SRB-870
MINI-ROUND BALER

INSTRUCTION MANUAL

APRIL 2019

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SAFETY SIGNAL WORDS

Note the use of the signal words DANGER, WARNING and CAUTION with the safety messages. The appropriate signal word for each has been selected using the following guidelines:

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

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

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

GENERAL SAFETY GUIDELINES

Safety of the operator is one of the main concerns in designing and developing a new piece of equipment. Designers and manufacturers build in as many safety features as possible. However, every year many accidents occur which could have been avoided by a few seconds of thought and a more careful approach to handling equipment. You, the operator, can avoid many accidents by observing the following precautions in this section. To avoid personal injury, study the following precautions and insist those working with you, or for you, follow them.

Replace any CAUTION, WARNING, DANGER or instruction safety decal that is not readable or is missing. Location of such decals is indicated in this booklet.

Do not attempt to operate this equipment under the influence of drugs or alcohol.

Review the safety instructions with all users annually.

This equipment is dangerous to children and persons unfamiliar with its operation. The operator should be a responsible adult familiar with farm machinery and trained in this equipment's operations. **Do not allow persons to operate or assemble this unit until they have read this manual and have developed a thorough understanding of the safety precautions and of how it works.**

To prevent injury or death, use a tractor equipped with a Roll Over Protective System (ROPS). Do not paint over, remove or deface any safety signs or warning decals on your equipment. Observe all safety signs and practice the instructions on them.

Never exceed the limits of a piece of machinery. If its ability to do a job, or to do so safely, is in question - **DON'T TRY IT.**

SAFETY DECAL CARE

- Replace safety signs that are missing or have become illegible.
- Replaced parts that displayed a safety sign should also display the current sign.
- Safety signs are available from your Distributor or Dealer Parts Department or the factory

How to Install Safety Signs:

- Be sure that the installation area is clean and dry.
- Decide on the exact position before you remove the backing paper.
- Remove the smallest portion of the split backing paper.
- Align the decal over the specified area and carefully press the small portion with the exposed sticky backing in place.
- Slowly peel back the remaining paper and carefully smooth the remaining portion of the decal in place Small air pockets can be pierced with a pin and smoothed out using the piece of decal backing paper

BEFORE OPERATION

- Do not wear loose-fitting clothing, which may catch in moving parts.
- Always wear protective clothing and substantial shoes.
- Assure that all tires are inflated evenly.
- Give the unit a visual inspection for any loose bolts, worn parts or cracked welds, and make necessary repairs. Follow the maintenance safety instructions included in this manual.
- Be sure that there are no tools lying on or in the equipment.
- Do not use the unit until you are sure that the area is clear, especially children and animals.
- new equipment.
- Practice operation of your equipment and its attachments. Completely familiarize yourself and other operators with its operation before using.
- Use a tractor equipped with a Roll Over Protective System (ROPS) and fasten your seat belt prior to starting the engine.
- The manufacturer does not recommend usage of tractor with ROPS removed.
- Move tractor wheels to the widest recommended settings to increase stability.
- Securely attach to towing unit. Use a high strength, appropriately sized hitch pin with a mechanical retainer and attach safety chain.
- Do not allow anyone to stand between the tongue or hitch and the towing vehicle when backing up to the equipment.

DURING OPERATION

- Children should not be allowed on the product.
- Clear the area of small children and bystanders before moving the feeder.
- If using a towing unit, securely attach feeder by using a hardened 3/4" pin, a metal retainer, and safety chains if required. Shift towing unit to a lower gear before going down steep downgrades, thus using the engine as a retarding force. Keep towing vehicle in gear at all times. Slow down for corners and rough terrain.
- Make sure you are in compliance with all local and state regulations regarding transporting equipment on public roads and highways. Lights and slow moving signs must be clean and visible by overtaking or oncoming traffic when feeder is transported.
- Beware of bystanders, **particularly children**! Always look around to make sure that it is safe to start the engine of the towing vehicle or move the unit. This is particularly important with higher noise levels and quiet cabs, as you may not hear people shouting.
- **NO PASSENGERS ALLOWED** - Do not carry passengers anywhere on, or in, the tractor or equipment, except as required for operation.
- Keep hands and clothing clear of moving parts.
- Do not clean, lubricate or adjust your equipment while it is moving.
- When halting operation, even periodically, set the tractor or towing vehicle brakes, disengage the PTO, shut off the engine and **remove the ignition key**.
- Be especially observant of the operating area and terrain - watch for holes, rocks or other hidden hazards. Always inspect the area prior to operation.
- **DO NOT** operate near the edge of drop-offs or banks.
- **DO NOT** operate on steep slopes as overturn may result.
- Operate up and down (not across) intermediate slopes. Avoid sudden starts and stops.

DURING OPERATION

- Adopt safe driving practices:
- Keep the brake pedals latched together at all times. **NEVER USE INDEPENDENT BRAKING WITH MACHINE IN TOW AS LOSS OF CONTROL AND/OR UPSET OF UNIT CAN RESULT.**
- Always drive at a safe speed relative to local conditions and ensure that your speed is low enough for an emergency stop to be safe and secure. Keep speed to a minimum.
- Reduce speed prior to turns to avoid the risk of overturning.
- Avoid sudden uphill turns on steep slopes.
- Always keep the tractor or towing vehicle in gear to provide engine braking when going downhill. Do not coast.
- Do not drink and drive!
- Comply with state and local laws governing highway safety and movement of farm machinery on public roads.
- Use approved accessory lighting flags and necessary warning devices to protect operators of other vehicles on the highway during daylight and nighttime transport. Various safety lights and devices are available from your dealer.
- The use of flashing amber lights is acceptable in most localities. However, some localities prohibit their use. Local laws should be checked for all highway lighting and marking requirements.
- When driving the tractor and equipment on the road or highway under 40 kph (20 mph) at night or during the day, use flashing amber warning lights and a slow moving vehicle (SMV) identification emblem.
- Plan your route to avoid heavy traffic.
- Be a safe and courteous driver. Always yield to oncoming traffic in all situations, including narrow bridges, intersections, etc.
- Be observant of bridge loading ratings. Do not cross bridges rated lower than the gross weight as which you are operating.
- Watch for obstructions overhead and to the side while transporting.
- Always operate equipment in a position to provide maximum visibility at all times. Make allowances for increased length and weight of the equipment when making turns, stopping the unit, etc.
- Pick the levelest possible route when transporting across fields. Avoid the edges of ditches or gullies and steep hillsides.
- Be extra careful when working on inclines.
- Maneuver the tractor or towing vehicle at safe speeds.
- Avoid overhead wires or other obstacles. Contact with overhead lines could cause serious injury or death.
- Avoid loose fill, rocks and holes; they can be dangerous for equipment operation or movement.
- Allow for unit length when making turns.
- Operate the towing vehicle from the operator's seat only.
- Never stand alongside of unit with engine running or attempt to start engine and/or operate machine while standing alongside of unit.
- Never leave running equipment attachments unattended
- As a precaution, always recheck the hardware on equipment following every 100 hours of operation. Correct all problems. Follow the maintenance safety procedures.

ASSEMBLY

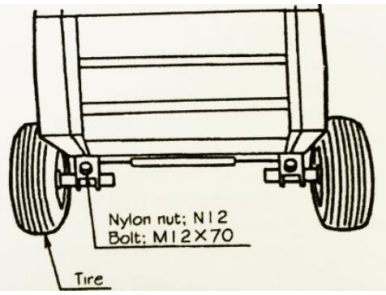
1. **Packing**

   The PTO shaft, rope and electrical connections are stored in the front twine storage compartment. The tires are stored inside the bale opener door. In order to access the bale door, attached to a tractor and lift it hydraulically or if this is not available, unbolt the hydraulic bale door cylinder, manually hold up the hook" of the top cover rod and lift the rear bale door.

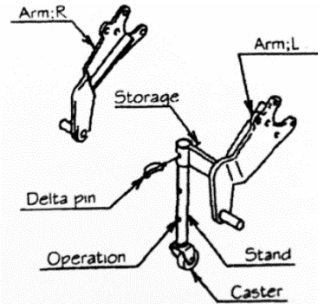
   Caution, door is very heavy and should be done with at least two persons.

2. **Assembling**

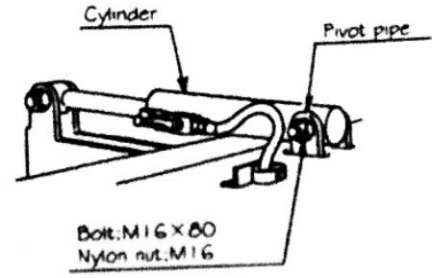
   a. assemble the tires on the machine and secure them with 12 x 70 bolt and jam nut. There are two positions in which the tires can be mounted. Assemble them so they do not track behind the tractor wheel tracks.



