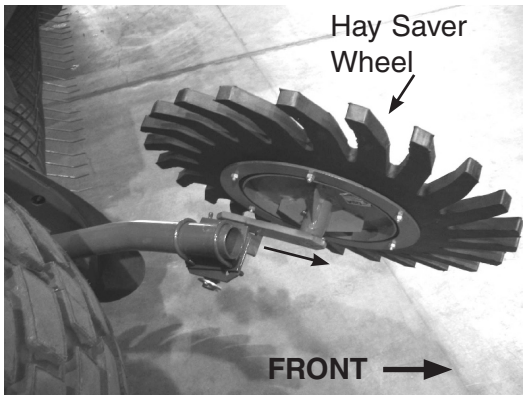


Figure 137. Baling Position

Motorized Hay Saver Wheel Option (if applicable)

The motorized hay saver wheel is automatically controlled, and it will rotate at a constant speed whenever operation of the baler is selected. When the baler is operating, the hay saver wheel will be rotating at a set constant speed, and continue at that speed whether the pickup is raised or lowered.

When raising or lowering the pickup assembly, the operator will notice the wheel will stop rotating while the pickup is being positioned, and then it will start rotating again once the pickup height is set.

The nominal operating speed of the motorized hay saver wheel is factory set at 50 RPM. A manual speed adjustment is provided on the hydraulic manifold mounted to the frame below the cab.

Hay Saver Wheel Adjustment

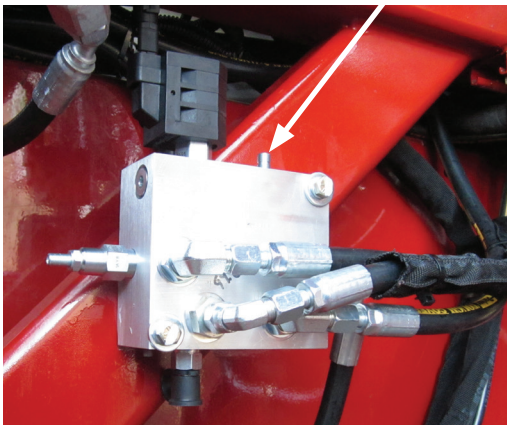


Figure 138. Motorized Hay Saver Wheel Speed Adjustment

Turn the adjustment screw clockwise to increase the speed of the hay saver wheel to a maximum of 60 RPM. Turn the screw in the opposite direction to decrease the speed to a minimum of 36 RPM.

Twine Routing (3 tie shown)

⚠ WARNING

Always shut baler off and wait for all motion to cease before threading twine.

1. Make sure the needles are in the home position (fully retracted).
2. Place twine in twine box. It is normal to feel some resistance when closing the doors after loading new twine.

   NOTE: The baler's twine box is designed to hold twine in a ball, not in a box. Boxed twine will not fit.

3. If using multiple balls of twine per knotter, tie the successive units of twine together (consult your twine manufacturer for recommended knots).
4. Feed one strand of twine out through each of the twine guide bushings in the side of the twine box and through the first twine guide loop (See Figure 1399).
5. Pull down/out on the bottom plate of the twine tensioner and place one strand of twine between the two plates, release the bottom tensioner plate to hold the twine in place. Feed the twine through the second guide loop, then out through the guide bushing in the in the tensioner bracket. Repeat for the remaining strands.
6. It should take 3-5 lbs of force to get the twine to move through the tensioners. Turn each tension adjustment nut clockwise to increase tension on the twine or counterclockwise to decrease the tension on the twine.
7. It should take 3-5 lbs of force to get the twine to move through the tensioners. Turn each tension adjustment nut clockwise to increase tension on the twine or counterclockwise to decrease the tension on the twine.

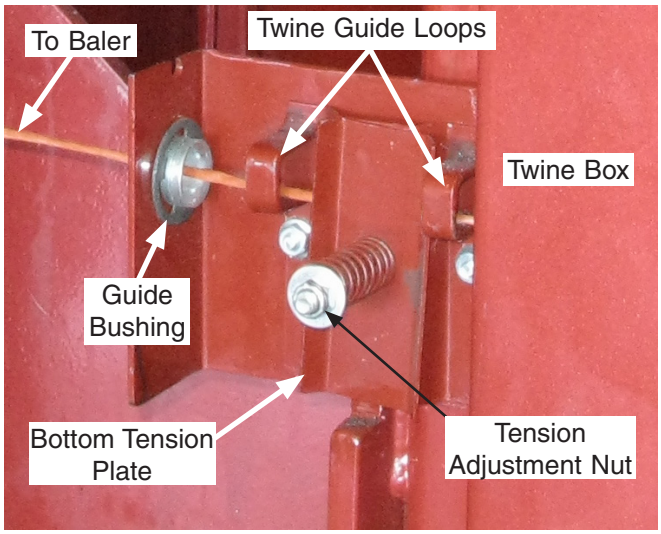


Figure 139. Twine Tensioners

NOTICE

The twine tension assemblies must be adjusted so that there is a slight amount of drag on the twine. If the twine tensioner is too loose, the twine lashes out and the twine fingers are not able to grasp the twine. If the twine tensioner is too tight, the twine may break or come out of the twine holder.

8. It should take 3-5 lbs of force to get the twine to move through the tensioners. Turn each tension adjustment nut clockwise to increase tension on the twine or counterclockwise to decrease the tension on the twine.

9. Twine from the top tensioner threads through the top guide in the bracket that is mounted to the lower right side of the bale chamber. Twine from the middle tensioner threads through the middle guide, and twine from the bottom tensioner to the bottom guide (See Figure 156).

