



## 30 Series

### Operators manual 3030



## **CONTENTS**

Pre Delivery Check List	(Inside front cover)
Warranty Registration Form	(Inside front cover)

1. Introduction	
Customer Reference Information .....	3
Additional Warranty Information .....	3
Identification Plate .....	3
Warranty Information .....	4
Technical Data .....	4
Intended Use .....	5
2. Safety	
General safety instructions .....	6
Precautions .....	6
Safety when servicing.....	7
Operating safety.....	8
Safety decals.....	9
Transport .....	10
Tires .....	11
3. Connection	
Pre-Operation check .....	12
Tractor Requirements .....	13
General Connection .....	14
Tow Bar Adjustment.....	15
4. Operation	
Weighing system.....	16
Scale system accuracy and trouble shooting .....	17
Operation and break in.....	17
Loading / Common weights.....	18
Unloading .....	19
5. Maintenance	
Greasing .....	20
Maintenance schedule.....	21
Maintenance safety .....	22
Gearbox lubrication .....	24
Filling your planetary gearbox.....	25
Grease locations.....	26
Lubricating the wheel bearings.....	27
Bolt torque.....	28
6.	

## **INTRODUCTION**

Congratulations on the purchase of your new PENTA 30 Series TMR Mixer. This equipment has been designed and manufactured to exceed the needs of you the farmer. With proper operation and preventative maintenance it will last for years.

The purpose of this manual is to assist you in operating and maintaining your 30 Series TMR Mixer. Keep this manual readily available for reference and be sure to pass it on to new operators or owners. Contact PENTA TMR Inc. or any of our dealers if you need assistance or additional information.

## **GENERAL INFORMATION**

Operator orientation: The directions left, right, front and rear as mentioned throughout the manual are seen from the tractor driver's seat, facing forward.

Some items in this manual may differ slightly from your TMR Mixer. PENTA reserves the right to make changes to the TMR Mixer and this manual without notice.

If in any doubt regarding the aspect of the design or operation contact PENTA or an authorized dealer.

## **CUSTOMER REFERENCE INFORMATION**

Penta Model Number: \_\_\_\_\_

Penta Serial Number: \_\_\_\_\_

Date Purchased: \_\_\_\_\_

Dealer Name: \_\_\_\_\_

Dealer Tel #. \_\_\_\_\_

Penta TMR Incorporated. Tel: 888-844-7788 Fax: 519-882-3359

## **IDENTIFICATION PLATE**

The Serial number is required with all orders for spare parts and technical enquires. This is necessary for correct delivery and service.

The Serial number is attached to the front left side of the main frame →



Scale head model \_\_\_\_\_

Setup # \_\_\_\_\_

Cal # \_\_\_\_\_

## WARRANTY INFORMATION

PENTA warrants against defects in construction or materials for a period of ONE year. We reserve the right to inspect and decide whether material or construction was faulty or whether abuse or accident voids our guarantee.

Warranty service must be performed by a dealer or service center authorized by Penta.

The warranty registration form (*fig. 1.0*) must be filled out by the dealer and signed by both the dealer and customer at time of delivery. Reference PENTA's warranty Guidelines & Stipulations on our website [www.pentatmr.com](http://www.pentatmr.com) or Email: [warranty@pentatmr.com](mailto:warranty@pentatmr.com)

## Penta TMR Incorporated

### WARRANTY REGISTRATION AND INSPECTION REPORT

This form must be filled out by the dealer and signed by both the dealer and customer at time of delivery.

Customer: _____	Dealer Name: _____
Address: _____	Address: _____
City/State/Zip: _____	City/State/Zip: _____
Tel #: _____	Tel #: _____
Cell #: _____	Fax #: _____
Machine Model #: _____	Machine Serial #: _____
Delivery Date: _____	

#### Dealer Inspection Report

- |  |   |
|--|---|
| <input type="checkbox"/> Auger turns freely                      | <input type="checkbox"/> Hoses / lines / fittings not leaking   |
| <input type="checkbox"/> Door opens / closes properly            | <input type="checkbox"/> Conveyor raises / lowers properly      |
| <input type="checkbox"/> Scale operates correctly                | <input type="checkbox"/> Conveyor turns freely                  |
| <input type="checkbox"/> Wheel bolts tightened                   | <input type="checkbox"/> P.T.O. shaft guard turns freely        |
| <input type="checkbox"/> Reflectors clean                        | <input type="checkbox"/> P.T.O. turns freely                    |
| <input type="checkbox"/> Oil level in reservoir has been checked | <input type="checkbox"/> Review operating / safety instructions |
| <input type="checkbox"/> All safety decals installed             |   |

I have thoroughly instructed the buyer on the above described equipment with regard to the Operators Manual content, equipment care, adjustments, and safe operation and applicable warranty policy.

Date: \_\_\_\_\_ Dealer Rep's Signature \_\_\_\_\_

The above equipment and Operator's Manual have been received by me and I have been thoroughly instructed as to the care, adjustments, safe operation and applicable warranty policy.

Date: \_\_\_\_\_ Owner's Signature: \_\_\_\_\_

White	Yellow	Pink
PENTA	DEALER	CUSTOMER

Penta TMR Incorporated, P.O. Box 1630, 4480 Progress Drive, Petrolia, Ontario N0N 1R0



## **SPECIFICATION**

### **DESCRIPTION**

PENTA TMR Mixers consist of Augers, Cutting Knives, Conveyors, Weighing systems, Hoppers & Gearing, mounted on a towable chassis which is powered by PTO along with a 12V power supply. Penta prides itself with providing various combinations of options to suit the farmer and operational needs.