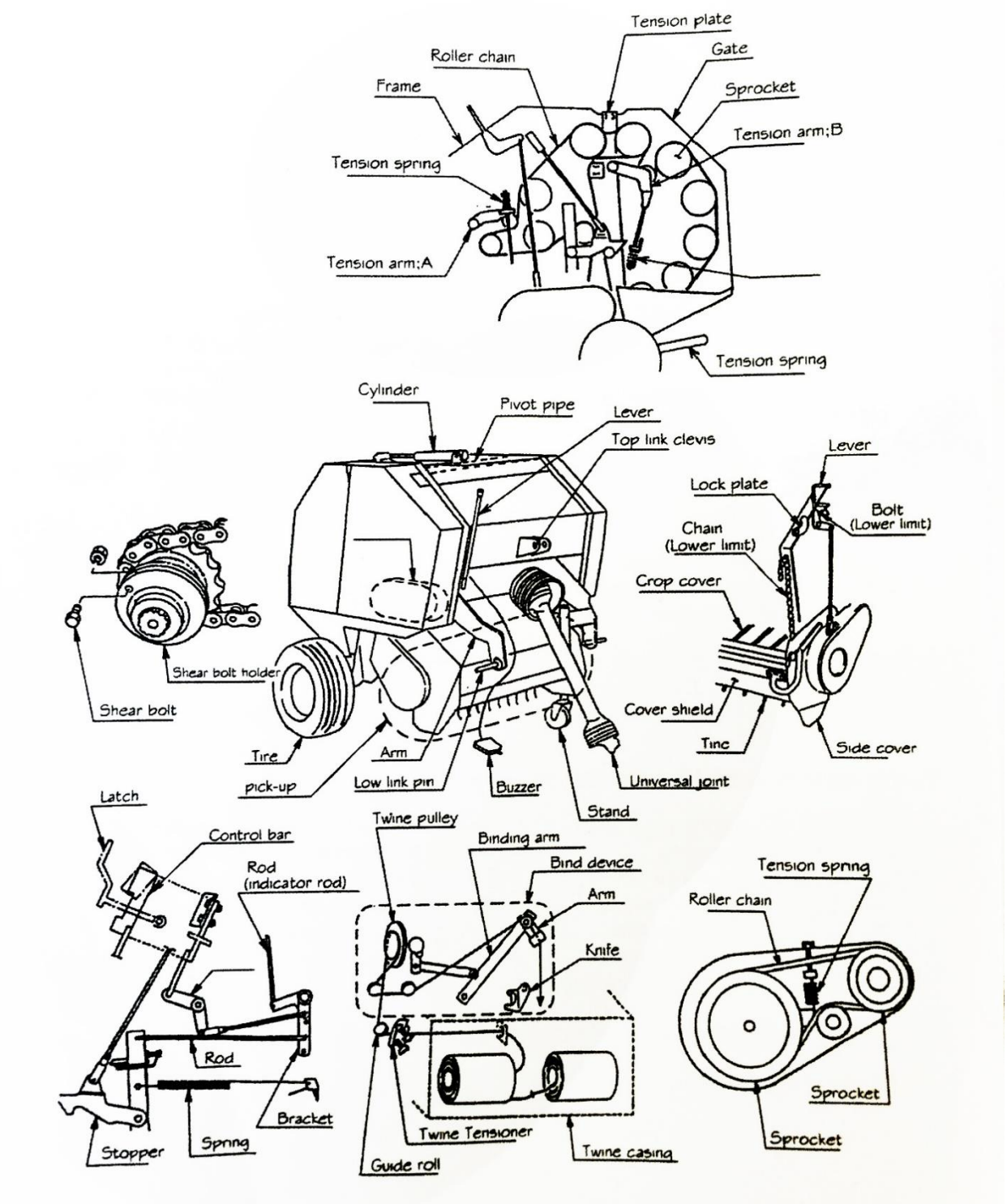
   b. Mount the front swivel caster.



   c. (If not already done) Extend the rod of hydraulic and align the hole of barrel and the hole of pivot pipe. Then assemble with bolt.

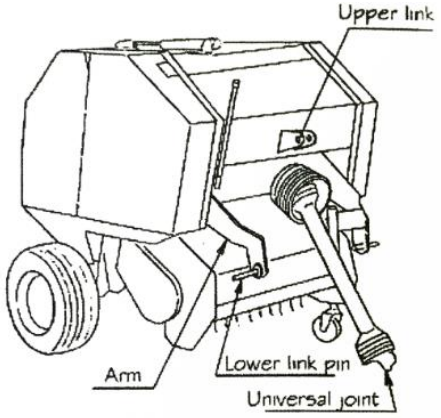


Basic Parts

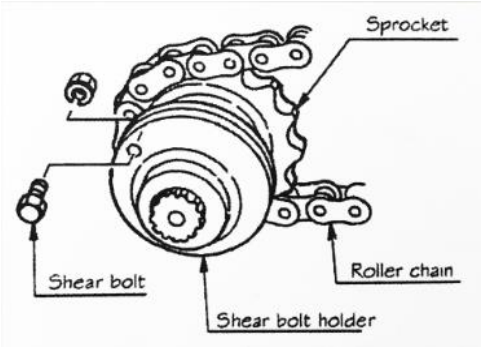

Tension plate
Gate
Roller chain
Frame
Sprocket
Tension arm;B
Tension spring
Tension arm;A
Tension spring
Cylinder
Pivot pipe
Lever
Top link clevis
Lever
Lock plate
Bolt
(Lower limit)
Chain
(Lower limit)
Crop cover
Shear bolt holder
Shear bolt
Cover shield
Tine
Side cover
Tire
pick-up
Arm
Low link pin
Buzzer
Universal joint
Stand
Latch
Control bar
Rod
(indicator rod)
Twine pulley
Binding arm
Bind device
Arm
Knife
Tension spring
Roller chain
Rod
Bracket
Stopper
Spring
Twine Tensioner
Twine casing
Guide roll
Sprocket
Sprocket

Parts and their Functions

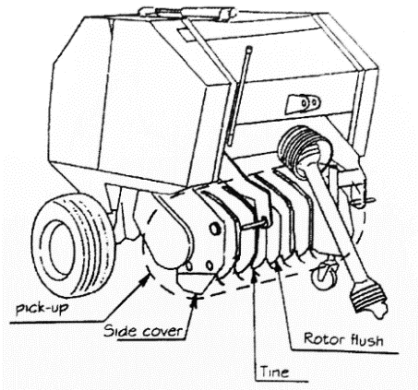
1. **Lower Link Pin and Upper Link**
   Lower link pin and upper are connection with the tractor lower links and top link.



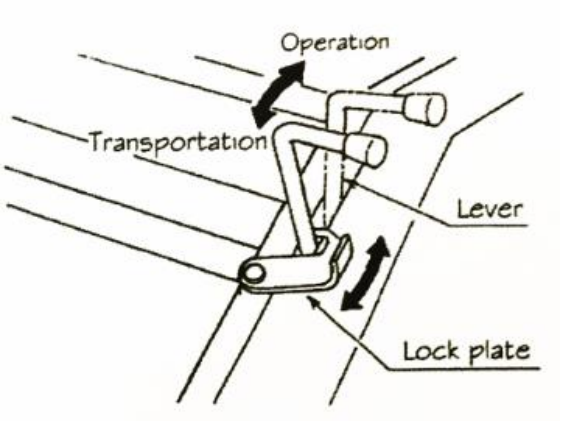
2. **Shear Bolt**
   Shear bolt is sheared when overload affect to the machine for preventing from the damaged of the machine.



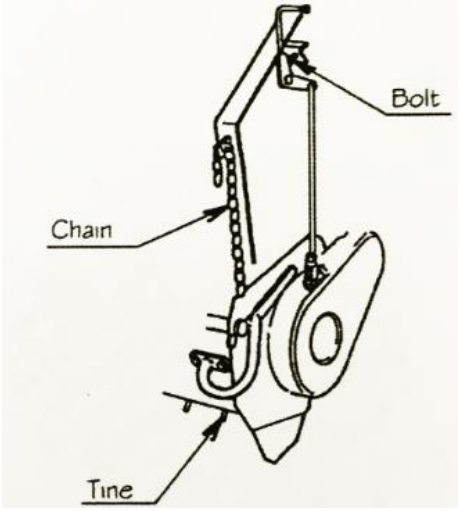
3. **Pick-Up**
   Pick-up is operated to pick-up baling material from the ground.



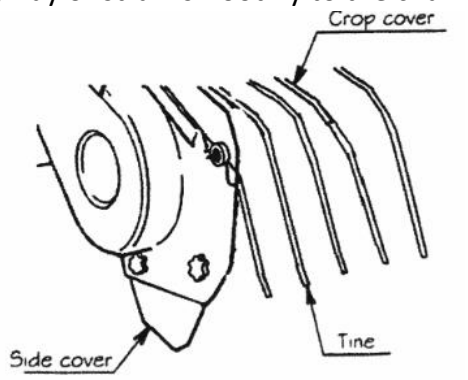
4. **Lever and Lock Plate**
   Pick-up is lifted and is held by the lock plate for transportation of the machine.
   Pick-up is lowered by releasing the lock plate.



5. **Chain and Bolt (Lower Limit)**
   Chain and bolt limit the height of pick-up tines from the ground.

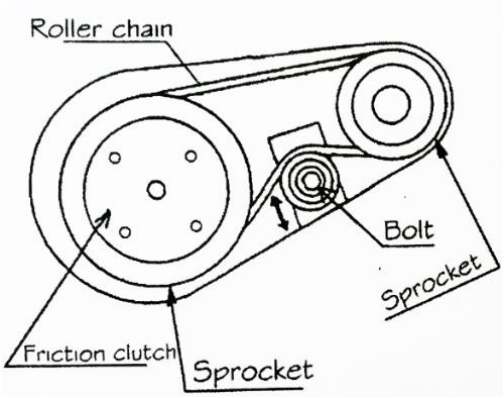


6. **Crop Cover, Cover Shield, and Side Cover**
   Crop cover helps to convey hay or straw smoothly to the chamber.