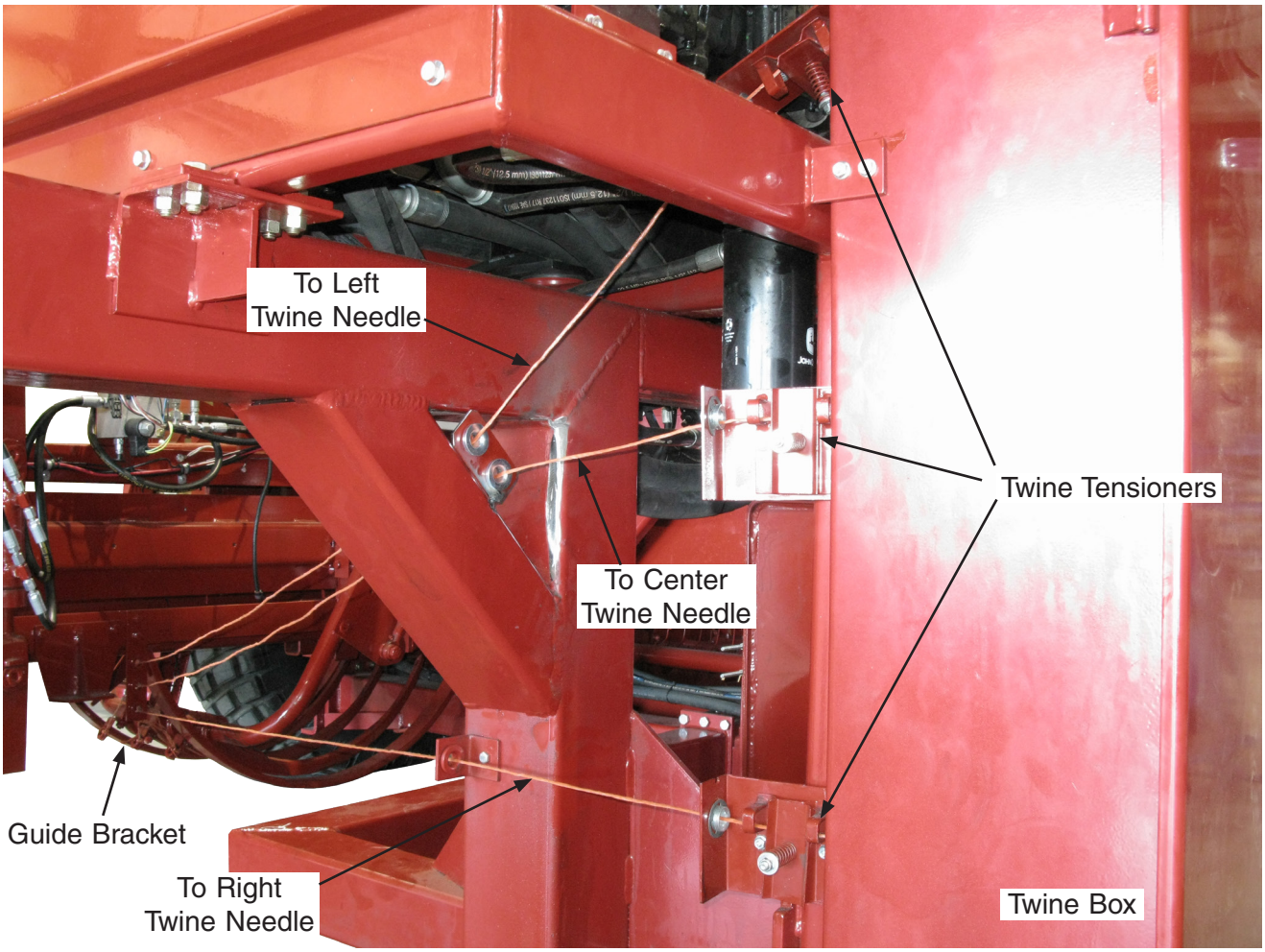


Figure 156. Twine Routing From Twine Box To Bale Chamber

10. Twine from the top guide bracket on the side of the bale chamber routes first through the guide mounted at the rear of the left needle guard, then to the needle holder plate at the back of the left needle (see Figure 156). The middle twine goes directly to the middle needle holder plate and the twine from the bottom guide goes directly to the right needle holder plate.
11. Feed each strand of twine through the twine holder plate on the bottom side of each needle, running over the two (2) roll pins to hold it in place.
12. Feed the twine through the tip of each needle then pull the twine towards the back of the baler and securely tie it to the baler frame.

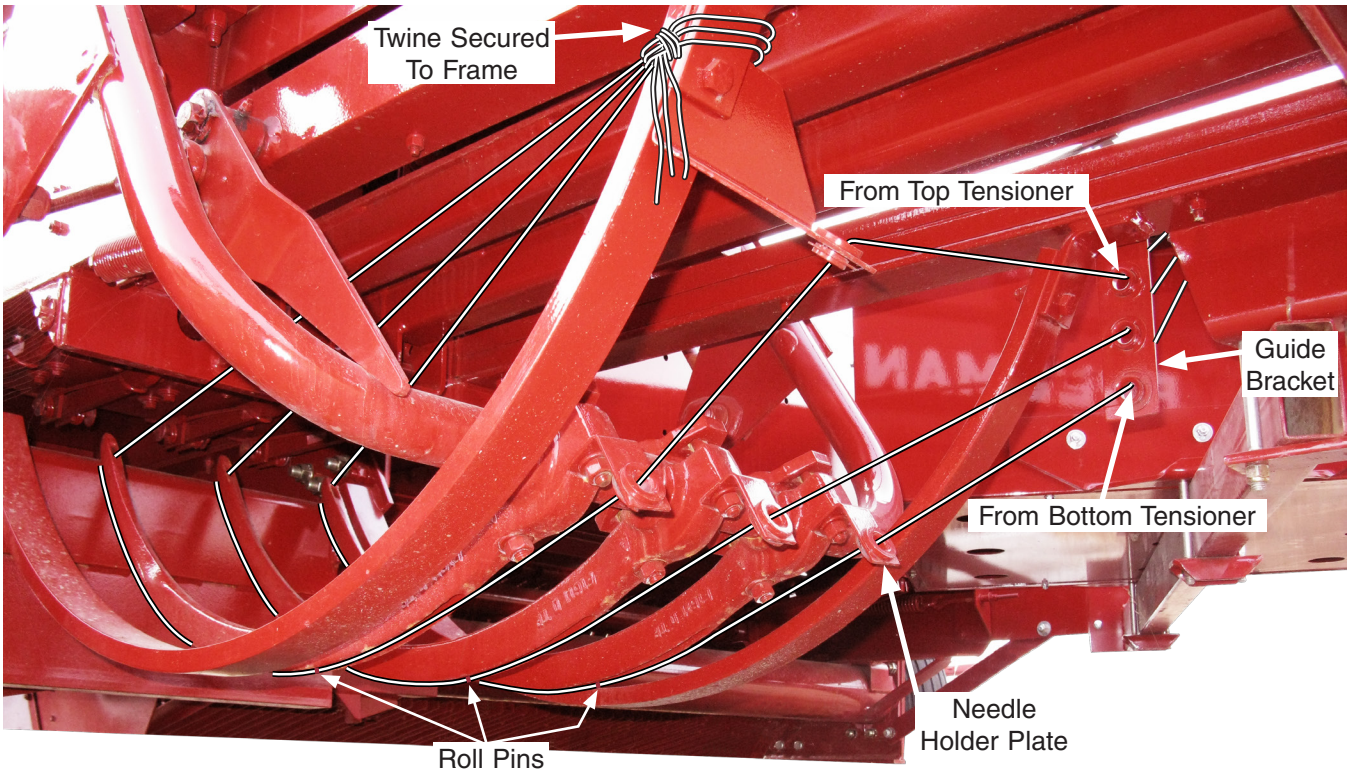


Figure 157. Twine Routing Through Needles (3 tie shown)

13. After the knotter ties the first bale, the tails of twine should be removed from the frame.

NOTICE

Knots will form and may stay on the bill hooks after the first tie cycle and cause the twine to tangle in the next tying cycle. This happens because the first bale may not be heavy enough to pull the knots off of the bill hooks. Remove the knots before the next tie cycle.

Please refer to your Engine Manufacturer's Operator's Manual for all engine information.

For diesel fuel, lubricity of diesel fuel, diesel engine coolant, diesel engine oil, see your Engine Manufacturer's Operator's Manual.

IMPORTANT! Do not mix used diesel engine oil or any other type of lubricating oil with diesel fuel.

IMPORTANT! Improper fuel additive usage may cause damage on fuel injection equipment of diesel engines.

Fuel, Coolant And Lubrication

Filling Fuel Tank

⚠ CAUTION

Handle fuel with care: It is highly flammable. Do not refuel the machine while smoking or when near open flame or sparks.

Always stop engine before refueling machine. Fill fuel tank outdoors.

Prevent fires by keeping machine clean of accumulated trash, grease, and debris. Always clean up spilled fuel.