### **INTENDED USE**

TMR mixers give extreme flexibility to ration formulation and feed. They provide a great opportunity to mix and match all forage types, commodities and feed additives. PENTA TMR mixers are ideal for cutting / mixing and distributing feed to livestock. A typical mix is made of powder, liquid, granular, silage commodities & forage baling materials/crops.

The benefits of vertical-auger TMR mixers are:


- 1) Flexibility
- 2) Inclusion of any type of forage/storage method, at high levels
- 3) Utilization of low quality forages
- 4) Inclusion of commodities
- 5) Ration homogeneity - acidosis control
- 6) Mixing precision
- 7) Ability to use urea (NPN) in rations
- 8) Ability to add medications - including ionophores to boost cow efficiency
- 9) Potential for improved feed efficiency from properly balanced rations
- 10) Give the same feed to every cow from the first to the last.

Contact PENTA or your local Ministry of Agriculture to learn more about the growth and performances a TMR mixer can benefit your operations.



## **SAFETY**

For your safety and to develop better understanding of your implement, thoroughly read the operator's manual before use.

In this manual the terms **CAUTION, WARNING, DANGER** are used to identify safety messages. When you see this  , be alert to the possibility of damage and hazards that can result in personal injury or death.



**DANGER** indicates an extremely hazardous situation or action that will result in serious injury or death.



**WARNING** indicates a hazardous situation or action that could result in serious injury or death.



**CAUTION** indicates an unsafe situation or action that may result in personal injury

**IMPORTANT** indicates special instructions or procedures which, if not observed could result in damage to equipment.

**NOTE** indicates helpful information

*YOU* are responsible for the *SAFE* operation and maintenance of your implement. *YOU* must ensure that anyone who will be operating, maintaining, servicing, or working around the implement is familiar with the operating, safety and maintenance procedures and related safety information contained in this manual.

The most important safety device on the equipment is a *YOU* the *SAFE* operator.

Do not modify the equipment in any way. Unauthorized modifications may impair the function and/or safety and could affect the life and warranty of the equipment. Think SAFETY! Work SAFELY!



### **PRECAUTIONS**

Place all controls in neutral, stop the engine, set park brake, remove ignition key, and wait for all moving parts to come to a complete stop before servicing, repairing, or unplugging machinery.

Before applying pressure to the hydraulic system, make sure all components are tight and that all lines, hoses, and couplings are in good condition.

Do not operate when guards are missing or broken.

Clear the area of all bystanders, especially children, before starting.

Do not allow children to play on or around the machine.

Do not operate with leaks in the hydraulic system or lubrication system.

## **SAFETY**

### When Servicing the Mixer

Disconnect PTO from tractor before entering the machine  
Replace Guards

### **DANGER**

You are responsible for the SAFE operation and maintenance of your PENTA TMR MIXER. You must ensure that you, and anyone else who will be operating, maintaining, servicing, or working around the mixer be familiar with the operating and maintenance procedures and related safety information contained in this manual. This manual will take you step-by step through the operation procedures, and alerts you to all good safety practices that should be adhered to while operating the Penta Mixer.

Remember, YOU are the key to safety. Good safety practices not only protect you, but also the people around you. Make these practices a working part of your safety program. Be certain that EVERYONE operating this equipment is familiar with the recommended operating and maintenance procedures and follows all the safety precautions. Most accidents can be prevented. Do not risk injury or death by ignoring good safety practices.

Mixer owners must give operating instructions to their employees before allowing them to operate the machine and ensure that all operators have read and understood the safety and operating procedures.

The most important safety device on the equipment is a SAFE operator. It is the operator's responsibility to read and understand ALL safety and operating instructions in the manual and follow them.

A person who has not read and understood all operating and safety instructions is not qualified to operate this machine. An untrained operator exposes himself and bystanders to possible or serious injury or death.

Do not modify the equipment in any way. Unauthorized modifications may impair the function and/or safety and could affect the life and warranty of the equipment.

Think SAFETY! Work SAFELY!

Have a first-aid kit available for use should the need arise. Do not allow riders on machinery. Wear appropriate protective gear. Place all controls in neutral, stop the engine, set park brake, remove ignition key, and wait for all moving parts to come to a complete stop before servicing, repairing, or unplugging machinery.

Review safety related items annually with all personnel who will be operating or maintaining the PENTA TMR MIXER.



## **SAFETY**

### When Servicing the Mixer

Disconnect PTO from tractor before entering the machine

Replace Guards.

Make sure the key is in your pocket before entering or working on the mixer.

### **OPERATING SAFETY**

1. Read and understand the Operator's Manual and all safety decals before using the equipment.
2. Clean reflectors, slow moving vehicle signs, and lights before transporting.
3. Before applying pressure to the hydraulic system, make sure all components are tight and that all lines, hoses, and couplings are in good condition.
4. Place all controls in neutral, stop the engine, set park brake, remove ignition key, and wait for all moving parts to come to a complete stop before servicing or repairing.
5. Install and secure guards before starting.
6. Keep hands, feet, hair, and clothing away from all moving and/or rotating parts.
7. Do not operate when guards are missing or broken.
8. Clear the area of all bystanders, especially children, before starting.
9. Do not allow children to play on or around the machine.
10. Do not allow riders, on the PENTA TMR MIXER or tractor.
11. Be sure the PTO drive line guard telescopes and rotates freely on the shaft before installation.
12. Stay away from overhead power lines when loading. Electrocution can occur without contact.
13. Use hazard flashers on tractor when transporting on roads, and follow all local laws.
14. Attach securely to the tractor using a retainer on the drawbar, and a safety chain.
15. Do not operate with leaks in the hydraulic system or lubrication system.
16. Review safety instructions annually.





**! DANGER**



**ROTATING DRIVELINE  
CONTACT CAN CAUSE DEATH  
KEEP AWAY!**

Do not operate without:

- All driveline, tractor and equipment shields in place.
- Drivelines securely attached at both ends.
- Driveline shields that turn freely on driveline.

