



MIXER OPERATOR MANUAL FRONT-DISCHARGE

Front-Discharge



Welcome to “THE TOTAL SOLUTION” for your concrete placement needs. TEREX has long been known as the premier name in front discharge mixers. TEREX Corporation is a diversified global manufacturer of a broad range of equipment that delivers productivity, return on investment and cost-effectiveness. TEREX markets more than 50 diverse and well-respected brands.

All operators should become familiar with the information in this manual as it will promote safety to you and others, efficiency of operation and long life to the equipment. Keep this manual and all included literature in a safe and convenient location.

IMPORTANT

Read and understand this manual before operating, repairing, or adjusting your TEREX Mixer. The individuals who operate and maintain it must be trained and have knowledge of the equipment. Death or severe injury can occur if this equipment is misused or poorly maintained.

Introduction

Safety Alert Symbol

The safety alert symbol is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.



Safety Alert Symbol

Intended Use of Product

This product and its approved attachments are designed to perform the following: mix and deliver concrete. Use of this product in any other way is prohibited and contrary to its intended use.

Information discussed in this manual explains operation and basic maintenance of your TEREX front discharge mixer.

For service parts, contact your TEREX distributor or contact TEREX. Always refer to the chassis and mixer identification numbers when ordering parts and DO NOT substitute replacement parts.

If you are not sure or have questions about this TEREX Mixer or other products manufactured by TEREX, visit our website:

www.terexrb.com

NOTE

Descriptions and specifications presented in this manual are in effect at the time of printing. TEREX Mixer Inc. reserves the right to change, add or discontinue components without prior notice.

The information on operation and maintenance of the engine and transmission are covered in that manufacturer's literature. Refer to the manufacturer's literature included with this manual.



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The following signal words are used in this manual to identify areas of concern where your safety may be involved. Carefully read the text and observe any instructions provided to ensure your safety.

These signal words indicate an imminently hazardous situation which, if not avoided, will result in death or serious personal injury.

Safety Alert Symbol

The safety alert symbol is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

Safety

DANGER

DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, can result in death or serious injury.

CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

NOTICE

Indicates a potentially hazardous situation which, if not avoided, may result in property damage.

IMPORTANT

*While not directly relevant to the topic being discussed, **IMPORTANT** is used to emphasize information provided, or provide additional information which may be of benefit.*



Safety First

This operation and service information is designed for the basic operation and maintenance of your TEREX FRONT-DISCHARGE MIXER. It contains the information on the correct procedures determined by TEREX for the safe manner of operation and servicing. Always keep this manual in a location where it is readily available for people who operate and maintain the product. Additional copies can be obtained from TEREX.

Product Information

TEREX mixers are manufactured with quality components. Some of these components are produced by other quality manufacturers and those components' information is covered in literature provided with the vehicle. Follow the manufacturers' safety, maintenance and guidelines for the use of their products.

Cleanliness while working on this hydraulic system is extremely important to the safety and reliability of the mixer. Always make sure the hydraulic fittings are clean on the outside before removing them from their connections. Make sure the fittings are capped and plugged when removed and placed in a clean rag or container until they are reinstalled.

Some service operations may require special tools, equipment, or blocking devices (such as chassis lifts or a boom hoist).

Read, understand, and follow the safety guidelines, dangers, and warnings listed and contained in this manual and on the vehicle to promote reliable operation and prevent serious personal injury.

Safety

Safety Warnings

Avoid death or serious injury. Read, understand and obey all of these safety warnings.

- ⚠ DO NOT attempt to service this equipment in an environment where safety regulations are not established and in place.**
- ⚠ DO NOT attempt to service this mixer without the right equipment for supporting its weight or the weight of the components.**
- ⚠ DO NOT operate the hydraulic system if a leak is present. Hydraulic systems operate under very high pressure. Hydraulic fluid escaping from a pressurized system can penetrate unprotected body tissue. DO NOT use bare hands or other exposed body parts to inspect for hydraulic leaks. As a minimum, wear leather gloves to inspect for leaks. Use cardboard, paper or wood to search for leaks. If leaks are present, relieve pressure and allow system to cool prior to servicing. If injured by escaping hydraulic oil, contact a physician immediately. Serious complications may arise if not treated immediately.**