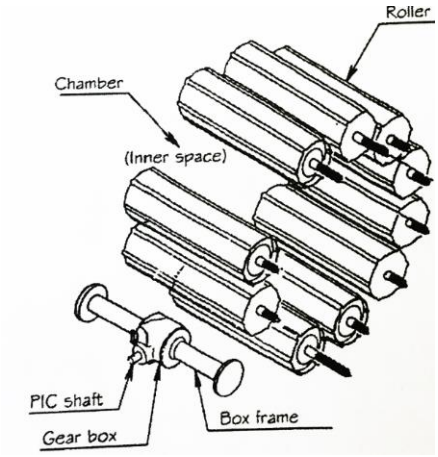
7. **Roller Chain and Sprocket**

   Roller chain transfers the power to drive pick-up. Friction clutch slips when overloaded, preventing damage of pick up.



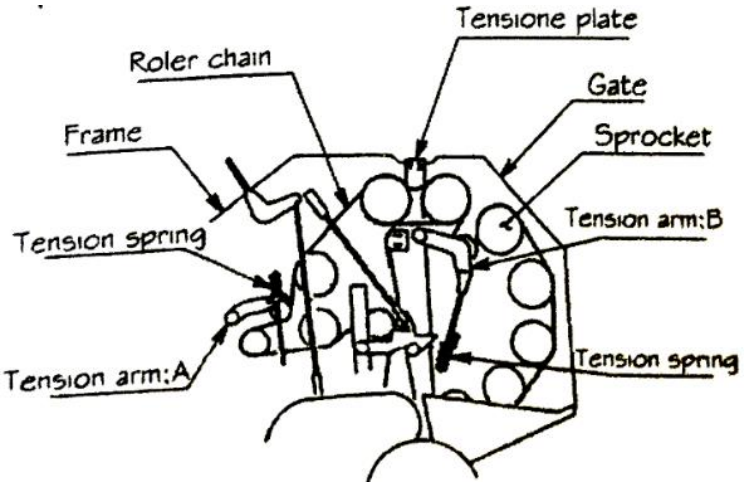
8. **Chamber and Roll**

   Chamber is formed by rolls. Rolls rotate themselves and rotate bailing material for making cylindrical material inside of chamber.



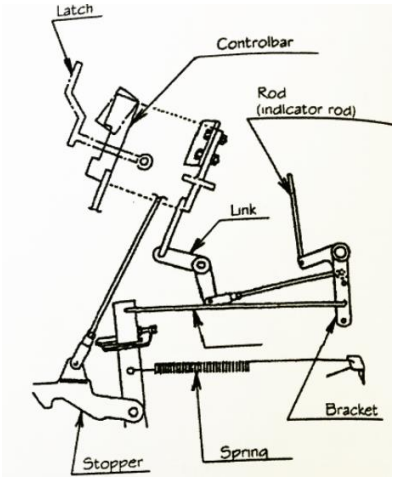
9. **Spring (Tension Spring)**

   Spring gives proper tension to roller chain.



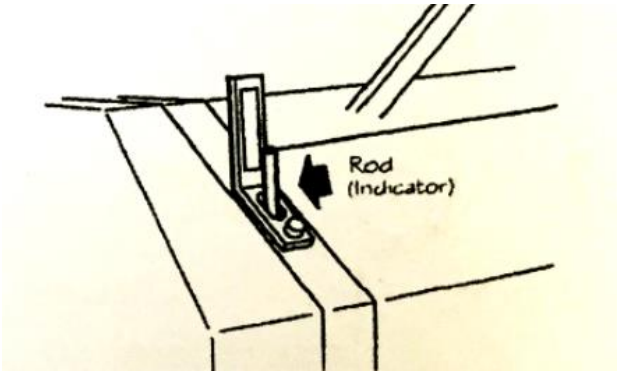
10. Rod and Bracket

Bale density can be adjusted by changing the rod position into the hole.



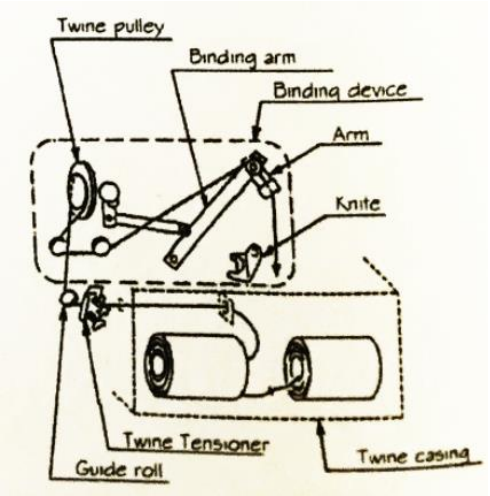
11. Rod (Indicator Rod)

Rod shows to the operator the progress of making bale.



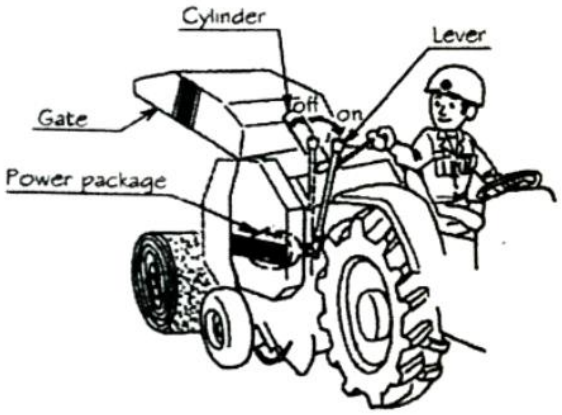
12. Binding Device

Binding device winds twine on a finished bale.



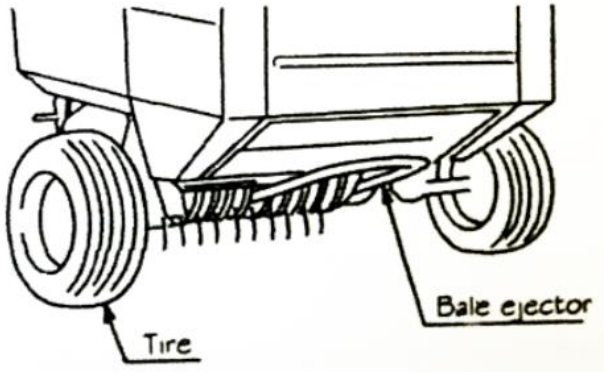
13. Hydraulic Power Package and Lever

Hydraulic power package actuates hydraulic cylinder to open and to close gate for bale ejaculation.



14. Bale Ejector

The Bale ejector rolls the finished bale far enough from the machine to allow gate to close.



Tractor Size

This machine is designed for Cat.1 tractors with HP ratings from 18-50. **ALWAYS TAKE CARE WHEN USING ON TRACTORS IN THE LOWER HP RANGE DUE TO BALER WEIGHT ON HILLS AND UNSTABLE TERRAIN**. Damage can occur if a higher than 50 HP tractors is used on this baler.

Attaching to a Tractor

1. With the baler on a level surface, back the Cat. 1 tractor so the tractor lift arms are even with the unit's lower hitch pins. Lower or raise the tractor hitch arms until the 7/8" bushing in the arm lines up with the lower hitch blocks. **Be sure nothing is between the tractor and the baler before backing up.**
2. Insert the lower hitch pin of the baler through the tractor arms.
3. Secure the lift arm in place by using a 7/16" lynch pin or another fastener.
4. Repeat with the other arm.
5. Connect the driveline to the tractor's PTO output shaft. Secure it in place.
6. Connect the tractor top link to the upper hitch point of the rotary tiller.

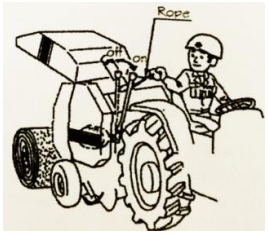
Start the tractor and slowly raise the baler. Check for drawbar interference. Be sure that the PTO driveline does not bottom out when lifting the machine to it's maximum height. If it does appear that it could bottom out, it is necessary to shorten the PTO driveline. (See Shortening a PTO Driveline section). Ensure that in the working position there is an overlap of a minimum of 1/3 the length of each profile

Warning

- Bystanders must keep a safe distance when the baler is attached to the tractor.

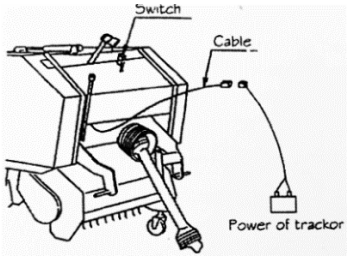
Caution

1. **Attachment of Power Package Operation Rope**
   Caution in Operation
   - Connect operation rope to the tractor so it will not come in contact with the PTO shaft and to have enough slackness not stretch in turning.
     The breaking end of rope is fixed inside of driver's cab (no effect to operation).



2. **Attachment of Buzzer**
   Caution in Operation
   - Adjust the length of electric cable to get enough slackness and not to stretch in turning.
   - Tie the surplus of electric cable with a string to the tractor.
   - Turn off the Switch when the machine is not used.

a. Attach the buzzer at suitable position for the operation.
b. Connection with accessorial ELECTRIC CABLE TO POWER OF TRACTOR (12V).