Do not overfill fuel tank. Fuel level should not be closer than 25 mm (1 in.) to the top of the fuel tank. Bodily injury can result from fuel splash back. Leakage can result from expansion of fuel. If the tank is filled too full, then left in direct sunlight or if temperature gets too hot, the tank will overflow.

The fuel tank is vented at the cap. Fill fuel tank at the end of each day. This prevents condensation in the tank as moist air cools.

Hydraulic Pump Drive Gear Case, Hydrostatic Drive and Main Hydraulic Systems Oil

IMPORTANT! Do not mix hydraulic oils. Using only specified oil is recommended.

DO NOT use low viscosity oil.

The baler comes from the factory with Allied Systems Premium Tractor Hydraulic Fluid, P/N 907895.

Bullgear Grease (if applicable)

Use only Freeman Bullgear Grease F000007626 for lubricating the bullgears.

Wheel Drive Oil

SAE 85W/140 API-GL5 Gear Lubricant is recommended. If other oils are used, they must meet requirements of:

- API Service Classification GL-5
- Military specification MIL-L-2105B
- Military specification MIL-L-2105C

Depending on the expected prevailing temperature for the fill period, use oil of viscosity as shown in the chart.

Product Number	Description
244281	85W/140 GL5 Gear Lube

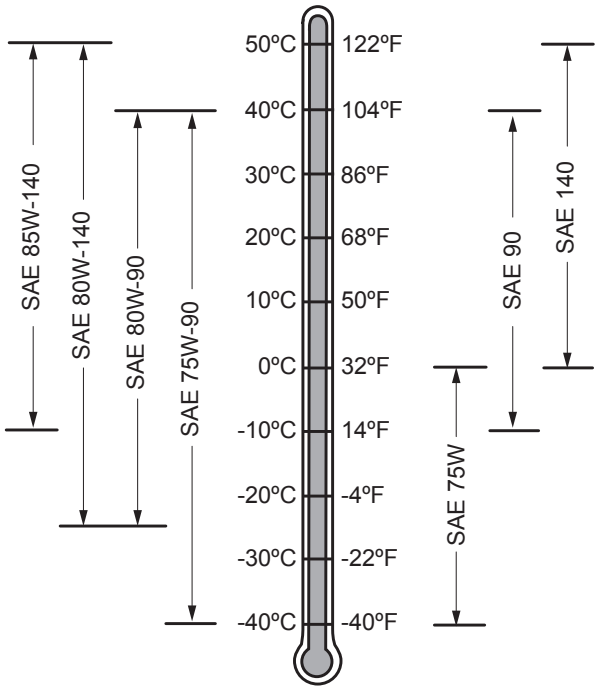


Figure 140. Gear Lubricant

General Grease (not for use on bullgears)

Use grease based on NLGI consistency numbers and the expected air temperature range during the service interval.

The following grease is preferred:

- Multi-purpose lithium base #2, EP grease. Allied part number: LBR0000099

Other greases may be used if they meet the following:

- NLGI Performance Classification GC-LB

IMPORTANT! Some types of grease are not compatible with others. Consult your grease supplier before mixing different types of grease.

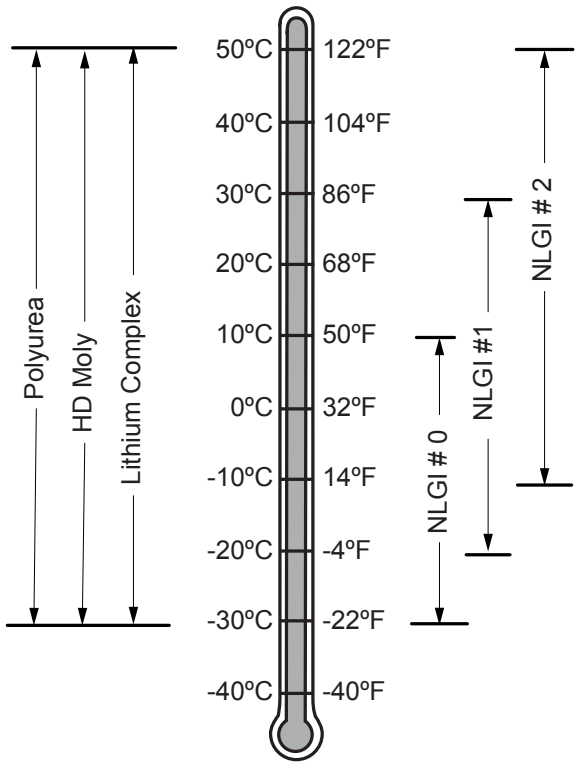


Figure 141. Grease

⚠ CAUTION

To prevent injury, never lubricate or service baler or engine while it is running. Engine must be off and key removed.

IMPORTANT! The service times are for average conditions. Service more often if baler is used in extreme conditions.

Perform each lubrication and service illustrated in this section both at the beginning of the season, and at the end of the season.

Clean grease fittings before using grease gun. Replace any lost or broken fittings immediately. If a new fitting fails to take grease, remove and check for failure of adjoining parts.

Observe Lubrication Symbols

Follow hourly (C) intervals on lubrication symbols (A) and (B) (see Figure 142).

LUBRICATION SYMBOL (A) Lubricate with Multi-purpose Lithium base #2, EP grease or equivalent SAE multipurpose grease (unless otherwise specified).

OIL SYMBOL (B) Lubricate with SAE 30 or heavier oil.

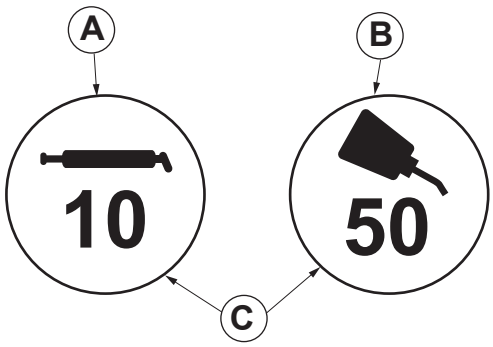


Figure 142. Lubricant Symbols

Service Interval Display

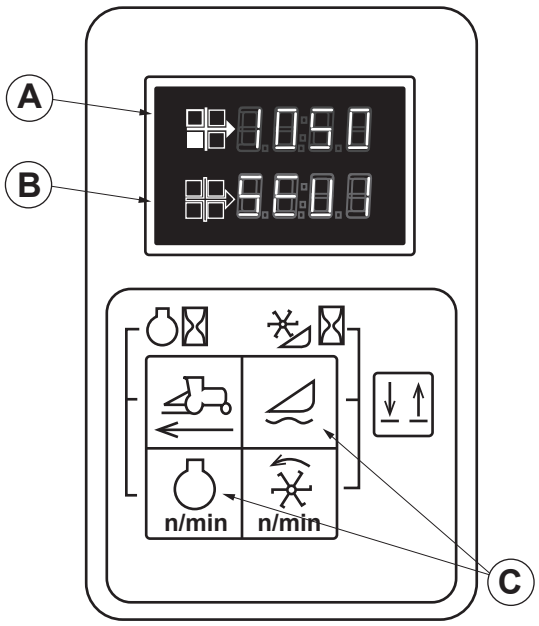
Use operating hours display as a guide when performing the required service interval on the baler.

Every 50 hours of engine operation, the characters “SEV 1” will appear on the lower tachometer display (B) indicating service is needed (see Figure 143).

NOTE: For resetting the tachometer after service completion, see the decal on the inside of the armrest compartment cover (see Figure 30 on page 29).