- ⚠ Inspect hydraulic hoses and tubing on a daily basis for leaks, cuts, abrasions or damage before the equipment is put into service. Replace damaged hoses or hoses you suspect are damaged before the equipment is returned to service! Replace the hoses every two years. DO NOT TOUCH! Hydraulic systems are hot. Oil temperatures can exceed 120°F (49°C) causing severe burns to the skin.**
- ⚠ Thoroughly clean any spilled oil from the equipment when work is completed on the hydraulic systems. DO NOT spill fluids on the ground. Clean any fluids from your skin as soon as you have completed maintenance and repairs. Dispose of used oil and filters as required by law.**
- ⚠ Use correct hoses, fittings, and adapters with the correct SAE rating when replacing hoses. Always replace hoses, fittings, and adapters with replacements that have a proper, suitable, working pressure rating. Replacement hoses must be of the correct length and must comply with the hose manufacturer's installation guidelines and recommendations. Hydraulic hoses have the SAE ratings marked on the**



hose to assist you in selecting the correct size and type. The same manufacturer must supply any replacement hydraulic hoses and fitting assemblies. As an example: Brand “A” hose and brand “B” fitting will not normally be compatible. **DO NOT “Twist” the hydraulic hoses.** “Twist” may result in premature hose failure.

- ⚠ **Keep all workers and personnel clear of areas when working on or operating the equipment. Hydraulic cylinders can be holding a function in a position when the engine is OFF. An example of this is a function being held in the lift or partial lift position by the cylinders. If a hydraulic line is removed or the hydraulic circuits or controls are being worked on, the hydraulic pressure may not exist to hold the function in position.**
- ⚠ **Block and secure all applicable devices and functions before beginning work or operation.**
- ⚠ **Damaged or leaking fittings, tubes or hoses must be replaced before the equipment is returned to service. Any hydraulic tubing which is replaced must conform to SAE J1065**

specifications. If incorrect hydraulic tubing is installed, the hydraulic system may fail.

- ⚠ **DO NOT heat hydraulic tubing. The carbon content of this steel tube is such that if heated for bending, and either water or air quenched, the tubing can lose its ductility and be subject to failure under high pressure or hydraulic chock conditions.**
- ⚠ **Relieve all hydraulic pressure from the hydraulic system prior to removing any components from the system.**
- ⚠ **Use caution when lifting and handling these components. Hydraulic components can be heavy.**
- ⚠ **Use the proper hydraulic gauges and properly rated hydraulic hoses to allow the test gauge to be read away from moving parts and functions when performing hydraulic test procedures. Installing an incorrect test gauge, hoses or adaptors can result in serious personal injury if the gauge fails.**

Safety

- ⚠ DO NOT increase hydraulic pressure beyond the recommendations, serious equipment damage can occur.
- ⚠ Block the wheels and/or drum and remove key out of the ignition when working on this equipment.
- ⚠ DO NOT enter under chassis unless engine or power units are stopped, ignition keys are removed and lockout procedures are in place.
- ⚠ DO NOT engage the PTO or driven equipment by hand from underneath the vehicle when the engine is running.
- ⚠ Replace safety signs anytime they are damaged, missing, or cannot be read clearly. DO NOT use the mixer unless the safety signs are in place.
- ⚠ Be sure everyone is clear of the area around the unit before operating after servicing and remain attentive at all times when operating the controls until you are completely sure it is safe to return to service.
- ⚠ Wear the proper protective clothing or gear when operating or maintaining equipment. Wear hard hats, safety glasses, gloves and safety shoes.
- ⚠ Keep hands and feet and other parts of your body clear of revolving or moving parts.
- ⚠ STAY CLEAR of the drum opening. A rotating drum can draw objects in and expel objects out.
- ⚠ DO NOT attempt to start the machine outside the cab or without the seat belt fastened.



- ⚠ DO NOT run this vehicle indoors or in a confined area, unless the exhaust is directed outdoors or the area is properly ventilated for this purpose.
- ⚠ DO NOT modify the Terex mixer in any way without authorization from Terex. Modifications may not comply with safety standards, including ANSI safety standards.
- ⚠ DO NOT use this vehicle as a tow vehicle or any part of the vehicle as a tow bar which is not designed for use as a tow bar or tow hook-up.
- ⚠ DO NOT wear watches, rings, or jewelry while working with electrical and mechanical equipment. These items are hazardous.
- ⚠ DO NOT use the fenders or any other part of the vehicle not designed as a step, as a step or to ride on.
- ⚠ DO NOT climb on ladder or stand on platform, or lean or climb over railing while the vehicle is in motion and keep clear of moving drum or parts.