**! DANGER**

**KEEP HANDS AND FEET AWAY**



**! DANGER**



**ROTATING  
AUGER**

To prevent serious injury or death from rotating auger:

- Stay away from auger when it is turning.
- Keep others away.
- Lower auger to the ground, place all controls in neutral, stop engine, set park brake. Remove ignition key and wait for all moving parts to stop before servicing, repairing, adjusting or unplugging.

**! DANGER**

**PINCH POINT**



**KEEP AWAY  
FROM DUMP  
WHILE OPERATING**

**! WARNING**



**MOVING PART HAZARD**

To prevent serious injury or death from moving parts:

- Close and secure guards and shields before starting.
- Keep hands, feet, hair and clothing away from moving parts.
- Disconnect and lock out power source before adjusting or servicing.
- Do not stand or climb on machine when operating.

**! WARNING**



**HIGH-PRESSURE FLUID HAZARD**

To prevent serious injury or death:

- Relieve pressure on system before repairing or adjusting or disconnecting.
- Wear proper hand and eye protection when searching for leaks. Use wood or cardboard instead of hands.
- Keep all components in good repair.

4388



## **TRANSPORT**

Clean reflectors, slow moving vehicle signs, and lights before transporting.

Do not allow riders, on or in the implement.

Stay away from overhead power lines when loading. Electrocutation can occur without contact.

Use hazard flashers on tractor when transporting on roads, and follow all local laws.

Attach securely to the tractor using a retainer on the drawbar, and a safety chain.

Make sure you are in compliance with all local regulations regarding equipment on public roadways and highways.

Make sure SMV (Slow Moving Vehicle) emblem and all the lights and reflectors required by law are in place, clean, and can be seen clearly by overtaking and oncoming traffic.

Reduce speed on rough roads and surfaces.

Add extra lights or use pilot vehicle when transporting during times of limited visibility.

Every mixer can be ordered with a light kit for the back.



**DANGER** Never overload the Mixer. Overloading the Tub is dangerous and can cause extensive damage

Do not exceed the weight ratings of the tires.



**CAUTION** Reduce speed when turning or travelling across uneven ground

**WARNING** Avoid extending or transporting implement on side hills or steep inclines

Use extra caution when transporting on roadways



-Match speed to operating conditions.

-Stay away from ditches and riverbanks.

-Use caution and pay attention.

-Use front weights to promote stability.

-Start forward motion slowly and change speed gradually.

-Drive around ditches.

-Use caution when braking down a grade.

\*\*\*\* It is the duty of the operator to ensure that the Mixer is maintained and operated in accordance with all local and national regulations

## **TRANSPORT SAFETY**

1. Make sure you are in compliance with all local regulations regarding equipment on public roadways and highways.
2. Make sure SMV (Slow Moving Vehicle) emblem and all the lights and reflectors required by law are in place, clean, and can be seen clearly by overtaking and oncoming traffic.
3. Attach mixer securely to the tractor using a retainer on the drawbar pin and safety pin.
4. Do not allow anyone to ride on the PENTA mixer or on the tractor during transport.
5. Do not exceed 15km (10 mph). Reduce speed on rough roads and surfaces.
6. Always use hazard warning flashers on tractor when transporting, unless prohibited by law.
7. Add extra lights or use pilot vehicle when transporting during times of limited visibility.



## **TIRES**

Failure to follow proper procedures when mounting a tire on a wheel or rim can cause an explosion which may result in serious injury or death.

Do not attempt to mount a tire unless you have the proper equipment and are qualified to do the job.

Have a qualified tire dealer or repair service perform required maintenance.



### **THE SERVICE LIFE OF YOUR TIRES**

The wrong pressure may have a serious effect on the life of your agricultural tires:



**OVERINFLATION** causes excessive spin in the fields. On hard, stony soil, it causes premature wear. On the road, over inflation causes fast, irregular wear on the lugs – the footprint is too small.



**UNDERINFLATION** causes irreversible damage to tire casings: risk of failure. It also leads to excessive wear on roads: too much rolling resistance.

**The right pressure for the tires on the mixer should be on a sticker on the front of the mixer.**

The tire pressure can also be found in the maintenance schedule page at the back of this manual.

Do not exceed the weight ratings of the tires.

## **Pre- Operation Check**

- Read and understand manual carefully
- Check Tires and lugs....Torque on the wheel lugs, Tire pressure (See pg.)
- Check fasteners
- Check Pivot points and pins
- Check Hoses and hydraulic cylinders, fittings and couplers
- Check Grease points and adequate amount of grease is applied
- Check Connections of the hoses and electrics and insure no pinch points and installed properly
- Check hitch and draw bar connection insure they are level and that the weight is distributed evenly
- Check lights and slow-moving vehicle are clear of debris

## **PRE-OPERATION CHECKLIST**

Efficient and safe operation of the PENTA TMR MIXER requires that each operator reads and understands all the operating procedures and all the related safety precautions outlined in this section.

1. Lubricate the machine as per the schedule in the Service and Maintenance section of the manual.
2. Use only tractor with adequate power to operate your PENTA TMR MIXER.
3. Make sure the gearbox oil reservoir is filled to the proper level. (See Figure 2).
4. Check the gearboxes. Make sure the drain plugs are properly installed and tightened and not leaking.
5. Ensure that the machine is properly attached to your tractor. Be sure the retainer is installed in the draw pin, and the safety chain is attached. Also make sure that all hitch bolts in the adjustable hitch cradle are properly secured and tightened.
6. Check the hydraulic system.
7. Inspect all hydraulic and oil lines, hoses, fittings, and coupler for tightness.
8. Check the tires and make sure they are inflated to the specified pressure.
9. Torque all wheel nuts to 180 ft. lbs.
10. Check for and remove entangled material from the PTO, driveshaft, auger, conveyor and axles.
11. Check that PTO drive line is pinned to the tractor and the guard is chained to the frame.
12. Close and secure all guards.