After completing the service, reset the tachometer by pressing the ENGINE RPM and TENSION PRESSURE switches (C) simultaneously and turning the key to “ON” (third position).

The service interval timer can also be reset if service is performed between 45 and 50 hours but not prior to 45 hours. If “SEV 1” appears, pressing any of the four switches will suppress the message until the next time the ignition switch is turned on.



A. Upper display

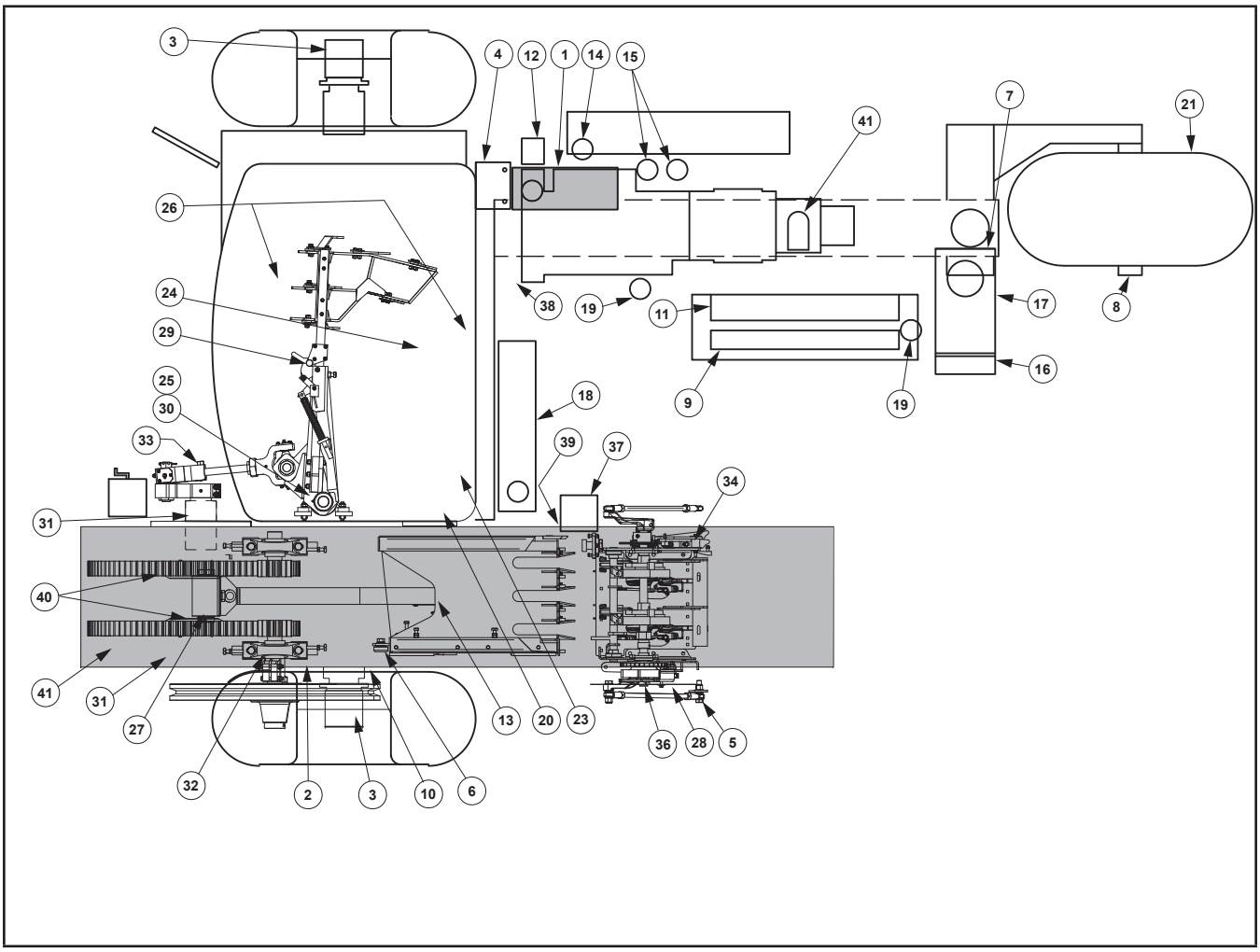
B. Lower display

C. Engine RPM & tension pressure buttons

Figure 143. Service Interval Display

Maintenance diagram below is for baler 280S14-004

The Item numbers correspond with the numbers in the Item columns in the following maintenance tables.



ITEM	ITEM DESCRIPTION	POINTS	DESCRIPTION	APPROVED MATERIAL
Break-in		*Engine, see engine manufacturer's operator's manual		
3	Wheel drive	2	Replace oil (only after first 50 hours)	SAE 85W/140 API-GL5
3	Wheel drive cover cap screws	24	Tighten to 75 n•m (55 lb-ft) (only after first 50 hours)	
3	Front wheel nuts	24	Tighten after first hour and then every 4 hours until tight	
8	Rear wheel cap screws	12	Tighten after first hour and then every 4 hours until tight	
14	Engine* oil and filters	2	Replace oil and filter (only after first 100 hours)	
40	Bullgears (if applicable)	2	See bullgear luber in settings and adjustments	Freeman bullgear grease, F000007626 only.
As required		*Engine, see engine manufacturer's operator's manual		
1	Fuel tank	1	Drain water and sediment	
	Engine* fuel system		Bleed fuel system	
9	Oil cooler—a/c condenser	1	Clean debris from fins	
11	Radiator	1	Add coolant/clean debris from fins	
16, 17	Engine* air screen or primary air filter	2	Clean screen or primary filter when warning light comes on	
17	Engine* air filters	2	Replace	
	Engine* fuses	2	Check	
20	Cab fresh air filter	1	Replace	
20	Cab pre-cleaner	1	Replace	
23	Cab recirculating filter	1	Replace	
Every 3 to 4 hours				
2	Pickup clutch	1	Grease / 1 pump	Multi-purpose grease
5	Needle yoke drive rod ends	4	Grease	
6	Plunger rollers	4	Grease	
10	Plunger stop dog	1	Grease / make sure stop dog moves freely when greasing.	
13	Con rod / plunger side	1	Grease	
22	Hay saver wheel	1	Grease	
25	Torque shaft bearing housing	1	Grease	
40	Bullgears (if applicable)	2	See bullgear luber in settings and adjustments	Freeman bullgear grease, F000007626 only.