- ⚠ DO NOT place tools, hoses, hands, arms, or any part of the body or clothing in the vicinity of fins, rollers, drum or any other part of the mixer while it is in motion.
- ⚠ DO NOT overload the mixer or over-speed the vehicle.
- ⚠ DO NOT use any more or any other type of extension chutes than the number or chutes supplied with the vehicle.

Proposition 65

WARNING

Battery posts, terminals and related accessories contain lead, lead compounds and chemicals known to the state of California that can cause cancer, birth defects and other reproductive harm. Wash hands immediately after handling. Diesel engine exhaust and some of its constituents are known to the state of California to cause cancer, birth defects and other reproductive harm.

Safety

Safety Signs

The Safety Signs MUST always be in place before the equipment is used. Placement of these Safety Signs is extremely important to protect the users, the equipment and persons working around the vehicle.

IMPORTANT

Do not paint over any safety sign or safety warning. Solvents or solvent based cleaners can damage the safety signs. DO NOT use any solvents or solvent based cleaners, use mild soap and water only.



Safety Sign Descriptions

Illustration Reference Number	Part Number	Description	Quantity
1	11361	NOTICE, HEAT TREATED FRAME RAILS	2
2	11368	NOTICE, MAX GVW EXCEED LOCAL LAW	1
3a	28655	FUSE/RELAY PANEL - Workspace Cab	1
3b	29985	FUSE/RELAY PANEL - Standard Cab	1
4a	28656	ATO-FB8CF FUSE PANEL - Workspace Cab	1
4b	29990	AUXILIARY FUSE PANE - Standard Cab	1
5a	28657	ATO-FB8 FUSE PANEL - Workspace Cab	1
5b	29991	AUXILIARY HEADER FUSE PANEL - Standard Cab	1
6	28658	NOTICE, DISCONNECT TCM CONNECTOR	1
7	29322	WARNING, READ OPERATOR'S MANUAL	2
8	29323	WARNING, CRUSH HAZARD, MACHINE MOVEMENT	2
9	29324	WARNING, ENTANGLEMENT HAZARD, ROTATING PARTS	2
10	29325	DANGER, ENTANGLEMENT HAZARD, DRIVE LINE	2
11	29326	WARNING, INJECTION HAZARD	2
12	29327	WARNING, FALLING HAZARD	1
13	29328	WARNING, HEARING HAZARD	2
14	29329	WARNING, BURN HAZARD	1
15	29330	WARNING, FALLING MATERIAL HAZARD	2



Safety

Illustration Reference Number	Part Number	Description	Quantity
16	29333	WARNING, INGESTION HAZARD	2
17	29334	WARNING, TIPOVER HAZARD	1
18	29335	WARNING, ENTANGLEMENT HAZARD, DRUM LOCKOUT	3
19	29337	NOTICE, DRUM TRACK DAMAGE	1
20	29338	WARNING, MUST WEAR SEAT BELTS	1
21	29344	WARNING, CRUSH AND CUT HAZARD	7
22	29349	WARNING, FALLING HAZARD, NO RIDERS	2
23	29377	DANGER, CONFINED SPACE HAZARD	2
24	29378	CAUTION, CONCRETE HAZARD	1
25	29379	WARNING, ENTANGLEMENT HAZARD, EQUIPMENT MOTION	11
26	29347*	WARNING, IMPACT HAZARD, DO NOT EXCEED 3 CHUTES	1
27	29359†	WARNING, IMPACT HAZARD, DO NOT EXCEED 2 CHUTES	1
28	29345	NO STEP	As Req'd.
29	41317‡	DRUM MUST BE ROTATING AT ALL TIMES	1
30	29336§	HANG TAG, PERSON INSIDE DRUM	2

* Manual flip chute only.

† Hydraulic flip chute only.

‡ Key chain.

§ Shipped loose.



Safety Sign Symbol Descriptions

The following symbols will help you understand all hazard related safety signs used on this product.

Instructional Symbols



Safety Alert Symbol.



Read Operator Manual.



No Step



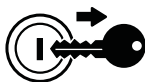
Lock Drum from Rotating.