3. Method of Twine Threating

Warning

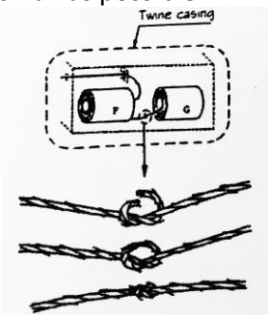
- Stop the tractor engine when twine is treading.

Caution in Operation

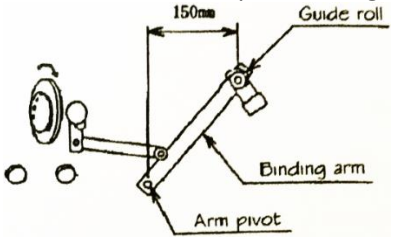
- Use only original twine TG0800 (Jute 8500 ft.)
- TP0800 (Polypropylene 1100 ft.)

a. Contain two twine spools in the twine casting.

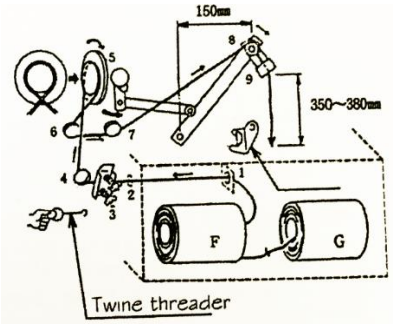
b. Connect the end of rope G.K not be made as small as possible.



c. Turn twine pulley to the direction of arrow until binding arm move from outside to side and then stop turning at horizontal distance 150 mm between tip of binding arm and pivot.



d. Thread twine tip order from 1 to 9. Use attached twine threader places where it is difficult thread twine. Cut the of twine by the length from 350 mm to 380 mm and hang it from binding arm tip.



Attaching the PTO shaft

Danger

- Never use PTO shaft with damaged safety cover or without safety cover.
- Inspect it if damage is found out on PTO shaft.
- Stop the tractor engine and disengage PTO clutch when PTO shaft is attached.
- Fix chains of safety cover to the tractor and stationery part of the machine not to rotate safety cover.

Caution

- If overlap length between inner and outer tube of PTO shaft is less than 100 mm in extended position, it will be a cause of PTO shaft breakage.
  If the space between inner and outer tube is less than 25 mm in retracted position, it will be a cause of damage.
  By pushing to each other when the machine is lifted.

Shortening a PTO Driveline

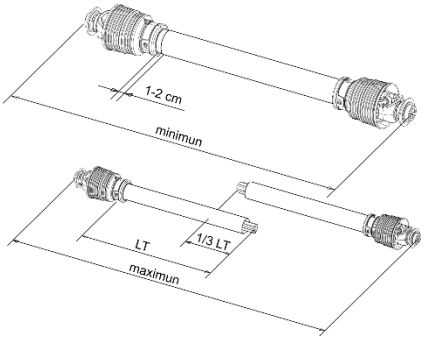
1. With the implement attached to the tractor's three point hitch, and the PTO driveline not installed, separate the PTO driveline. Attach the implement end to the implement and the other end to the tractor PTO input shaft.

2. Raise the implement by using the tractor's hydraulic 3-point hitch to it's maximum lift height.

3. Hold the half shafts next to each other and mark them so each end is approximately ½" from hitting the end of the telescopic profiles.

4. Shorten the inner and out guard tubes equally.

5. Shorten the inner and outer profiles by the same length as the guard tubes. Using a rattail file, round off all sharp edges and burrs. Grease the telescopic profile generously before reassembling.



Inspection Before Operation

1) Inspection of the tractor parts

Inspect the tractor parts in accordance with operation manual of the tractor.

2) Inspection of connecting parts

I. Inspection of 3P connecting parts

a. Make sure that locking pin is inserted into the hole of low link pin.
b. Make sure that locking pin is inserted into a hole of top link pin.
c. Make sure that check chains of the tractor are stretched firmly.
d. If any problem is found in connection, remedy the problem according to the instruction “1-4 Attachment to tractor”

II. Inspection of PTO shaft

a. Make sure that cramp pins stay in the groove of PTO shaft and PIC shaft.
b. Make sure that chain of safety cover has excess slackness.
c. Check the damage on safety cover of PTO shaft.
d. If any problem is found on PTO shaft, remedy the problem according to the instruction “1-5 Attachment of PTO shaft”

3) Inspection of the machine

a. Check looseness of nuts and bolts.
   Tighten loosen nuts and bolts firmly.
b. Check if the shear bolt is sheared or not.
   If it is sheared replace to new one referring sufficient. To the parts list.
   Beforehand, prepare for replacement shear bolts.
c. Check if roller chain is properly stretched.
   Adjust it in accordance with the instruction “5-2-1 Adjustment of roller chain stretch.”
d. Check the length of pick up tension if the length is improper, adjust the length in accordance with the instruction of “5-2-2 Pick-up V-belt tension adjustment.”
e. Check the length of twine tensioner.
   If the length is improper, adjust it in accordance with the instruction “5-2-3 Adjustment of twine tensioner.”
f. Check the twine cutting blade for sharpness. Adjust the blade if necessary according to this manual.
g. Check if twine is enough, twine is threaded properly and binding arm is in proper position.
   If any problem is found, solve it in accordance with the instruction “1-4-4 Method of twine treading.”
h. Check damage of tine and rotor flush.
   If it is damaged, replace it to a new one by referring to parts list.
i. Check stuck hay or straw in the machine.
   Remove stuck crop from the machine.
j. Check application of oil and grease. If it is not applied properly lubricated in accordance with the instruction “2-3 Lubrication spots table.”
k. Check if tire air pressure is sufficient. If it is Insufficient, apply air until the pressure becomes 195kPa (2.0Kg/m^2).

4) Inspection with tractor engine running

I. Inspection of the tractor hydraulic

Raise the baler using the tractor hydraulics.

II. Inspection of machine hydraulic system.

a) Inspection of machine hydraulic system for gate opening and closing.

Warning

- Bystanders must be away from the machine when gate is opened.

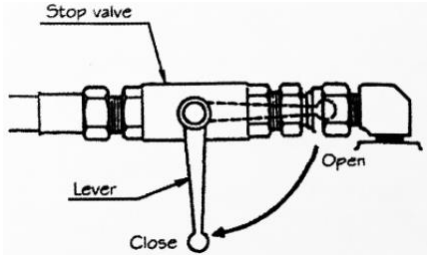
Warning

- By standers must be away from the machine when gate is opened.
  Lock gate by the stop valve when the machine is checked in the gate opening situation.

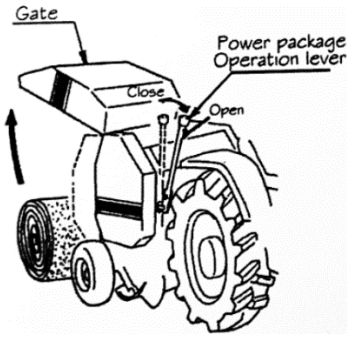
Caution

- If the hydraulic hose is damaged or hydraulic fitting is loose, it will be cause of injuring by leaking high pressured hydraulic oil or suddenly dropping of the machine.
  Replace damaged hydraulic hose or fittings and fittings loosen fittings.

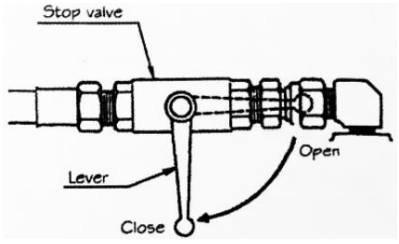
(1) Turn lever of stop valve for gate opening and closing to “Opening” position.



(2) Start the tractor engine and engage PTO to rotate PTO shaft and then open gate by operating lever package.

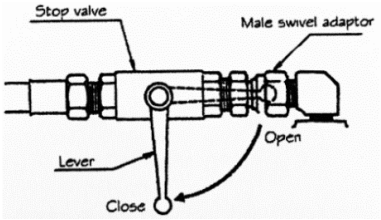


(3) Turn lever of stop valve to “close” while pulling the lever of the power package at full opened gate position.



(4) If the gate does not come down, it has no trouble. If gate comes down, check oil leakage and repair, or replace damaged part.

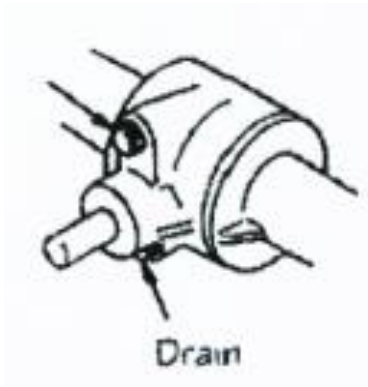
(5) Close the gate by turning slowly lever of the stop valve to “Open” direction. If the air remains in the hose or cylinder, loosen male adapter, and let the air out it. Tighten swivel adapter after releasing air.



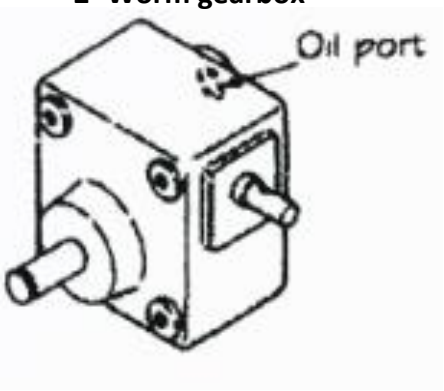
Lubrication

- Apply fresh and clean oil and grease the machine.
- Apply grease to a grease nipple until old grease comes out.