ITEM	ITEM DESCRIPTION	POINTS	DESCRIPTION	APPROVED MATERIAL
Every 10 hours		*Engine, see engine manufacturer's operator's manual		
	Check for loose bolts	All		
	Check needle timing		Look in knotter section	
	Check knife adjustments	2	Plunger knife / stationary knife	
	Check knife sharpness	2	Plunger knife / stationary knife	
11	Engine* coolant	1	Check level at overflow tank	
12	Alternator	1	Clean debris off screen	
14	Engine* oil	1	Check oil level on dipstick	
15	Engine* fuel filter	1	Check for water and sediment.	
16	Engine* air pre cleaners	3	Check dust bowl, screen and dust valve (clean if needed)	
	Engine*		Visual walk around inspection.	
18	Hydrostatic oil	1	Check level at tank sight tube	
36	Knotter shaft	1	Grease	
37	Knotter luber tank	1	Check level at tank sight tube	SAE 30 SE, SF, or CD motor oil
41	Gearbox	1	Check oil level daily (oil should be level with fill plug)	Mobilube HD PLUS 80W-90 Gear Oil
Every 40 hours or 10,000 bales		*Engine, see engine manufacturer's operator's manual		
3	Front wheel nuts	24	Tighten to 163 n•m (120 lb-ft)	
7	Caster fork pivot	2	Grease	
13	Plunger	1	Check plunger knife for sharpness and plunger adjustment	
15	Engine* fuel filter	1	Check for water and sediment	
20	Cab fresh air filter/pre cleaner	2	Clean	
27	Con rod, bullgear side	1	Grease/bullgear & pinion gear adjustment	
28	Knotter trip lever	1	Grease	
29	Feed arm latch	1	Grease	
30	Feed arm bearing housing		Grease	
31	Side plate bearing	2	Grease	
33	Feed arm yoke's	6	Grease	
34	Saddle lever	1	Grease	
39	Stationary knife	1	Check for sharpness and adjustment	
40	Bullgear (if applicable) and pinion gears	3	Check for adjustment	
	Sealed bearings	All	Grease	

ITEM	ITEM DESCRIPTION	POINTS	DESCRIPTION	APPROVED MATERIAL
Every 50 Hours or 15,000 bales		*Engine, see engine manufacturer's operator's manual		
3	Front wheel nuts	24	Tighten to 163 N•m (120 lb-ft)	
7	Caster fork pivot	2	Grease	
15	Engine* fuel filter	1	Check for water and sediment.	
20	Cab fresh air filter/pre cleaner	2	Clean	
27	Con rod, bullgear side	1	Grease	
28	Knotter trip lever	1	Grease	
29	Feed arm latch	1	Grease	
30	Feed arm bearing housing		Grease	
31	Side plate bearing	2	Grease	
32	Pinion shaft bearings	1	Grease	
33	Feed arm yokes	6	Grease	
34	Saddle lever	1	Grease	
Every 100 Hours				
3	Wheel drives	2	Check oil level	SAE 85W/140 API-GL5
8	Rear wheel hub	2	Check bearings, grease hub	
21	Tires	3	Check pressure Front (18.4 - 26) 3.17 Bars - 46 PSI Rear (21.5 - 16.1) - 1.93 Bars- 28 PSI	
	Gearbox crank arm & feeder arm	4	Tighten bolts to 340 ft-lbs	
Every 250 Hours		Engine, see engine manufacturer's operator's manual		
14	Engine* oil and filter	2	Replace oil and filter	
23	Cab recirculating filter	1	Clean	
	Gearbox oil, baler		Change oil (approx. 1.5 gallons)	Mobilube HD PLUS 85W-90 gear oil
Every 400 Hours or Each Season				
19	Hydrostatic filters	2	Replace	907619
41		1		907622
Every 500/12 Month		*Engine, see engine manufacturer's operator's manual		
	Engine* mounts	4	Check engine mounts	
15	Engine* crank case vent tube	1	Clean	

ITEM	ITEM DESCRIPTION	POINTS	DESCRIPTION	APPROVED MATERIAL
16,17	Engine*air intake system	1	Check hoses and connections	
15	Engine* fuel filter	1	Replace	
38	Engine* fan belt	1	Check tensioner and belt wear	
11	Engine* coolant	1	Check cooling system. Do coolant solution analysis and pressure test. Add supplemental coolant additives as required.	
	Engine* speed		Check engine speeds.	
	Engine* thermostats		Test thermostats.	
Every 800 Hours or Each Season				
3	Wheel drives	2	Replace oil	SAE 85W/140 API-GL5
Each Season		*Engine, see engine manufacturer's operator's manual		
	Operator presence switch		Check operator presence switch	
9	Oil cooler-a/c condenser	1	Clean debris from fins	
11	Radiator	1	Clean debris from fins	
17	Engine* air filters	1	Replace	
24	Seat belts	2	Inspect seat belt components for excessive wear	
25	Torque shaft bearing housing	1	Grease	
26	Steering components	6	Grease	
31	Side plate bearings	2	Grease	
Every 2000 Hours		Engine, see engine manufacturer's operator's manual		
14	Engine* valve clearance	1	Check and adjust. (See your john deere dealer.)	
11	Engine* coolant	1	Pressure test, flush cooling system and replace coolant.	
	Engine* thermostats		Test thermostats.	
Every 2000 Hours or Every Other Season		Engine, see engine manufacturer's operator's manual for optional intervals.		
18	Hydrostatic	1	Replace oil. Clean fill cap and strainer.	J20C HY-GARD®

Fuse Chart

F1 CIGAR LIGHTER
F2 PLATFORM RUNNING PWR
(BALER SPEED +/-)
F3 ENGINE RUNNING PWR
(PICKUP +/-)
(TENSION +/-)
(PLATFORM RAISE/LOWER)
(REEL OR PLTFM SPEED +/-)
F4 PLATFORM FWD/REV
THROTTLE
NEUTRAL START
F5 GAUGE/MONITOR PWR
FUEL SHUTOFF
F6 WIPER PWR
F7 PARK BRAKE RELEASE
GROUND SPEED SHIFT
PLATFORM TENSION LATCH
F8 KNOTTER FAN
F9 ENGINE OIL PRESS
KEY FUNCTIONS
F10 FLOOD LIGHTS (LOWER)
F11 FIELD LIGHTS (CAB)
F12 FLOOD LIGHTS (UPPER)
F13 ROAD LIGHTS
F14 LIGHT SWITCH PWR
F15 POWER SOURCE (CONSTANT PWR)
F16 WARNING/TURN/BRAKE LAMPS
F17 POWER SOURCE (KEY ACTIVATED)