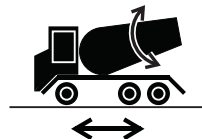
Apply Hang Tags to Steering Wheel and Over Ignition Switch.



Stop Engine.



Stop Engine/Remove Key Before Servicing.



Rotate Drum When Vehicle is Moving.



Fasten Seatbelts.

TA115

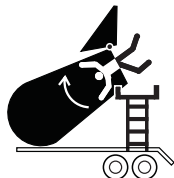
Figure 1-1:

Safety

Hazard Symbols



**Crush Hazard from
Machine Movement.**



**Clockwise Drum Rotation
Can Entangle.**



**Rotating Parts
Can Entangle or Cut.**



**Injection Hazard from
Escaping Fluid.**



**Rotating Parts
Can Entangle.**



**Rotating Parts
Can Entangle.**



Fall Hazard.



**Loud Noise Can cause
Hearing Loss.**

TA116

Figure 1-2:





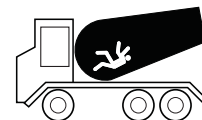
**Burn Hazard from
Hot Surfaces.**



**Tipover Hazard from
Improper Operation.**



**Falling Material Hazard
Can Cause Death or
Serious Injury.**



**Personnel In or Near
Drum.**



**Failure to wear
Seatbelts Can Result
in Death or Serious Injury.**



**Falling Chute can
Crush or Cut.**



**Too Many Chutes Used
Can Cause Chute Breakage.
(Manual Flip Chute Only)**



**Too Many Chutes Used
Can Cause Chute Breakage.
(Hydraulic Flip Chute Only)**

TA117

Figure 1-3:

Safety

Avoidance Symbols



**Stay Away from
Rotating Parts.**



**Wear Proper Personal
Hearing Protection.**



**Stay Away from
Rotating Drivelines.**



**Stay Away from
Hot Surfaces.**



**Keep Away from Leaks.
Do Not Use Hands to
Search for Leaks.**



**Stay Away from
Falling Material.**



**Do Not Drink
this Liquid.**



**Use Access System
Provided.**



**Wear Proper Hardhat
Personal Protection
Equipment.**

TA118

Figure 1-4:





TA119

Figure 1-5:

Safety

Safety Sign Locations

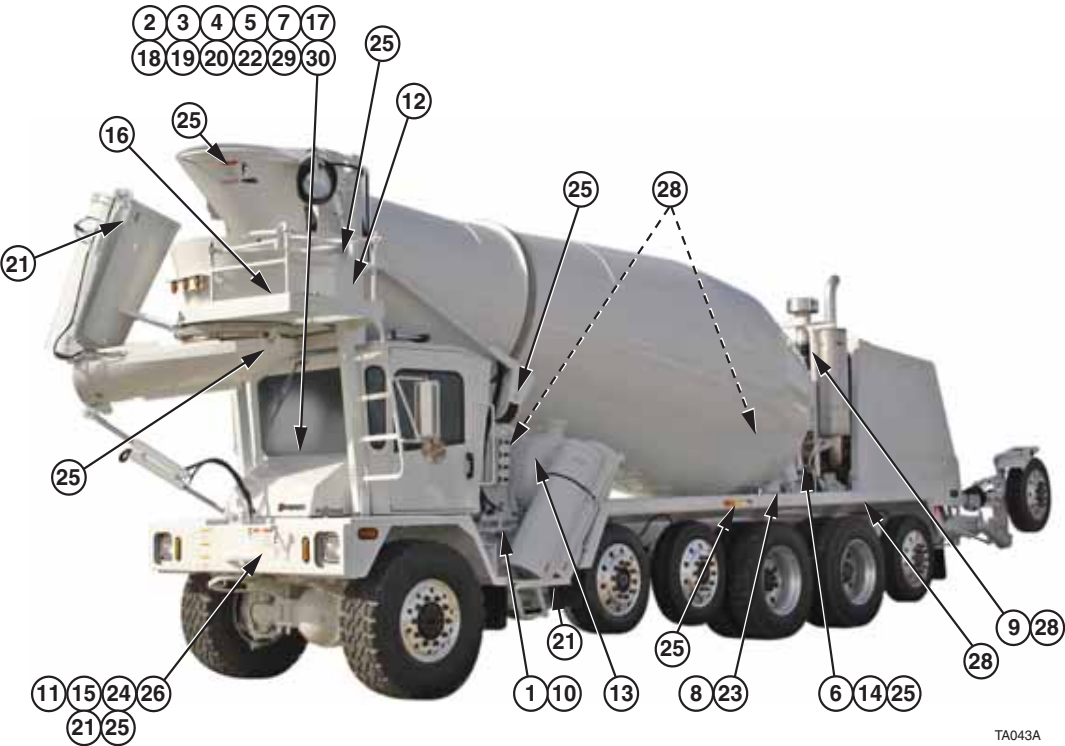


Figure 1-6: Safety Sign Locations

Safety Sign Illustrations

The reference number of the safety sign matches the illustration reference number.