## Tractor Requirements

<u>Mixer Series</u>	<u>Horsepower</u>
3030	40-70HP
4130	50-80HP
5030	50-80HP
5930	50-120HP
4430	60-90HP
6730	80-130HP
8030	130-160HP
9630	135-170HP
1130	140 -180HP
1430	150-200HP
1030	90-180HP
1730	200-250HP

### **EQUIPMENT MATCHING**

The PENTA TMR Cutter-Mixer-Feeder trailer model is designed to be used with Agricultural tractors. To ensure a good performance, the following recommendations regarding minimum equipment size and horse-power should be met.

A loaded machine may weigh as much as 10,000 kg, or 22,000 lbs. An operator must use his own discretion when determining whether the tractor attached is suitable for the terrain. Using a small tractor on a heavy piece of machinery can cause severe injury or death if the operator loses control of the machinery.

Never leave the mixer parked full. Staring up a mixer that has been stopped for more than ½ an hour can greatly increase the start up horse power. And damage the drive train.

## **Connection**

Coupling to tow vehicle – Hitch

Reverse the towing vehicle until hitch is lined up with the eye  
Raise the tow hitch and lock into raised position

WARNING : Ensure all personnel are clear of danger around the Mixer



WARNING : Make sure the trailer is properly secure and attached before moving

WARNING : Park Mixer on firm and level ground

### **Draw Bar Connection**

Hitch compatibility

Jacks

### **Hydraulic Connections**

It is import to keep the hose connections clean.

Connect the hydraulic service line to the connection on the tractor

1. Make sure that all components in the hydraulic system are kept in good condition and are clean.
2. Relieve pressure before working on the hydraulic system.
3. Replace any rusted, worn, cut, abraded, flattened, or kinked hoses and metal lines immediately.
4. Do not attempt makeshift repairs to hydraulic lines, fittings, or hoses by using tape, clamps, or cements. The hydraulic system operates under extremely high pressure. Such repairs will fail suddenly, and create a hazardous and unsafe condition.
5. Wear proper hand and eye protection when searching for a high pressure hydraulic leak. Use a piece of wood or metal as a backstop instead of hands to isolate and identify leak. Do not attempt to repair a leak, but replace the hose instead.
6. If injured by a concentrated high pressure stream of hydraulic fluid, seek medical attention immediately. Serious infection or toxic reaction can develop from hydraulic fluid piercing the skin.
7. Before applying pressure to the system, make sure all components are tight and that lines, hoses, and couplings are not damaged.



Think SAFETY! Work SAFELY!

### **Uncoupling the tow vehicle - Hitch**

Ensure the drawbar is in the tow position

Lower the trailer onto the drawbar

Decouple all hoses and PTO connection

When disconnected pace in holder.

## **Connection**



Adjustment before towing the trailer

Use the right draw pin..

Make sure the mixer is level when mixing.

## **PTO Connection**

### **P.T.O. SHAFT INFORMATION**

When the mixer is attached to the tractor, the length of the PTO shaft should be such that proper overlap of the inner and outer tubes is maintained in all cases. If it does not exceed the measurement, the drawbar should be shortened. The PTO shaft is not designed to operate at any greater length than specified by the manufacturer, and damage can result.

See the attached section, located at the back of this manual, for PTO Shaft maintenance, troubleshooting, and repair information. Note: Pivoting the tractor and the mixer will shorten PTO shaft



Use the right PTO that Penta sold with the mixer it has the right length and the right shear pin.

The Slip clutches that are shipped with the mixer have to be replaced with the same part number Using other PTO shafts will void warranty.

Your Penta dealer can get you the right part number and shaft.

## **OPERATION**

### **Electrical connection**

Ensure Prongs are clean

Walk around and check that lights are working properly

A good clean connection will ensure the scale gets the right voltage.

### **Weighing system**

#### **WEIGHING**

There are various scale indicators available for use on your PENTA TMR MIXER. The mounting assembly for all DIGI-STAR scale indicators is the same. When attaching the indicator to the Mixer, be sure it is securely fastened. The indicator bolts onto the mounting bracket. (Digi-Star EZ2810) check digi-star website for more options on scale heads and software options. [www.digi-star.com](http://www.digi-star.com).

The scale indicator is mounted, on standard models, on the viewing platform of the mixer and is able to turn to face every direction. Be certain that the indicator is fastened securely, especially when traveling at speeds over 10 km/h (6 mph) or over uneven surfaces. The 12 volt D.C. negative ground power supply which is needed to power standard models can be taken from the power supply of the tractor which can be supplied by a number of different power plugs.

For mixers using a self-contained battery, the tractor plug is to be connected directly to the battery.

Make sure the scale head is off when charging the battery.

Be sure to conform to all safety and operational instructions and containing to the battery to avoid injury or death.

NOTE: The scale will be programmed to display the weight in either kilograms or pounds. This is set by the manufacturer and must be ordered to suit. If your scale is not programmed to your preferred units of measurements, please contact your local PENTA TMR Vertical Mixer Dealer.





Scale system accuracy . And trouble shooting.

The scale can be calibrated to weigh right on your mixer.

Check the scale with a weight to make sure the calibration and setup numbers are right for your mixer.

Write down the right setup and calibration number in the front of this manual.

The setup and calibration number will work with any digi-star scale head.

Once it is right no re-calibration will be necessary.

Once a month it is a good idea to check the 4 or 6 loadcells with a known weight to make sure they all weigh the same.