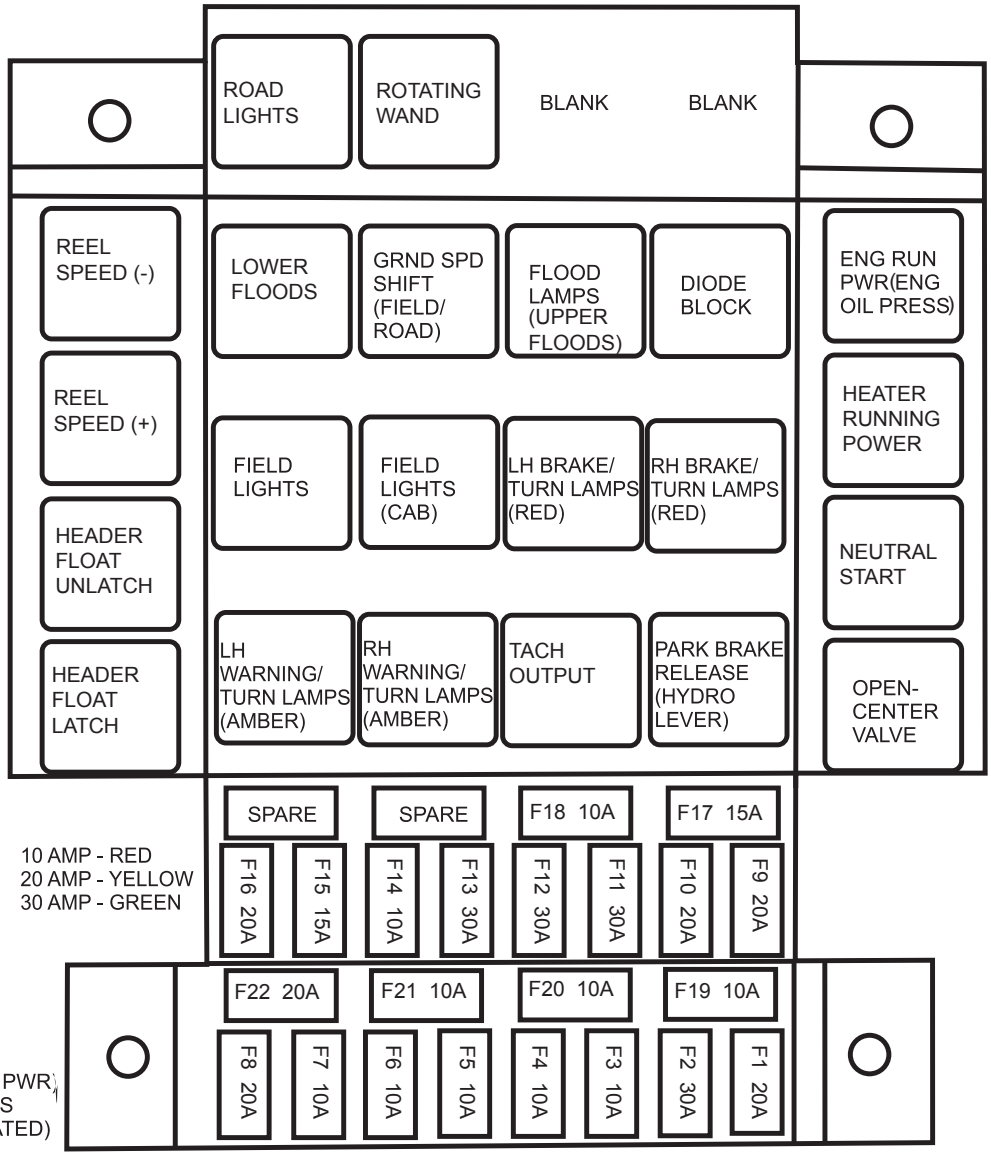


Figure 144. Maintenance Diagram

Troubleshooting

If you are experiencing problems with the twine knotter, or missing a knot on one twine or another, it is important to determine which twine is not tying properly. The TOP twine is the twine that is being held in the knotter while the bale is being formed. The BOTTOM twine is the twine that the needle delivers to the knotter to tie the bale.

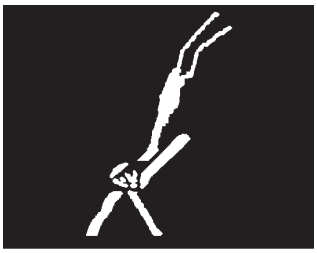
When a miss tie occurs you must locate the problem twine and determine:

1. Is the knot missing in the TOP or BOTTOM twine?
2. Is the end of the untied twine frayed, or squared cut?
3. Is there any damage to the twine? Frayed along the length, frayed beyond the knot?
4. Is the twine long enough to wrap around the bale?
5. Are there any scraps longer than one inch in or around the knotter?
6. Is twine tangled in the knotter?

In the majority of cases, the miss tie caused is external to the knotter frame. Some things to always check before condemning the knotter are:

1. Check twine delivery from the twine box. Twine boxes should be correctly tied together and not obstructing free feeding.
2. Twine is properly routed to the needle.
3. Twine guides and/or needles have no sharp worn edges.
4. Twine tensioners are properly adjusted so that twine has approximately 4 pounds of pull, while the knotter is tying.
5. Check hay dogs for proper operation, and/or broken or missing springs. Hay dogs will wear and are very important. If unable to correct a twine finger miss tie, it is possible that the hay dogs have worn and are not properly holding the end of the bale.
6. Check bale weight/density. Too light of a bale may cause the knot to hang on the bill hook, and too heavy a bale can cause several different miss ties (see chart).
7. Are all the necessary components in proper adjustments? Remember, any time you replace or adjust a needle, the twine finger must be checked and probably adjusted at the same time.
8. Next to the hay dogs, the twine fingers are important to keep in good operating condition. They cannot have excessive play in the pivot, and they must be free of any nicks or burrs that may damage the twine.

Following are a few examples of failed knots with possible causes for, and possible remedies.

Problem	Possible Cause	Possible Remedy
 *Figure 145. Twine sheared off*	Extreme tension on twine around bill hook during tying cycle causes twine to shear or pull apart.	Loosen twine disc holder spring. Smooth off all rough edges on bill hook.
 *Figure 146. Knot in top twine only*	Dull twine knife.	Replace twine knife or sharpen cutting edge.
 *Figure 147. Twine broken in knot*	Worn or damaged bill hook tongue.	Replace bill hook.
	Bale density to low.	Increase bale density tension.
	Excessive twine holder pressure.	Loosen twine holder spring.
	Improper adjustment of twine disc.	Adjust, time twine disc.
 *Figure 148. Twine ends frayed*	Insufficient tension on twine holder.	Tighten twine holder spring.
	Dull or chipped knife.	Replace twine knife, or sharpen cutting edge.
 *Figure 149. Knot too loose*	Twine sheared in twine disc. Bill hook not rotating. Bill hook tongue fails to open.	Loosen twine holder or remove all sharp edges and burrs on twine holder and twine disc. Check for sheared roll pin in bill hook pinion. Check for lost trigger roller, or cam face worn.
	Bow knot that has come apart.	Check twine finger travel.

TROUBLESHOOTING KNOTTER

Problem	Possible Cause	Possible Remedy
 *Figure 150. Twine ends uneven, no knot in either twine*	Top twine over bale pulled out or sheared out of the twine holder. This twine will be too short to wrap around the bale. If the top twine is squared cut, it pulled out of twine holder. If it is ragged and drastically frayed, it sheared out of the twine disc or over bill hook.	Tighten twine holder spring pressure. Decrease bale density tension. Decrease twine holder spring pressure. Decrease bale density tension.
 *Figure 151. Knot in bottom (needle) T*	Bill hook is closing on top of twine.	Move knife arm so grove in knife arm will hold twine over bill Hook tongue farther to the right. Adjust twine disc timing.
 *Figure 152. Twine strands on one twine doubled back through knot*	Insufficient travel of knife arm past Bill hook.	Move knife arm to obtain more travel past bill hook.
	Bill hook roller cam pressure too loose.	Check for wear on cam lobe.
	Twine finger full travel not going far enough, knot is being formed to far to the left on the bill Hook.	Tighten bill hook roller cam springs. Check twine finger full travel adjustment.
 *Figure 153. Double Bow Knot*	Insufficient travel of knife arm past bill hook.	Move knife arm to obtain more travel past bill hook. Check for wear on cam lobe.
	Bill hook roller cam pressure too loose.	Tighten bill hook roller cam springs
 *Figure 154. Single bow knot*	As bill hook rotates, twine is pinched between bill hook and knife arm and twine is damaged below knot.	Bend knife arm so bill hook turns freely. Make certain wiper ledge on knife arm contacts back side of bill hook.
	Rough knife arm cuts twine.	Smooth rough edge in twine notch on knife arm, or replace knife arm.
	Extreme high top twine tension.	Reduce bale density tension, or check twine tensioners.