Figure 1-7: Item 1: 11361

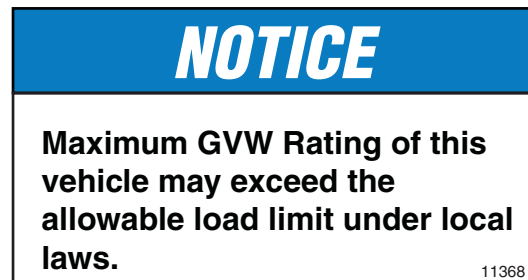


Figure 1-8: Item 2: 11368

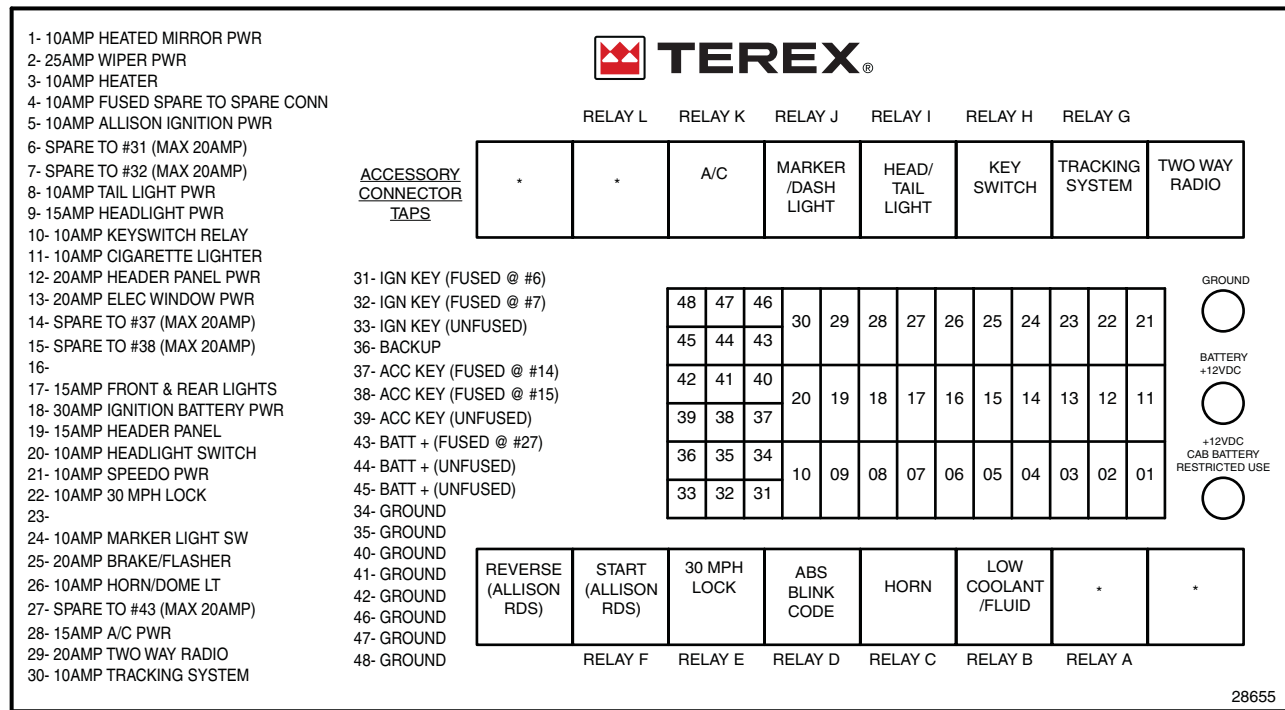


Figure 1-9: Item 3a: 28655



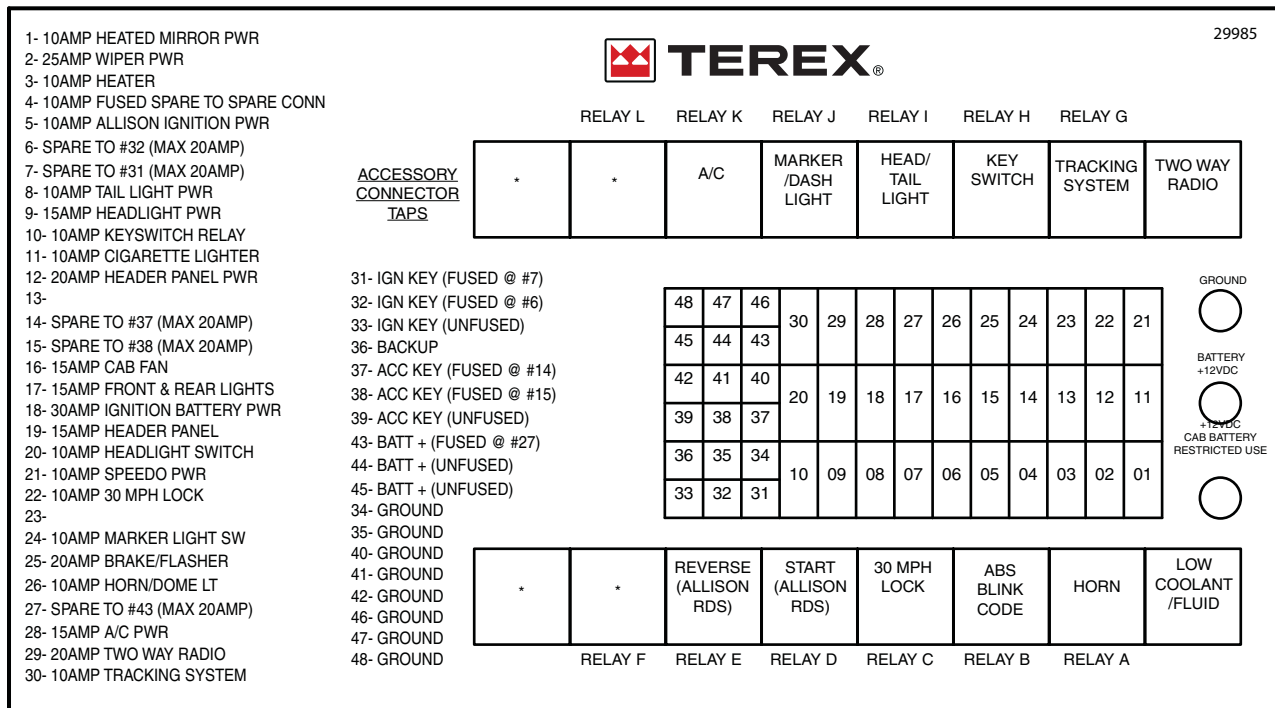


Figure 1-10: Item 3b: 29985

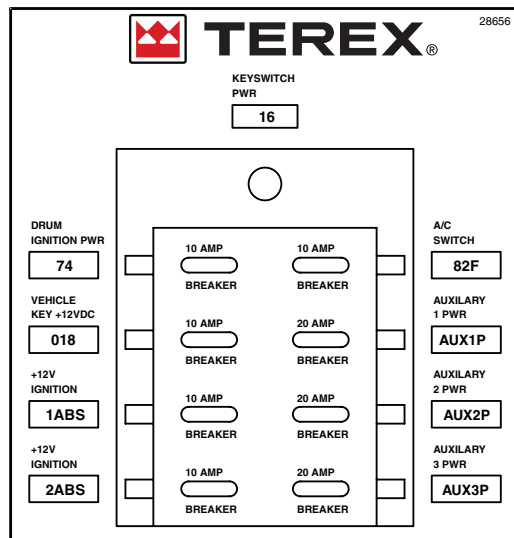


Figure 1-11: Item 4a: 28656