If they differ, there could be a bad loadcell or bad cable or loose connection, or the loadcell has moved or turned.

Make sure the bolts on the back side are all in place. There is an arrow on the end of the loadcell that should point down.

A cut in the cable will affect the weighing accuracy. Shorten the cable or fix the broken spot with solder and heat shrink.

A loose connection can affect weighing (some J-boxes can be opened and terminals tightened)

The best way to test the loadcells is to unplug all loadcell wires, zero the scale, and plug in the loadcells one at the time. Looking for an stable number (5000-10000lbs is normal) error code on the scale head, or an erratic weight change, or a lock up weight can mean bad or damaged loadcell, or cable.

More trouble shooting can be done by contacting your dealer.



## **OPERATION**

The Penta Cutter-Mixer-Feeder is specifically designed to cut and mix feed ingredients into a Total Mixed Ration (TMR). Many of the features incorporated into this machine are the result of suggestions made by customers like you. Read this manual carefully to learn how to operate the machine safely and how to adjust it to provide maximum efficiency. Following the operating instructions with a proper maintenance program will extend the life of your machinery.

The auger in the mixer is very important it is well maintained,

The plow on the back of the wing of the auger can be adjusted. The closer to the side wall the better the mix. When the plow is wore to the hole in the plow it is time to replace the plow, keep an eye on the bolts as they will be worn as well. Use new bolts with a new plow.

The front tornado edge can be replaced when it is wearing away from the wall.

## **BREAK-IN**

After the first several hours of use, it is important to check the wheel nuts and other fasteners to make sure that they are all tightened properly. Also check to make sure the mixer is properly greased and the fluid reservoirs are filled to the proper level.

## **OPERATION**

### **LOADING:**

**As a rule the heaviest should be added last.**

**The material that has to be cut shortest should go in first.**

**We do two things processing and mixing.**

**Processing can sometimes take time.**

**Normally the hay goes in first, then balage, then grains and minerals. Then the corn silage.**

**Putting the wettest material on the hay and balage will help cutting speed.**

**Other filling methods will work.**

**20-30RPM auger speed is the best and fastest mixing speed.**

**30-40RPM is for emptying.**

**Or low speed on the two speed for mixing, high speed for last part of emptying.**

**Mixer has to be level when mixing.**

**Do not leave the mixer full more than ½ hour as the start up torque can be double,**

**Starting the mixer empty is the best way to make the mixer last a long time.**

**Dog ears:** these feed restrictors are intended to hold the hay or material you cut shorter, closer to the knives, a few notches in will usually work.

It takes more horse power to start the mixer full and run the mixer full with these dog ears into the feed.

Some feeds mix better when these dog ears in, however for most mixes moving the dog ears are in 2 notches will work the best.

Revvng up the rpm of the tractor is the best way to get the mixer completely empty at the end of the load.

If the flow controls for the hydraulic motor are turned down to the right speed the chain will not speed up too much.

Running the chain of the conveyor too fast will shorten chain life.

## **OPERATION**

### **UNLOADING**



#### **CONVEYOR**

The conveyor must be greased on a regular basis, as per the maintenance schedule. When unloading the mixer, activate the conveyor before opening the discharge door. The speed of the conveyor can be adjusted to suit unloading requirements by adjusting the flow control on the tractor.

The conveyor has an adjustment to tighten or loosen the chain. There is an adjuster located on the conveyor. Use wrenches to tighten or loosen the tension on the conveyor chain. Over tightening the chain will shorten the life span of the chain.

#### **The looser the better for a flip up chain conveyor .**

Do not over tighten small chain on hydraulic motor, or you will shorten the life of the motor seal. Adjust the flow control in the tractor. 20gal/min and 2500PSI MAX. 5-10-gal/minute is a normal speed.

### **DUAL DISCHARGE**

On mixers equipped with dual side unloading, the conveyor will unload on both sides of the mixer. For left and right discharge, the conveyor is operated using the controls on the tractor. (The conveyor will reverse from its direction of discharge when the remote is moved to the opposite position).

### **RIGHT / LEFT FLIP UP DISCHARGE**

Mixers that are equipped with right or left flip up discharge have a section of conveyor that can be raised and lowered. There are two available options for conveyor operation. One system employed is the Lock Collar System. Mixers utilizing this system have lock collars supplied with the mixer. These lock collars are stackable and are placed on the lift cylinder's stroke. The number of lock collars used determines how far the conveyor drops down.

Once hydraulic lift height has been set, operation of the conveyor will only begin once the lift is lowered to the selected height. Operation of the conveyor will cease upon raising the hydraulic lift. Tightening of the conveyor chain should only be done in the lowest position which is the running position of the conveyor. Raising the conveyor loosens the chain.

The other system employed is the Diverter Valve System. In this system, the conveyor must be stopped and the selector valve activated. To activate the selector valve, simply pull attached rope. When rope is pulled, the hydraulic can be used to raise and lower the conveyor. When the conveyor reaches the desired position, release the rope, and the conveyor will begin the unload function. When lowering the conveyor, make sure that there are no obstacles beneath the conveyor that could cause damage or be damaged when the conveyor is lowered.

It may be necessary, in order to completely empty the mixer of all commodities, to turn the augers at the fastest speed. This will propel the feed that is resting on the augers off their flighting, and allow the augers to unload this.

## **MAINTENANCE**

Complete these maintenance checks to ensure your mixer will perform at optimal capacity

### A. Before Starting:

- Check oil level and condition of the planetary gearbox.
- Cycle the unloading door and conveyor several times to fully charge the hydraulic system with oil.
- Disconnect PTO driveline and turn auger by hand. Be sure that it turns freely.
- Check for debris and/or any other items that could block or affect machine operation.
- Top up tractor oil reservoir if required.