Symptom	Problem	Solution
System will not produce sufficient cooling	Compressor not functioning (both the large and small air-conditioning hoses, exiting right-hand rear corner of cab, are at the same temperature)	Contact your Freeman dealer.
	High-pressure switch open. Insufficient air flow across condenser Low-pressure switch open. Insufficient air flow across evaporator	Clean cab filters. Check cab fan operation. Clean condenser. Check rotary wand duct for obstruction. Clean air screen. Contact your Freeman dealer.
	Low-pressure switch open. Low outside air temperature	Move temperature control to warmer setting. Contact your Freeman dealer.
	Low-pressure switch open. Insufficient refrigerant level (bubbles in sight glass)	Contact your Freeman dealer.
	Heater valve partially open. With temperature knob set for maximum cooling, feel both heater hoses exiting right-hand rear corner of cab. If both are warm, valve is open	Contact your Freeman dealer.
	Insufficient blower speed	Increase blower speed.
	Debris on radiator screen	Clean screen.

Symptom	Problem	Solution
System will not produce sufficient cooling **continued.....**	Compressor clutch not engaging	Contact your Freeman dealer.
	Condenser is overheating	Clean screens, cores and fins of condenser, oil cooler, and radiator.
	Burned out clutch field or faulty field	Contact your Freeman dealer.
	Faulty high pressure or low pressure switches	Replace switches.
	Faulty A/C evaporator thermostat sensor	Replace A/C evaporator thermostat sensor.
	Recirculating fan disconnected	Check connectors at fan switch.
	Compressor partially or completely seized	Remove compressor for service or replacement.
	Dirty filters	Clean filters.
	Broken or disconnected electrical	Check all terminals for loose connections; check wiring for hidden breaks.
	Broken or disconnected cab ground wire	Reconnect or replace the ground wire.
	Expansion valve stuck in open position	Replace expansion valve.
	Expansion valve stuck shut	Replace expansion valve.
	Broken refrigerant line	Examine all lines for evidence of breakage by external stress of rubbing wear.
	Leak in system	Evacuate system, apply static charge, leak test system, and repair leak as necessary.
	Restriction in refrigerant system	Check for kinked hoses.
	Restriction in expansion valve	Contact your Freeman dealer.

Symptom	Problem	Solution
System will not produce sufficient cooling **Continued.....**	Restriction in receiver/dryer	Contact your Freeman dealer.
	Compressor shaft seal leaking	Replace the compressor shaft seal.
	Excessive moisture in system, causing expansion valve freeze up	Drain and recharge. Replace receiver-dryer.
	Clogged cab roof inlet panel	Remove and clean.
	Evaporator fins clogged	Blow out evaporator fins with compressed air.
	Too little refrigerant in system	Recharge system.
	Clogged screen in receiver-dryer	Discharge system, replace receiver-dryer. Then evacuate and charge system.
	Excessive moisture in system	Discharge system; replace receiver-dryer. Then, evacuate and charge system.
	Air in system	Discharge, evacuate, and charge system.
Hissing noise at expansion valve	Loss of refrigerant	Check sight glass for bubbles and system for leaks. Contact your Freeman dealer.
	Restriction in refrigerant system	Check for kinks in hoses. Check receiver-dryer for uniformity of temperature. If temperature is not uniform, contact your Freeman dealer.
Partial frosting and sweating of lines combined with poor cooling	Loss of refrigerant	Check sight glass for bubbles and system for leaks. Contact your Freeman dealer.
	Restricted or clogged liquid line	Contact your Freeman dealer.
	Expansion valve malfunctioning	Contact your Freeman dealer.

Symptom	Problem	Solution
Air conditioning system too noisy	Loose or excessively worn drive belt	Tighten or replace as necessary.
	Noisy clutch	Remove clutch for service or replacement as necessary.
	Compressor noisy	Check mountings and repair; remove compressor for service or replacement.
	Excessive charge in system	Discharge excess refrigerant until high-pressure gauge drops within specifications.
	Low charge in system	Check system for leaks; charge system.
	Excessive moisture in system	Replace receiver-dryer; evacuate and charge system.
Air conditioning system cools intermittently	Compressor clutch slipping	Slippage over a prolonged period will require that clutch be removed for service; may require adjustment for proper spacing.
	Unit icing up may be caused by excessive moisture in system, inoperative expansion valve, or faulty thermostat	Replace expansion valve; replace receiver-dryer if excess moisture is present; replace thermostat.
	Thermostat defective	Replace thermostat.
	Defective blower switch or blower motor	Remove defective part for service or replacement.
	Partially open, improper ground, or loose connection in compressor clutch coil or solenoid	Check connections or remove clutch coil or solenoid for service or replacement.
Compressor clutch cycles excessively or compressor stays off up to 15 minutes	Evaporator icing	Adjust controls correctly. (See Operator's Station section.) Open louvers. Clean filters. Move knob to warmer setting.
Bad smell (foul odor) in cab	Plugged drain tube. Dirty filters. Dirty cab	Blow out condensate tube. Clean filters. Vacuum out cab. Be certain weep valve in condensate drain tube is installed.

Symptom	Problem	Solution
Heater **Heater not heating**	Dirty recirculating filter	Clean filter.
	No thermostat in engine water outlet manifold	Install thermostat.
	Defective thermostat in engine water outlet manifold	Replace thermostat.
	Temperature control not functioning	Locate heater valve under training seat assembly. Turn key to accessories position, if water valve arm does not move with temperature control adjustment, contact your Freeman dealer.
	Kinked heater hose. Defective heater valve	Straighten or replace. Replace valve.
Drive System **Both wheels lack pulling ability on grade or pulling out of ditch**	Loose or worn controls	Check controls.
	FIELD-ROAD switch in ROAD position	Set switch to FIELD position.
	Internal park brakes dragging	Contact your Freeman dealer.
	Faulty relief valves	Replace.
	Failed motors/pumps	Replace.
	Low charge pressure	See “Low Charge Pressure” in this section.
	The baler is not designed to spin the wheels under all conditions	Contact your Freeman dealer if problem becomes excessive.
	Hydraulic oil overheated	See ”Hydraulic Oil Overheats” in this section.

Symptom	Problem	Solution
Both wheels will not pull in forward or reverse	Low on oil	Check hydrostatic oil level and wheel drives.
	Tow disconnects still out	Engage wheel drives.
	Steering controls worn or loose	Check control lever and steering for loose, worn, or broken ball joints and ball joint rods.
	Internal park brakes dragging	Contact your Freeman dealer.
	Faulty relief valves	Replace.
	Clogged charge pump suction screen in reservoir	Clean screen.
	Low charge pressure	See “Low Charge Pressure” in this section.
	Failed pump	Replace.
One wheel does not pull in forward or reverse	Tow disconnect still out	Engage wheel drive.
	Steering controls worn or loose	Check control lever and steering for loose, worn, or broken ball joints and ball joint rods.
	Internal parking brakes dragging	Contact your Freeman dealer.
	Failed pump, motor, or wheel drive	Contact your Freeman dealer.
	Faulty relief valve	Contact your Freeman dealer.
Excessive noise from drive system	FIELD-ROAD switch in ROAD position	Set switch to FIELD position.
	Brakes noisy	See ”Dragging Or Overheating” in INTERNAL PARK BRAKES, in this section.
	Faulty pump or motor	Contact your Freeman dealer.
	Cab mounts defective	Contact your Freeman dealer.
Baler will not run full speed in field or road	Low charge pressure	See “Low Charge Pressure” in this section.