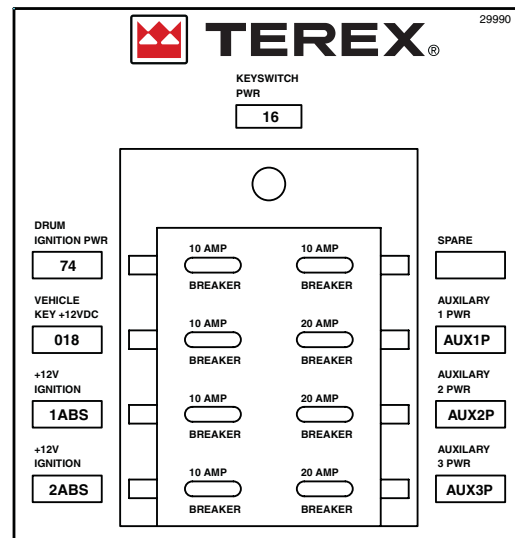


Figure 1-12: Item 4b: 29990

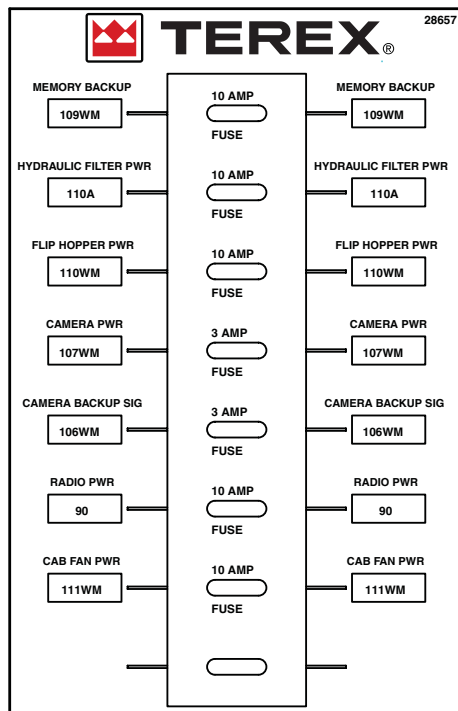


Figure 1-13: Item 5a: 28657

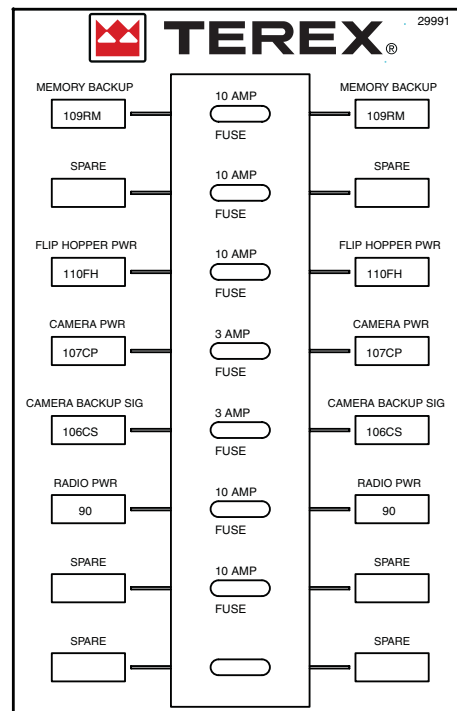


Figure 1-14: Item 5b: 29991

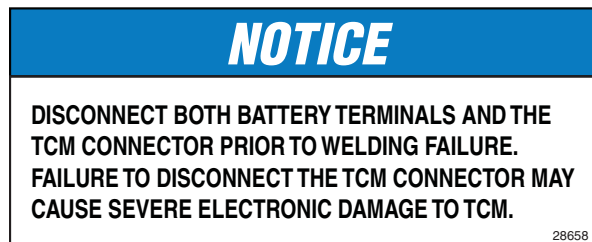


Figure 1-15: Item 6: 28658

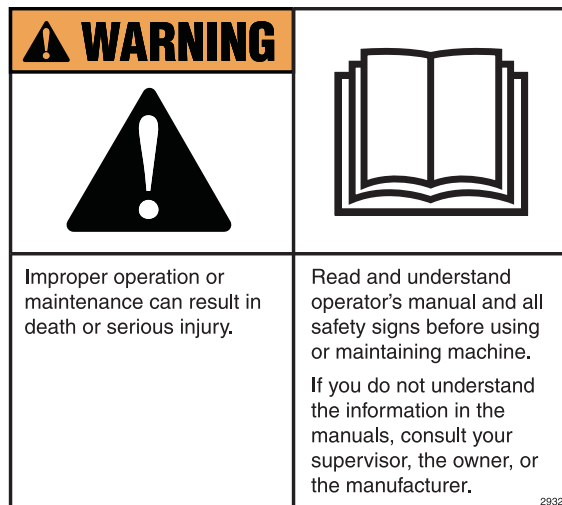


Figure 1-16: Item 7: 29322