### B. Test run the mixer.

- Make sure mixer is empty, then start the mixer.
- Run for at least five minutes at rated PTO RPM.
- Raise and lower the door and operate the conveyor/slide tray several times.
- Disengage the mixer and turn off the tractor engine and remove drive line.
- Check the mixer drive components to be sure they are not abnormally hot.

### C. After operating for ½ hour:

- Check that all bolts and fasteners are all tightened properly. (See Torque Spec.)
- Check that all wheel nuts are tight and torque to 180 ft.-lbs (244 N-m).
- Check the auger. Remove all string, twine, or other entangled material.
- Check that no hoses are pinched, rubbing, or being crimped. Re-align as required.
- Check for oil leaks. Stop leaks before continuing.
- Lubricate all grease fittings.

### D. After operating for 5 hours and 10 hours:

- Re-torque all wheel nuts, fasteners, and hardware.
- Check that auger turns freely.
- Check the auger. Remove all string, twine, or other entangled material.
- Proceed with normal servicing and maintenance schedule as defined in the Maintenance Section.

### E. After operating 50-100 hours:

- Check gearbox oil(s) as per maintenance instructions
- Check the plow for wear. Once the plow is worn to the hole in the plow it will be time to replace. And check the bolts for wear. Always replace new plows and knives with new bolts. If the head of the bolt is worn off, the knife or plow can come off, and cause damage to the machine. The operator and owner are responsible for this maintenance.



## MAINTENANCE SCHEDULE

To ensure the long life for which the mixer was designed, it is essential that the proper maintenance procedures are followed. The following chart indicates the manufacturer's recommended lubrication/ maintenance schedule. Where both time frame hours or use are given, use whichever comes first. Mixing should be done at 32rpm auger speed, final cleanout should be done at 42 rpm auger speed.

The PTO should be greased according to the manufacturer's specifications.

- The method used to sharpen the cutter blades may vary, depending on the model. Please contact your dealer for more information.
- Contact you oil supplier as to the hour life of the oil in the gearboxes.

Description	Time	Hours of Operation	Special Instructions
PTO Shaft Universals	36 times annually Grease till all cups have grease	8 hours	Heavy Duty multi-purpose grease
Drive Shaft Bearings	12 times annually	8 hours	Heavy Duty multi-purpose grease
Conveyor Bearings	12 times annually	8 hours	Heavy Duty multi-purpose grease
Auger Bearing Tower	12 times annually	8 hours	Heavy Duty multi-purpose grease
Wheel Bearings Walking axle centre	Check Once annually grease 36 times annually	50 hours 8 hours	Heavy Duty multi-purpose grease Heavy Duty multi-purpose grease
Planetary Gearbox Oil reservoir keep above the minimum level	Check level Upon receipt of equipment, then 52 times annually	8 hours	Full Synthetic Oil: 80/140 GL5 Rating Oil change every 2000hours
2-Speed Transmission C3A AP502. AP602	Upon receipt of equipment, then 12 times annually	8 hours	80/140 Full Synthetic GL5 rating oil change every 1000hours Full Synthetic Oil: 80/140 GL5 Rating
Wheel Nuts	Upon receipt of* equipment, then 6 times annually	50 hours	Tighten all wheel nuts (180 ft. lbs)
Tire Pressure 12.5-15 19/45-17 435-50 235/75R 245/70R	Upon receipt of equipment, then 12 times annually	25 hours	Inflate to 55 psi Inflate to 75 psi Inflate to 100PSI Inflate to 110PSI Inflate to 110PSI
Shear Bolts	When broken		
Hitch Bolts	Once annually		300ft/lbs

## Maintenance



Follow ALL the operating, maintenance, and safety information in this manual.

1. Place all controls in neutral, stop the engine, set park brake, remove ignition key, and wait for all moving parts to come to a complete stop before servicing, adjusting, repairing, or unplugging.
2. Relieve pressure from hydraulic circuit before servicing or disconnecting from tractor.
3. Support the machine with blocks or safety stands when changing tires or working beneath it.
4. Follow good shop practices:
  - Keep service area clean and dry.
  - Be sure electrical outlets and tools are properly grounded.
  - Use adequate lighting for job at hand
5. Use only tools, jacks, and hoists of sufficient capacity for the job.
6. Make sure all guards and shields are in place and properly secured when maintenance work is completed.
7. Before applying pressure to the hydraulic system, make sure all lines, fittings, and couplers are tight and in good condition.
8. Keep hands, feet, hair, and clothing away from all moving and/or rotating parts.
9. Clear the area of all bystanders, especially children, when operating, repairing, or making adjustments to the machine.

## STORAGE SAFETY

1. Store the unit in an area away from human activity.
2. Do not permit children to play on or around the stored machine.
3. Store the unit in a dry, level area.
4. Do not lay hydraulic hoses on the ground and keep the fittings free of dirt.
5. Make sure the implement jack is properly fastened to the unit.

## Maintenance

### PLANETARY GEARBOX LUBRICATION



The oil reservoir shown in Fig. 3 is constructed using an acrylic body. This is a very durable material, which is able to withstand severe impact, without sustaining damage. However, if a reservoir is damaged, it must be replaced with an approved reservoir, or components, recommended by the manufacturer. If a reservoir sustains any damage, call your PENTA TMR dealer immediately.

The reservoirs have decals on them, showing the maximum and minimum fluid levels, under operating conditions. At no time is the fluid to be lower than the minimum recommended level, as damage to a gearbox may occur. If the fluid is higher than the maximum level, the oil may overflow the reservoir, and cause fluid loss, (if the mixer is level the level in the reservoir will stay more stable.)