Symptom	Problem	Solution
Leaking seals or covers on pumps or motors	Case pressure too high	Check for kinked hose or other restrictions in drain lines.
Low charge pressure	Plugged charge pump suction screen in reservoir	Clean screen.
	Low on oil	Check for leaks and correct. Fill reservoir.
	Malfunctioning priority valve	Contact your Freeman dealer.
	Worn charge pump	Replace.
	Plugged filter	Replace filter.
	Malfunctioning shuttle valve in baler drive motor	Check motor for sticking valve spools or broken springs.
Hydraulic oil overheats	Low oil supply	Fill system with correct oil.
	Oil cooler air passages clogged	Clean oil cooler.
	Clogged hydrostatic filter	Replace filter.
	Platform drive motor shuttle spool	Contact your Freeman dealer.
	Faulty check valve on baler motor	Replace. Contact your Freeman dealer.
	Operating in transport mode on hilly terrain	Set ground drive speed switch to FIELD position
Hydraulic oil leak	Loose fitting	Tighten fitting.
	Damaged O-ring on fitting or hose	Replace O-ring. Tighten right-angle fittings by hand, then back out to required orientation.
	Fitting seal surface scratched or nicked	Replace fitting.

Symptom	Problem	Solution
Electrical **Low voltage and/or battery will not charge**	Defective battery (possibly due to low water level.)	Replace battery. Maintain water level.
	Low engine speed	Increase speed.
	Wet or dirty battery	Keep clean and dry.
	Loose or corroded connections	Clean and tighten battery connections.
	Dirty or defective alternator, defective voltage regulator, or high resistance in circuit	Contact your Freeman dealer.
	Loose or defective fan belt	Check automatic belt tensioner. Replace worn belt.
	Alternator or voltage regulator not functioning properly	Contact your Freeman dealer.
Starter cranks slowly or will not operate	Relay not functioning	Check relay and wire connections.
	Starter solenoid not functioning	Check solenoid and wire connections.
	Loose or corroded battery connections	Clean and tighten loose connections.
	Steering wheel or hydrostatic ground drive lever not in neutral	Put hydrostatic ground drive lever in neutral and center steering wheel.
	Key switch worn or terminals loose	Check switch and terminals.
	Too high viscosity crankcase oil	Drain and fill crankcase with oil of proper viscosity and quality.
	Faulty starter	Replace starter.
	Neutral interlocks not set	Check switches at hydrostatic lever neutral park position and at steering assembly under the cab.
	Defective neutral start relay	Replace relay.

Symptom	Problem	Solution
Lights dim	High resistance in circuit or poor ground on lights	Check the wiring circuit for a break in a wire or a poor ground.
	Defective light switch	Replace switch.
	Poor ground	Check ground cable under cab, and between engine and main frame, for loose connection or corrosion.
Lights will not light	Defective light switch	Replace switch.
	Open wiring, circuit breaker, or fuse	Check wiring for broken wire or shorts. Check circuit breaker or fuse.
	Defective light	Replace.
	Poor ground	Check ground cable under cab, and between engine and main frame, for loose connection or corrosion.
Turn signals do not operate	Controller faulty	Replace warning light display.
	Defective light	Replace light.
	Open wiring or fuse	Check wiring and replace fuse.
	Defective relay	Replace relay.
	Poor ground	Check ground cable under cab, and between engine and main frame, for loose connection or corrosion.
Warning lights do not operate	Controller faulty	Replace warning light display.
	Defective relay	Replace relay.
	Open wiring or fuse	Check wiring and replace fuse.
	Defective light	Replace light.

Symptom	Problem	Solution
Warning lights do not operate	Faulty light switch	Replace switch.
Continued...	Poor ground	Check ground cable under cab, and between engine and main frame, for loose connection or corrosion.
No current to cab	Solenoid stuck or defective	Replace solenoid.
	Wiring or circuit breaker open	Check wiring for a broken or shorted wire.
	Poor ground	Check ground cable under cab, and between engine and main frame, for loose connection or corrosion.
Steering and ground speed controls	Centering spring incorrectly adjusted	Readjust centering spring.
Machine will not steer straight, tends to wander when steering is held still	Centering cable broken	Replace.
	Centering cable caught on something	Inspect cable for catching.
	Centering spring broken	Replace.
	Binding linkage(s)	Check linkage(s) for interference or bent parts.
	Steering binding in steering column when tilted	Contact your Freeman dealer.
Baler moves on flat ground with ground speed lever in neutral and steering wheel centered	Ground Drive Controls out of adjustment	Contact your Freeman dealer.
Ground speed surges while steering	Loose or worn hydro cable	Tighten cable joints or replace cable.
Ground speed handle hard to move and/or baler pulls randomly to both sides	Hydro pump jackshaft control levers not pivoting freely on jackshaft	Clean shaft and pivots. Grease jackshaft control lever pivots.
Ground speed control lever hard to move	Control cable worn	Replace.
	Damaged dampener	Replace.

Symptom	Problem	Solution
Ground speed control handle has excessive free movement	Control cable worn	Replace cable.
Internal park brakes dragging or overheating	Low charge pressure	See DRIVE SYSTEM, ”Low Charge Pressure” in this section.
	Electro-hydraulic valve malfunctioning	Contact your Freeman dealer.
Throttle **Throttle does not work or engine high idle speed too low** **(See your engine Manufactures Operators Manual)**	Injection pump spring loaded throttle lever not hitting high and low stops	Adjust throttle rod for slight over travel at high and low stops.
	Throttle motor defective	Replace.
	Faulty switch	Replace.
Tires **Baler raising and lowering repetitively near maximum transport speed**	Tire pressure too low or too high	Check tire air pressure in front and rear tires.
Internal park brakes **Loss of brake capacity**	Worn brake disks	Contact your Freeman dealer.
Brakes dragging or overheating	Low charge pressure	See DRIVE SYSTEM, ”Low Charge Pressure” in this section.
	Electro-hydraulic valve malfunctioning	Contact your Freeman dealer.
Seat **Excessively rough ride**	Seat suspension not adjusted	Adjust to operator’s weight.
	High air pressure in tires	Inflate to proper pressure.

Symptom	Problem	Solution
Digital Display and Speed Monitoring System **Number not displayed for any one function**	Sensor not properly adjusted	Adjust sensor.
	Defective wiring or loose or corroded connections	Repair wiring. Clean and tighten connections.
	Defective sensor	Replace sensor.
	Defective display unit	Contact your Freeman dealer.
Display shows erratic or incorrect ground speed	Incorrectly inflated tires	Correctly inflate tires.
	Display unit not correctly calibrated	Contact your Freeman dealer.
Radio **Radio not operating**	Start switch in “OFF” position	Turn key to ”ACCESSORIES AND RUN” or ”ACCESSORIES”.
	Open fuse	Replace fuse.
	Poor connection to radio	Check wiring harness.
	Poor connection to speakers	Check wiring harness.
Poor reception	Station improperly tuned in	Tune station with tuning control.
	Push-button improperly set	Set push-button to correct frequency.
	Antenna in improper position	Place antenna in upright position.
	Poor antenna connection	Check antenna cable connection.
	Uneven speaker balance	Set balance control.
	Faulty suppression capacitor in alternator	Replace capacitor.
	Faulty antenna	Replace antenna.
	Faulty speaker	Replace speaker.
Interference from business band/CB radio	Business band/CB radio antenna improperly installed	Change antenna location. Left-hand side is ideal location. Ground antenna base and shield in antenna cable. Minimize cable length.

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