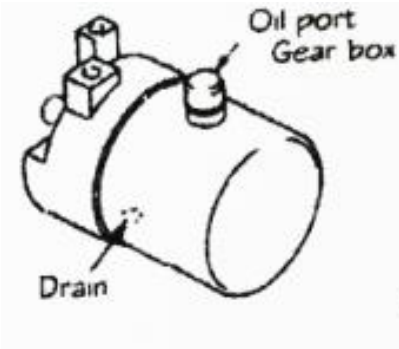
1- Gearbox



2- Worm gearbox



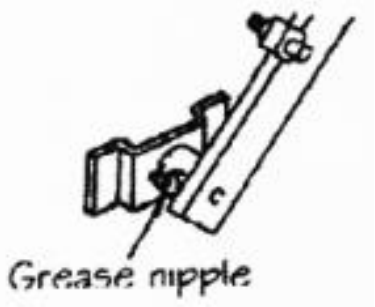
3-Power package



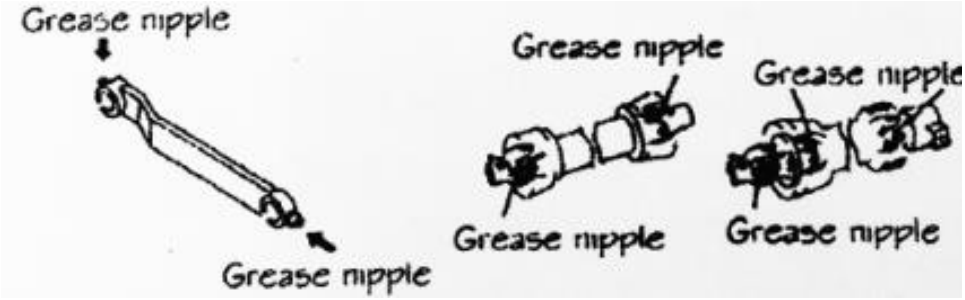
4- Housing

5- Sprocket

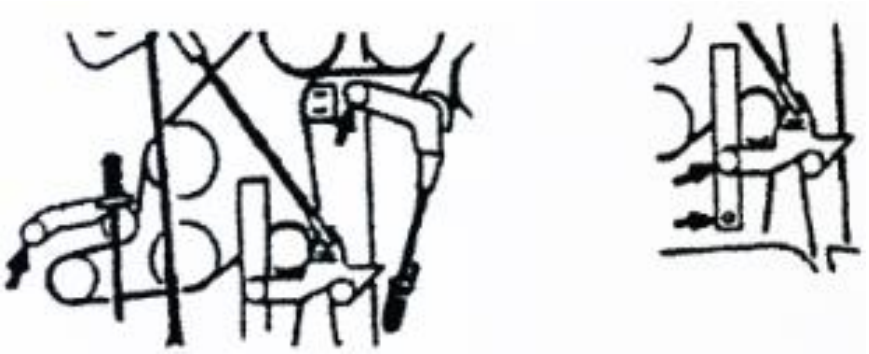
6- Arm support



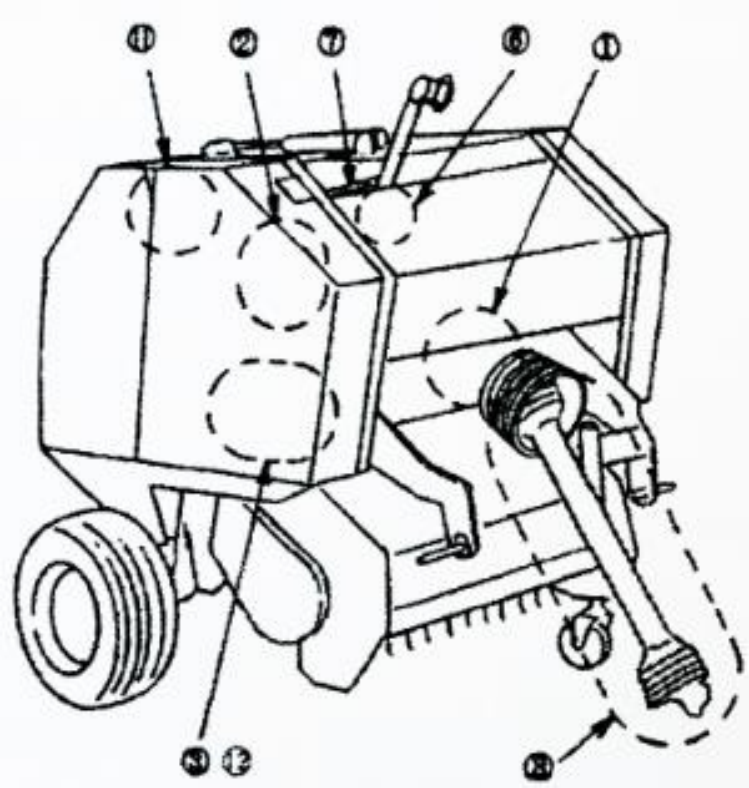
7-Crank Bar **8- PTO shaft**

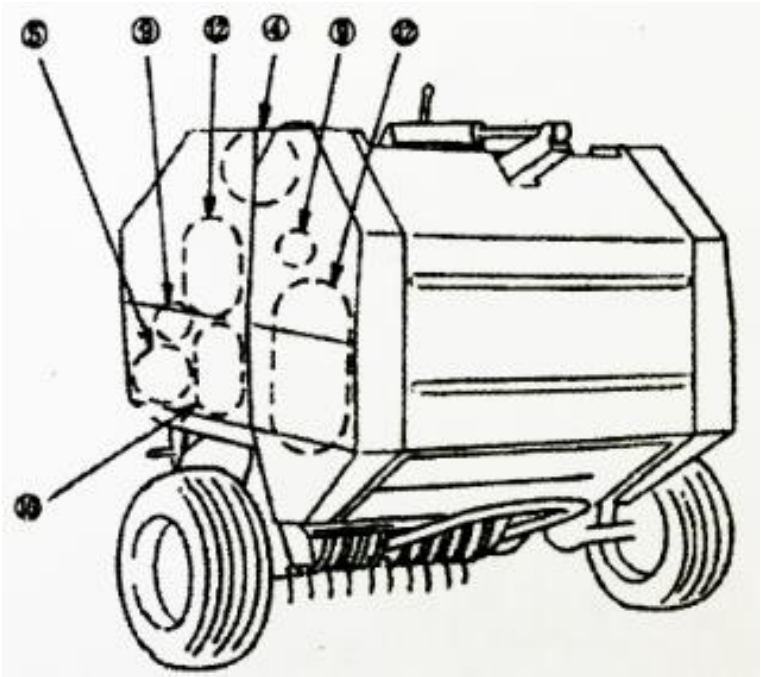


9- Tension arm pivot **10- Link pivot**



11- Gate pivot **12- Roller chain**





NO.	Lubrication Points	#	Type Lubrication	Time	Qty.	Remarks
1	Gearbox	1	Gear oil; SAE 90	After 100 hr. / one season	500g	Discharge gearbox, cleaning before oiling
2	Worm Gearbox		Gear oil; SAE 90			Gearbox tank
3	Power Package	1	Hydraulic oil	Every 100 hr.	1.5L	
4	Housing	2	Grease; # 3		Proper qty.	Grease nipple
5	Sprocket	1	Grease; # 3	After Operation	Proper qty.	Grease nipple
6	Arm Support	1	Grease; # 3	After Operation	Proper qty.	Grease nipple
7	Crack Bar	2	Grease; # 3	After Operation	Proper qty.	Grease nipple
8	PTO shaft		Grease; # 3	After Operation	Proper qty.	Grease nipple
9	Tension Arm Pivot	2	Oiling	After Operation	Proper qty.	Grease nipple
10	Link Pivot	4	Oiling	After Operation	Proper qty.	
11	Gate Pivot	2	Oiling	After Operation	Proper qty.	
12	Roller Chain	4	Grease Application	After Operation	Proper qty.	

Operation Method

1. Purpose of this machine

(1) This machine is produced for bailing grass, rice straw and straw. Never use except for its intended purpose.

a) Bale for the hay which is less than 20% of moisture content.

b) Bale the grass for making wrapping silage which is between 50% and 60%

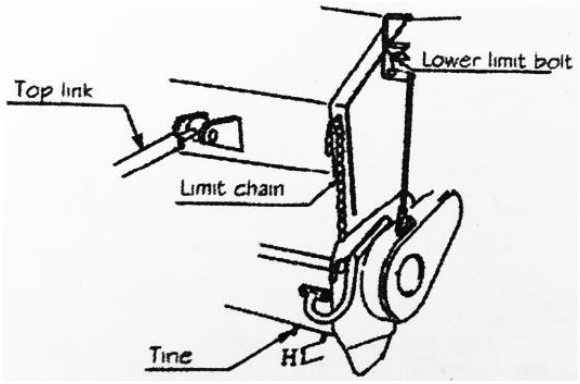
(2) Do not operate the machine after stopping rain of in muddy field. Operate the machine in well dried field.