The Gearbox on your PENTA TMR MIXER uses synthetic oil as its lubricant. It does not matter the brand of oil, only that specifications need to be 80-140 / Full Synthetic / GL5 Rating the oil reservoir located on the right side of the stand frame on your mixer contains the lubricant for the gearbox. There are maximum and minimum oil level decals on your reservoir. (See Fig.2). It is important that the oil level in the reservoir remains between the maximum and minimum oil levels, as indicated. If it is too low, the gearbox will not be sufficiently lubricated. If it is above the maximum level, spillage will occur. The oil in the gearbox may expand and contract due to temperature changes, whether from operating the mixer or changes in ambient temperature. It is recommended to check the oil level in the reservoirs every 8 hours of operation.

#### Breather Cap

The oil reservoir has a filter/breather located on the top, which must be attached to the reservoir at all times. This breather is removable, to allow filling of the reservoir. If the filter/breather becomes contaminated, remove the breather, and clean it using a mild detergent. This breather can be separated into 3 sections, for complete cleaning. If the breather is damaged or needs replacing, contact your PENTA TMR dealer. If any commodities are dumped on the reservoir, it should be cleaned immediately, and the breather checked, to ensure that the air can freely pass through it. (If ever spraying water to clean the mixer, protect the breather and reservoir). If it is plugged, clean properly, as outlined above.

Figure 3 (Oil Reservoir)

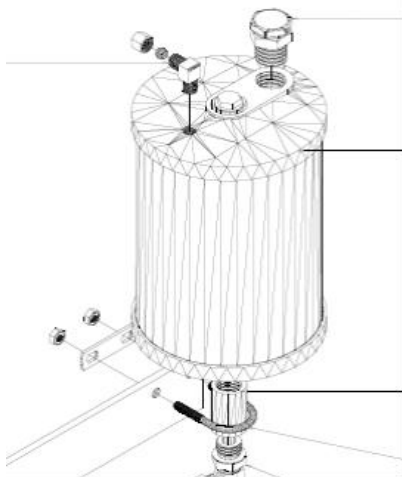
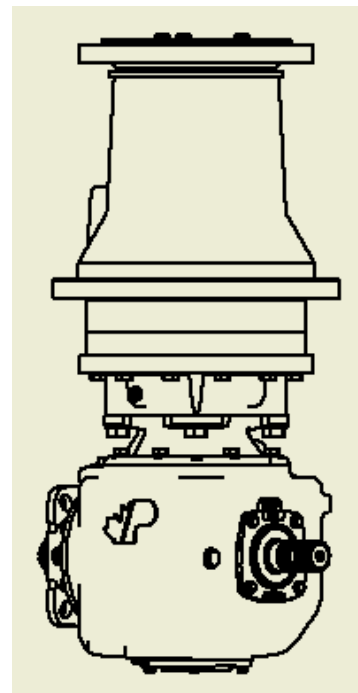


figure 2 (gearbox)



## Maintenance



Twice annually, or every 200 hours of operation, whichever comes first, it is recommended to remove the bottom plug, located near the back of each bottom section of each gearbox. Use a rubber plug to stop the oil from flowing out of the gearbox while the bottom plug is removed. This is a magnetic plug, designed to attract any metal particles that are present in the oil. If the plug has metal filings stuck to it, or any other particles are found in the oil, the gearbox should be drained into a clean container, and refilled with new oil. As well, contact your PENTA TMR Machinery dealer immediately.

In addition to checking the oil, inspect the exterior of the gearbox for sight of leakage. The plugs that are visible on the gearbox should be checked, to make sure they are properly tightened. If signs of oil are found on the casing of the gearbox, there may be a leak. If signs of leakage are present, contact your PENTA TMR Equipment Dealer immediately.

### Filling the planetary gearbox.

PENTA TMR Inc. recommends that the following procedures be followed, when re-filling the gearbox: **IMPORTANT! FILL GEARBOX THRU THE BOTTOM FITTING!**

- Remove the breather cap from the top of the reservoir.
- To pump the synthetic oil into the gearbox, remove the hydraulic hose that is attached to the bottom of the reservoir and attach it to your pump. Pump the oil into the gearbox until the oil comes out of the top of the gearbox.
- There are two ways to check if the gearbox is full:
  - Unbolt and lift the auger and check the oil level in the tower plug
  - The air line that goes to the top of the reservoir also goes to the top of the tower. This line can be checked if the gearbox is full but it takes a lot of pressure to pump it all the way through the entire line. If the line is cut 8-12 inches below the floor, the oil will come out of the line when the gearbox is full. (18 litres or 5 U.S. gallons)
- Remove the pump and reattach hose to the reservoir.
- Install a coupler in the air line.
- Add last several litres of oil to the reservoir using a funnel until the oil in the reservoir reaches the recommended operating level.

If, for any reason, the oil level in the reservoir does not stay at the recommended level, and oil must be added on a regular basis, contact your PENTA TMR Equipment Dealer.



## Maintenance



### GREASE LOCATIONS

Your PENTA TMR Cutter-Mixer-Feeder has several locations that require grease on a regular basis. On all models there is (1) grease nipple on the planetary close to the input shaft. This should be greased 3 pumps for every 10 hours of operation. If this is not greased on a regular basis, damage to the top of the tower bearing will result. If this grease fitting ever becomes plugged or severed, contact your PENTA dealer.

#### Conveyor Grease Locations

the grease locations are at every bearing on the conveyor. A flat conveyor only has the grease locations shown at both ends of the conveyor. The conveyor bearings should be greased every 8 hours of operation.

As outlined in the Suggested Maintenance Schedule, the PTO should be greased according to the manufacturers specifications. (See attached PTO information for proper maintenance procedures). The PTO cannot be over greased. Pump enough grease into the cross to see grease come out of all the four cups. The seals will move back into place.

#### P.T.O. DRIVE SHAFT

The PTO shaft used for power transmissions between the power supply and the machine driven must not be used.