2. Adjustment for operation.

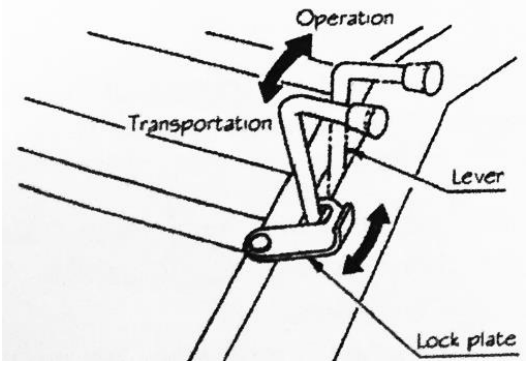
(1) Adjustment of pick-up tine the height from the ground

a. Adjust pick-up tine height from the ground by limit chain and lower bolt.
Fine adjustment is done by adjusting the length of the tractor top link

Baling material	H
Cut straw	0mm
Long straw / hay	20mm



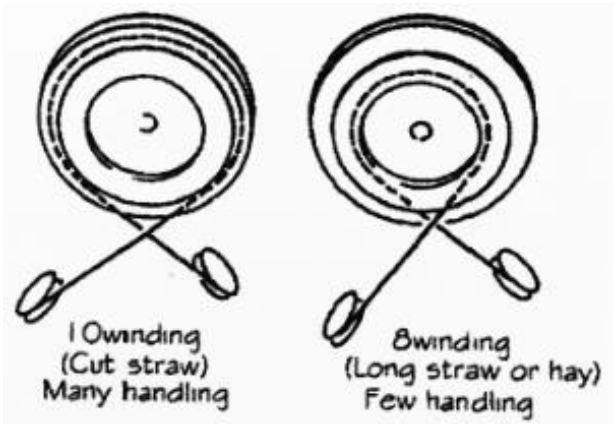
b. Select operation position and transport
Position by moving the lever and lock plate.



(2) Adjustment of twine winding number

Adjust the twine winding number according to baling condition and handing condition of bale.

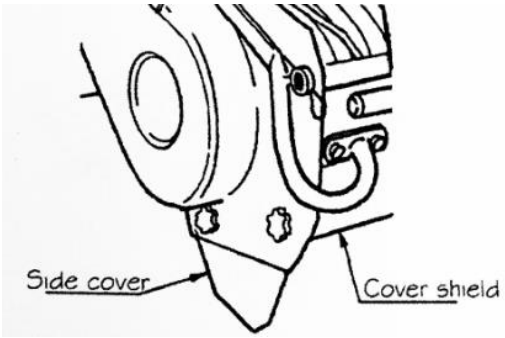
Winding Number	Corp	Handing	Twine pulley
10 8	Cut Straw Dried Straw ↑ ↓ Hay Long Straw	Many ↑ ↓ Few	Big dia. pulley Small dia. pulley



The winding number should be changed according to thickness of twine.
If the twine is thicker, the winding number must be more. Above table is standard.

(3) Adjustment of Cover Shield and Side Cover

Crop	Cover shield/side cover
Cut Straw	Attachment
Hay, long Straw	Removal



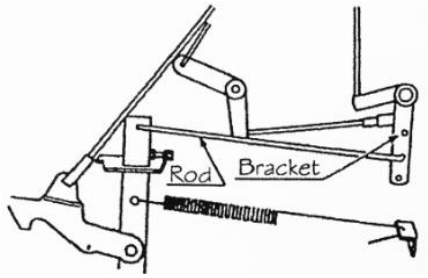
(4) Adjustment of the bale density

Caution

High density of bale requires high tractor PTO horse power.

Adjust bale density according to the tractor size, the field condition and the baling material.

a. Adjustment of the rod
   When the rod is inserted into higher position of bracket hole, lower density of bales is made.
   When the rod is inserted into lower position of bracket hole, higher density of bales is made.



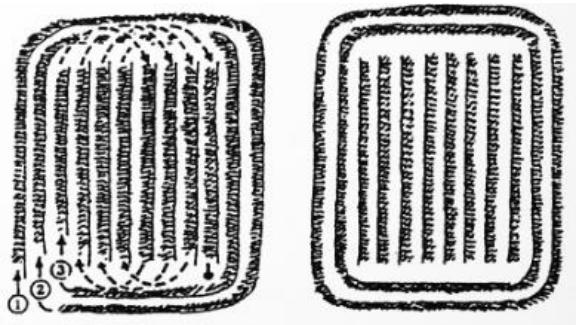
b. Adjustment by traveling speed lower traveling speed make higher density of bale.
   Adjustment the traveling speed according to condition of the operation.

3. Operation Method in field

(1) How to make the windrow

Make of window of the width from 70 cm to 80 cm and the height from 30 cm to 40 cm as uniformly as possible.

The windows which are made for efficiency and smooth operation are recommended.

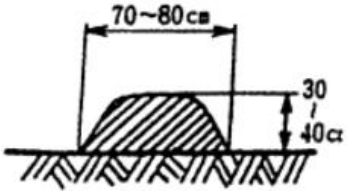


Order of making windows Finishing

Hay

Make windows as below

↓



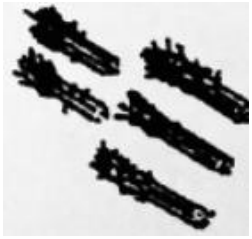
Long Rice Straw

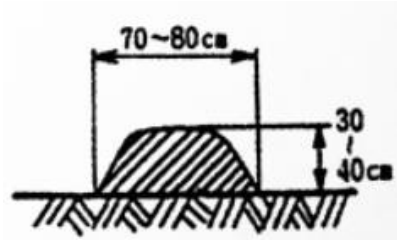
- Straw chop oil operation by ¾ rows rice combine harvester
  ↓

Operation by dropper of 2 rows rice combine harvester

- 2 rows direct drop

- Operation by dropper

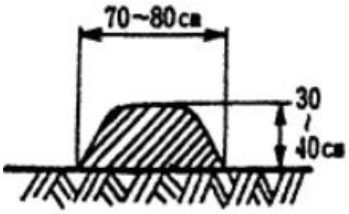




Cut Straw

- Direct straw pick up is possible
  ↓

- Operation after making that above



(2) Field Operation

Warning

- Bystanders must be away from the machine when pick-up is running.
  Stop the tractor engine when taking away.
  Stuck baling material from the pick-up.
- Never touch rotating rollers.
  Stop the engine of the tractor when taking away stuck grass between rollers.
  a. Put on the switch of the buzzer and rotate PTO and then travel the machine by striding over a window.
     Adjust PTO speed depending on baling material condition and the moisture content of it.

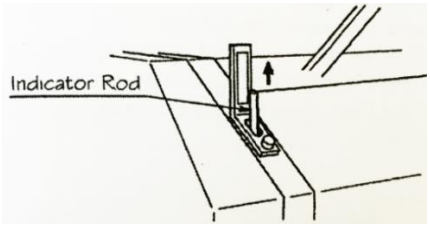
Baling Material condition* Moisture content	PTO speed
Standard	540 rpm
Dried* short	350-450 rpm
Moist*stuck pick up	540-600 rpm

Normal operation speed is 3-5 km/hr.

Adjust the operation speed depending round on the field condition.

Caution in operation

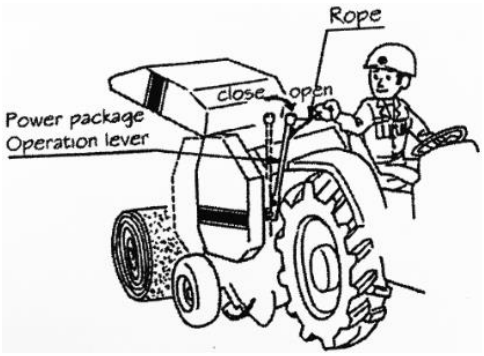
- Do not stop PTO while is binding round on a bale.
  b. Quantity of baling material inside of the chamber can know from the indicator.
  The indicator rod rises when a bale is coming to complete.



  c. When a bale reaches to complete, buzzer sounds and twine binds on a bale automatically.

Caution in operation

- If the twine binding will not start, forward about 1 m.
  d. When twine binding is finished, twine is cut and binding stops.
  Pull the rope of power package while PTO is running and open the gate and then eject a bale.



Warning

- Bystanders must be away from the machine when the gate is opened.
- Do not eject a bale at inclined field.
  Eject a bale always level field.
  e. Return level of power package after bale ejection to close gate and then start the operation.

Transportation

1st. Stop PTO of the tractor

2nd. Pull Down the lever and lock it by lock plate.

3rd. Switch off the buzzer

4th. Lift the machine by operating 3P lifting lever.

5th. Lock 3P of the tractor not to come down the machine in the transportation.

Storage

Maintain the machine for keeping long life.

Caution

- Never try to remove blocked material when the machine is running.
  Disengage clutch of PTO drive, stop tractor engine, and make sure all moveable parts stop.

(1) Maintenance after operation

1- Remove baling material from pick-up in the field.
2- Remove piled dust from the binding the binding unit.
3- Remove baling material stuck material on the rolls.
4- Removed dust from driving device in the side of the machine.
5- Replace damaged or worm parts to new ones.
6- Inspect diving and connection parts in accordance with inspection spots table.
7- Lubricate in accordance with lubrication spots table.
8- Apply grease on PTO shaft, PIC shaft, power joint and other parts which are not painted to prevent from the rust.
9- When the machine and tractor separate, column should be set down.
10- After machine and tractor separate, PTO shaft should be detached.