- without the guards supplied by EG S.P.A.
- with only partial protection
- with damaged guard
- without the anti-rotation chains correctly attached so as to permit the attached maximum angle of the PTO shaft without compressing the guard.

Make sure the length of the PTO shaft is the right length for your tractor, turn your tractor tight keeping a eye on the drive shaft make sure there is room for more movement.(turning shortens the driveshaft.)

If the shear bolt has been broken, replace the bolt only with a new one of the same class and size. Do not use superior or inferior class bolts.

## Suspensions & Brakes



### LUBRICATING THE WHEEL BEARINGS

#### Every 2 Years

In normal operating conditions, lubricate the bearings every 2 years or every 50,000 km and when the brake shoes are replaced.

In harsh conditions the bearings should be lubricated more frequently.

Use a general purpose EP grease formulated for lubricating plain, ball and roller bearings, subject to heavy loads and impacts typical of HGV, agricultural vehicle hubs, etc.

**All parts (hub, spindle, bearings, seals, castle nuts, hubcap, cotter pin) should be degreased and Perfectly clean before reassembly.**

The work should be carried out in a clean environment with appropriate tools as the slightest bit of dirt can

Damage the bearings or even the spindle.

When carrying out maintenance on the bearings, check the brake linings, drum and return springs, clean the brakes, clean and lubricate the brake cam shaft.

Contact your dealer for the right parts for your Penta Mixer.



Air bag kits can be added to all mixers with spring suspension to help stabilize the loaded mixer.

## BRAKE MAINTENANCE & ADJUSTMENT

### Initial checks

The brakes should be tested before using for the first time and after the first laden journey:

Check the actuator and return spring mountings, check the actuator stroke and return travel and check that the road and parking brakes operate and release correctly.

Tighten the screws and nuts (covers, fulcrum, etc), check the cotter pins, pins, circlips, etc.

Check for hydraulic fluid and air leaks.

### Every 3 Months

# BOLT TORQUE

The tables below give the correct torque values for various bolts and cap screws. Tighten all bolts to the torque specified in the chart unless otherwise noted. Check tightness of bolts periodically, using the bolt torque chart as a guide. Replace hardware with the same bolt.

## IMPERIAL BOLT TORQUE SPECIFICATIONS

Bolt Diameter	SAE 2		SAE 5		SAE 8	
	(NM.)	(LBS)	(NM.)	(LBS)	(NM.)	(LBS)
1/4"	8	6	12	9	17	12
5/16"	13	10	25	19	36	27
3/8"	27	20	45	33	63	45
7/16"	41	30	72	53	100	75
1/2"	61	45	110	80	155	115
9/16"	95	60	155	115	220	165
5/8"	128	95	215	160	305	220
3/4"	225	165	390	290	540	400
7/8"	230	170	570	420	880	650
1"	345	225	850	630	1320	970

## METRIC BOLT TORQUE SPECIFICATIONS

Bolt Diameter	8.8		10.9	
	(N.M)	(LBS)	(N.M)	(LBS)
M3	0.5	0.4	1.8	1.3
M4	3	2.2	4.5	3.3
M5	6	4	9	7
M6	10	7	15	11
M8	25	18	35	26
M10	50	37	70	52
M12	90	66	125	92
M14	140	103	200	148
M16	225	166	310	148
M20	435	321	610	450
M24	750	553	1050	774
M30	1495	1103	2100	1550
M36	2600	1917	3675	2710



GRADE

**2**



GRADE

**5**



GRADE

**8**

## **Parts Numbers and Break Downs**

### **DECALS**

The safety decals are placed on the mixer at the time of manufacture. It is important that all the decals are kept clean and legible at all times. If any decals have become illegible or have been removed, replacements are available through your local dealer, or from PENTA TMR Incorporated.

### **SAFETY DECALS**

The safety decals are placed on the mixer at the time of manufacture. It is important that all the decals are kept clean and legible at all times. If any decals have become illegible or have been removed, replacements are available through Penta machinery dealer, or from PENTA TMR Incorporated.

Penta TMR Incorporated.  
4480 progress drive  
box 1630  
Petrolia, Ontario NON 1R0 TEL: 888-844-7788 FAX: 519-882-3359

Quantity	Component	Description
2	490101	DECAL , DANGER , " KEEP AWAY FROM DUMP"
1	490123	DECAL , WARNING , " DO NOT SHIFT GEARS ON 2 SPEED
3	490102	DECAL , DANGER , " ROTATING DRIVELINE"
1	490124	DECAL , 540 RPM
2	490108	DECAL , GREASE , " 1 PUMP EVERY 8 HOURS"
1	490005	DECAL THE TRIANGLE SLOW MOVING VEHICLE
2	490110	DECAL , DANGER , " KEEP HANDS AND FEET AWAY "
2	490103	DECAL , DANGER , " ROTATING AUGER "
2	490137	DECAL , AMERICAN FLAG
2	490177	MAPLE LEAF, SINGLES RED
2	490176	FLAT BLACK PENTA OUTLINE DECAL, SINGLES
2	490175	PENTA DECAL, SINGLES WHITE
2	490174	HURRICANE DECAL, BLUE
1	490171	BLUE STRIPE, 62.8"
1	490172	BLUE STRIPE, 62.8"
2	490179	3030 DECAL, WHITE
2	490135	DECAL , FOR MIXER DOOR 32" X 2"
1	490122	DECAL , ATTENTION , " USE ONLY 80 / 140 FULL SYN
1	490121	DECAL , HYDRAULIC OIL FLOW , " 12 GALLON / MINUTE"
1	490132	DECAL , MAXIMUM OIL LEVEL
1	490131	DECAL , MINIMUM OIL LEVEL

**Notes:**