(2) Detaching from tractor

1- Slid down stand and insert pin into the highest
2- Lower hydraulic control lever of a tractor until tires of the machine contact with the ground.
3- Stop the tractor engine and apply parking brake.
4- Detach power joint from the tractor PTO shaft.
5- Detach right side of lower link, left side of lower link and top link.

(3) Storage in out of season

1- Clean every part of the machine
2- In spent moving parts and connecting p0arts in accordance with inspection and maintenance points table.

If any damaged or worn parts are found, they must be replaced with new ones.

3- Apply grease or oil in accordance with lubrication points table.
   Apply oil to rotating, pivoting part, and sliding parts such as clump pin of power joint.
   Apply grease on PTO shaft, PIC shaft, and pine holes of power from the rust.
4- Paint or apply oil on damaged surface of parts to prevent from the rust.
5- Store the machine in well ventilating indoor.
6- If there is no choice but to keep the machine in outdoor, cove the machine with a plastic sheet.

4. Inspection and Maintenance

Inspection and maintenance should be done regularly to obtain good condition.
Inspect and maintain each pad in accordance with inspection and maintenance table to prevent from accident by poor maintenance.
Since times, shear bolts, blades and twine are consuming pads, replace worn parts with new ones**.**

Warning

- Stop the tractor engine and disengage PTO when adjustment of twine binding device is done.
- Lock stop valve for fixing gate when inspection or adjustment is done at opening gate

(1) Inspection and Maintenance table

Hours	**Items for checking**	**Remedy**
After initial 1 hour operation	Looseness of all nuts and bolts Slackness of roller chains	Tightening Adjustment in accordance with “5-2-1 Tension adjustment of roller chain.

Before operation After operation (or before operation)	Cleaning up Wear of pick-up tines Wear of binding blade Shear of shear bolt Twine consumption Running out of battery cell for buzzer Tires air pressure Looseness and loss of nuts, bolts, and pins Abnormal noise or vibration in driving Breakage of power safety cover of roller chain cover Lubrication to rotating and moving parts Adjustment of each parts	Replacement Replacement Replacement / Replenishment Replenishment Replacement (Layer-built cell battery 9V; 6F22) 195kPa(2.0kg/cm$^{2)}$ Tightening and Replenishment Remedy in accordance with trouble Shooting table 6-1 Replacement Lubrication in accordance 2-3 Lubrication points table Adjustment in accordance 5-2 Adjustment of each pads
Out of Season	**Broken parts** **Worn parts** **Cleaning up each part** **Damaged of painting** **Worn pivoting pads or pins**	**Repair** **Replacement with new one** **Painting or applying oil** **Replacement to new ones**

(2) Adjustment for each part

1- Roller chain tension adjustment

Roller chain is elongated by usage little by little. Adjust tension of roller chain for transmitting the power smoothly.

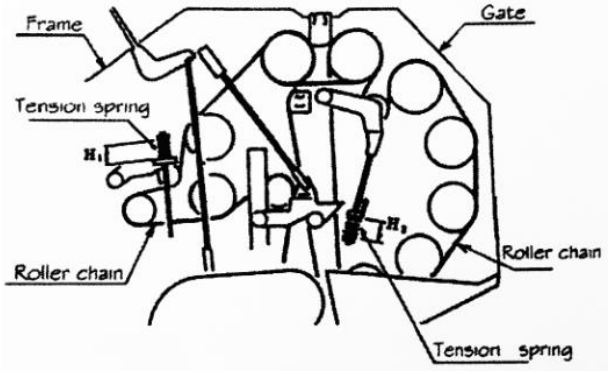
Since the roller chain is especially elongated by initial usage, adjust tension after initial usage.

2- Adjustment of tension spring

Adjust tension of roller chain on frame on the frame and on gate by adjusting the length of the tension springs.

The length of spring is mentioned below.

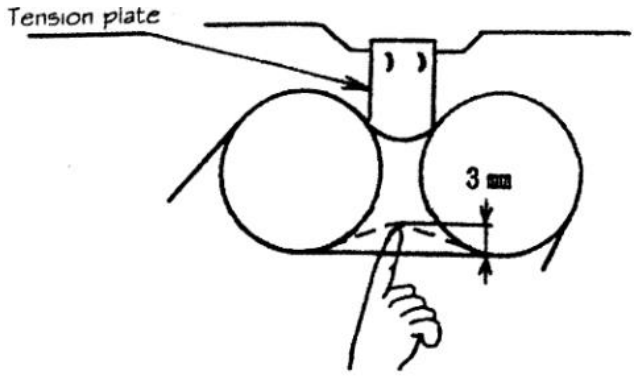
The length of the spring is printed in which is stuck on the machine.



3- Adjustment of tension plate

Adjust tension of roller chain between frame and gate by tension plate.

Proper roller chain tension allows for a 3 mm deflection when roller chain is pushed by a finger.

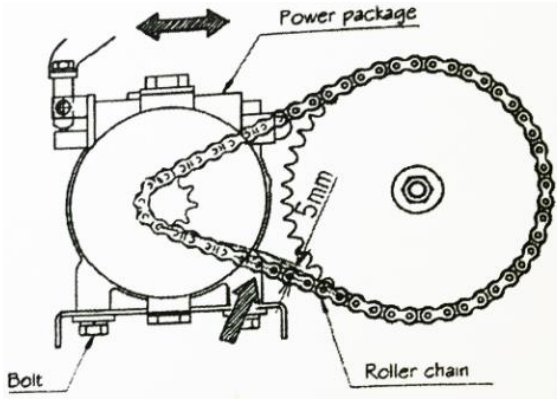


4- Adjustment of power package

Tension for roller chain to drive the power package is adjusted by moving position of the power package.

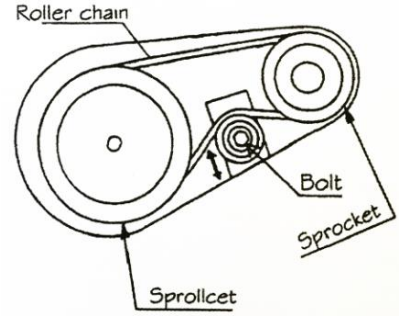
Push middle part of chain between both sprockets by finger.

Correct tension is approx. 5 mm of defection when the chain is pushed.

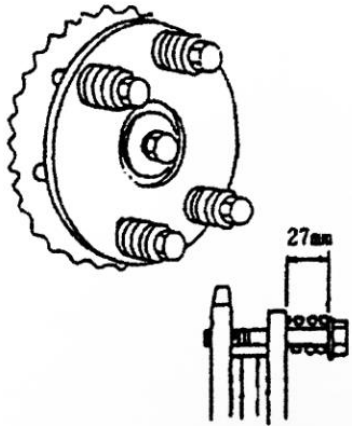


5- Adjustment of drive part for pick-up

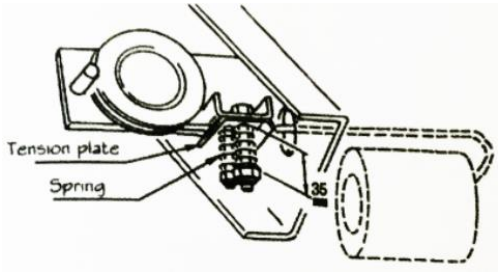
a. Loose bolt, revolve tension roll to adjust most suitable tension is 3mm pressed down at the center of chain.



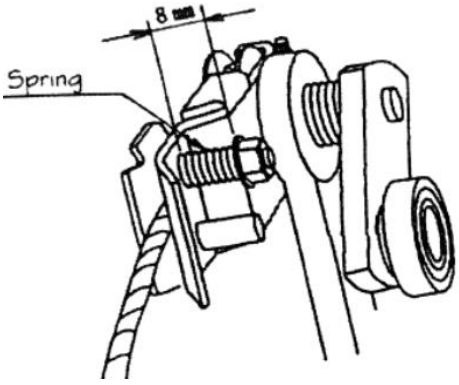
b. Adjustment of sliding clutch
Springs (4) are adjusted to 27 mm



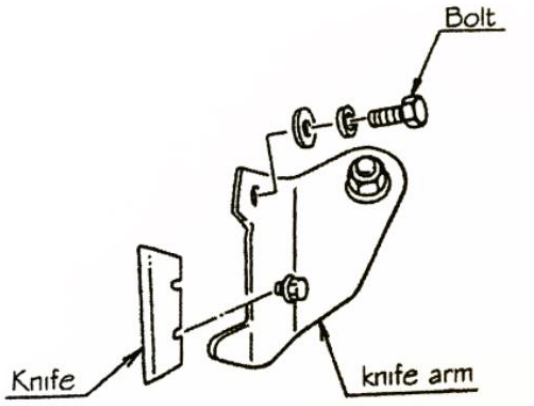
6- Adjustment of twine tension
Adjust spring length to 35 mm



7- Adjustment of arm tension spring
Adjust of the spring at 8 mm



8- Adjustment of binding blade
Remove the blade and attach it after reversing if the blade is dull
Replace the blade to new one if reversed blade is dull.



Caution

- Apply original replacement blade of the machine.

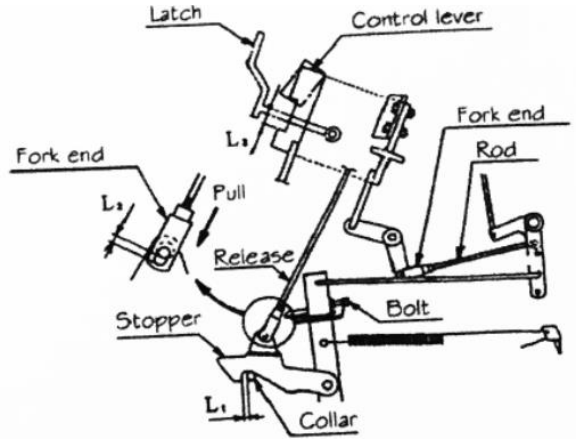
9-

10- Adjustment of the bale density link.

a. Adjust the clearance between stopper and collar on gate by bolt.
   L_1 = 1-2 mm is proper.

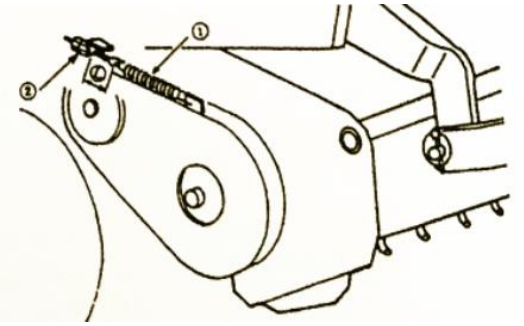
b. Remove the from fork end on from lower end of release rod and them pull the release rod to lower.
   Adjust the dimension between lower side of fork end slot and the hole of stopper as mentioned below in above situation.
   L_2 = 2 mm is proper.

c. Adjust the dimension between lath and cut out of control bar as below.
   L_3 = 8 mm is proper
   Adjust this dimension to L_3 =6 mm
   If bale weight is too heavy (Move than 25kg) because of too much moisture content.



11- Adjustment of Pick-up Suspension

Proper suspension springs length on both sides of pick-up is L=48 mm.
Adjust spring length per field condition if the pick-up does not follow well the field unevenness.



12- Adjustment for closing speed of gate

Closing speed can be adjusted by turning of Knob on the slow return valve.

Trouble Shooting

Adjust the machine in accordance with trouble shooting table if it does not work well.

Warning

- Stop the tractor engine and disengage PTO when adjustment is done.
- Lock gate by closing stop valve not to fall down inspection or adjustment is done.

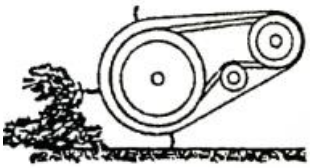
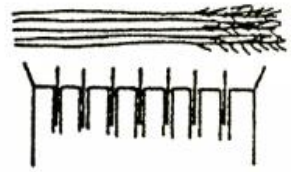
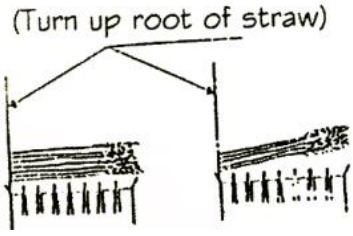
Fault	**Possible cause**	**Remedy**
*Abnormal noise is made	*Breakage of tine *Breakage of rotor flush *Winding of hay or twine *Breakage of cam roller bearing *Insufficient V belt tension	*Tine replacement *Rotor flush replacement *Remove of winding material *Replacement of cam roller bearing *Adjustment in accordance with "5-2-2 adjustment of pick-up V belt tension"
*Material is not picked up cleanly	*Wrong pick-up setting *Too fast traveling speed *Breakage of tine	*Adjustment in accordance with "3-2-1 adjustment pick-up height from ground" *Reduction of traveling speed *Replacement tine with the new one
*Baling material is clogged between pick-up and chamber	*Too fast PTO rotation *Obstruction by side cover and cover shield *Too fast traveling speed *Too wide and too high window *Too much declined pick-up	*Adjustment PTO rotation in accordance WITH "3-3-2 Field operation" *Taking outside cover and cover shield *Reduction of traveling speed *Making window in accordance with "3-3-2 Method of window making" *Shortening top link for obtaining forward declined machine position
*Pick-up does not rotate.	*Wrong V belt tension adjustment *Breakage of V belt *Too much clearance between pick-up tines and ground *Too wide and too high window	*Adjustment in accordance with "5-2-2 adjustment of tension for pick-up" *Replacement of broken V belt with new one

*Pick-up does not rotate.	*Too much mowing height from ground *Obstruction by side cover and shield cover	*Adjustment in accordance with "3-2-1 adjustment of pick-up height from ground" *Making window in accordance with "3-2-2 method of window making" *Adjustment of cutting height for a mower *Taking outside cover and shield cover

Caution

- Lock the hydraulic circuit of tractor when the machine is lifted for maintenance or inspection to prevent from machine's falling down.
- Inspection or maintenance should be done on solid ground or concrete.
  Never inspect or maintain on slant, uneven, or soft ground.
- Stop the tractor engine, disengaged PTO and make sure all moving parts stop when inspection or adjustment is done.
  Ask to the dealer by informing followings if the cause of trouble shooting is not clear.

Pick up

Fault	Possible cause	Remedy
*Pick-up pushes long stem rice straw to forward 	*Matching of pick-up center and rice straw center in the pick-up operation. 	*Picking-up by right side or pick-up. 

Roller

Fault	Possible cause	Remedy
Roller makes abnormal noise	Wrapping material or mud on material Insufficient lubrication Insufficient roller chain tension Dent in roller	Remove of wrapping material, mud or clogged material *Application of oil to roller chain *Adjustment in accordance with"5-2-1 Roller chain tension adjustment" *Replacement dent roller with new one
* Material is winding on roller	Too fast PTO rotation Material clogging n pick-up Dent in roller	*Adjustment of PTO rotation in accordance with"3-3-2 Adjustment for operation" * Remedy in accordance with "pick-up" trouble shooting * Replacement dent roller with new one
* Heat generate Roller chain	* Too high bale density * Insufficient lubrication to roller chain * Insufficient roller	* Adjustment; in accordance wit"3-2-4 Adjustment of bale density" and "5-2-6 Adjustment of bale density detection link" * Application grease to roller chain "5-2-1 Roller chain tension adjustment"

Bale density detection link

Fault	Possible cause	Remedy
*Gate opens because of stopper's coming off from gate	*Stretching of power package operation rope	*Adjustment in accordance with "1-4-3 Attachment of power package operation rope"
*Bale density is loose	*Exceeding bale density operation because of not adjustment of bale density detection link	*Remedy in accordance with" Buzzer" in trouble shooing *Adjustment in accordance with "5-2-6 Adjustment of bale density detection link"

Buzzer

Fault	Possible cause	Remedy
*Buzzer does not sound	*Switch off *Running out of battery cell *Wrong cable connection *Too much distance between switch lever and binding arm	*Switch on *Replacement of battery cell (Layer-built cell battery 9V; 6F22) *Correction of cable connection *Replacing broken cable with new one *Adjustment of switch location

Binding

Fault	Possible cause	Remedy
*Binding does not work when bale is finished	*Binding is not set in correct initial position *Insufficient lubrication *Wrong adjustment of tensioned spring *Twine is coming off from twine pulley *Twine is tangled or caught *Lower density in bale left side *Binding arm does not rise up after coming off latch *Twine tip does not come in chanber	*Adjustment in according with"1-4-5 Method of twine treading" *Lubrication *Adjustment in accordance with"5-2-3 Adjustment of twine tension" *Adjustment in accordance with"1-4-4 Method of twine threading" *Remove tangle and catch of twine *Supply of larger quantity of material to left side of the machine. *Lubrication and adjustment of falling speed by double nuts. *Adjust falling down speed of twine arm not to be ahead of twine falling. *Remove obstruction and let twine tip into chamber. Wipe off part of machine.
*Binding device work before reaching to setting density	*Binding is not set in correct initial position *Longer leading twine length because of dull blade	*Adjustment in accordance with"1-2-4 Method of twine threading" *Replacement of blade and adjustment of leading twine length in accordance with"1-4-4 Method of twine threading"
*Twine comes off from bale *Twine is not cut smoothly	*Fewer twine binding number *Twine tension is too loose	*Adjustment in accordance with" 3-2-2 Adjustment of twine binding number" *Tighten nylon nuts of twine tension plate one or two turns.

Gate

Fault	Possible cause	Remedy
*Bale does not come out	*Density too high density *Too wide windrow *Declined field	*Adjustment in according with"3-2-4Adjustment of bale density" *Making windrow in accordance with "3-3-1 Method of windrow making" *Ejection of a bale in flat place
*Gate does not open	*Closing of stop valve *Leakage or breakage of hydraulic circuit *Wrong adjustment of locking hook *Disengagement of PTO *Insufficient of power package oil	*Opening of stop valve *Remedy in accordance with "2-2-2-1 Inspection of hydraulic system gate opening and closing *Adjustment in accordance with"5-2-6 Adjustment of bale density detection link *Engage PTO and eject bale while PTO is running. *Application of oil in accordance with"2-3 Lubrication spots table"

PTO shaft

Fault	Possible cause	Remedy
*Abnormal	*Insufficient Lubrication *Too much sharp angle of PTO shaft	*Application grease to sliding pipes, spiders and mounting part of safety cover *Adjustment of tractor top link length, lower link stabilizer and lower link upper limit.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