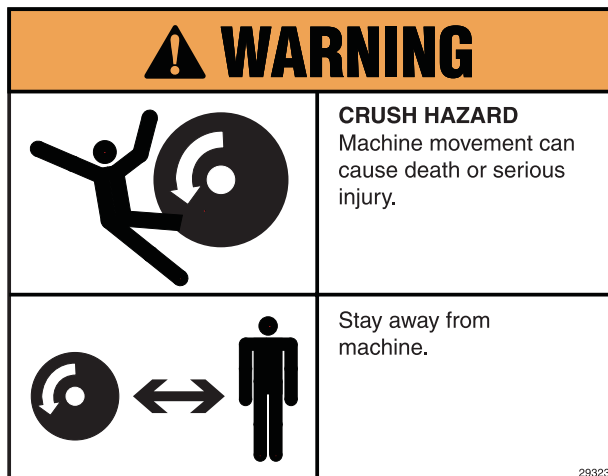


Figure 1-17: Item 8: 29323

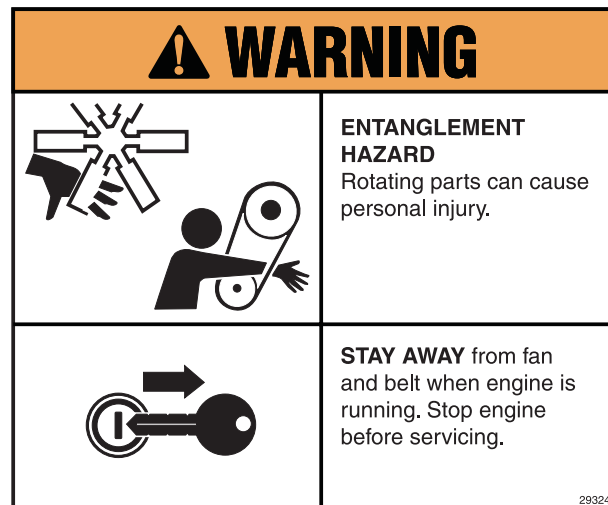


Figure 1-18: Item 9: 29324

Safety

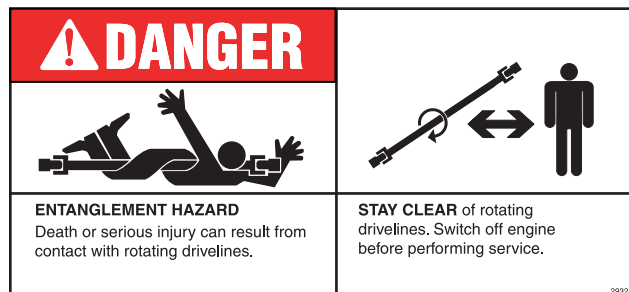


Figure 1-19: Item 10: 29325

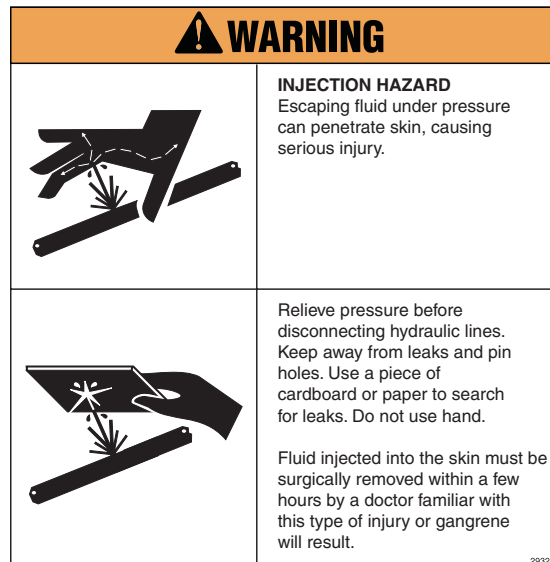


Figure 1-20: Item 11: 29326





Figure 1-21: Item 12: 29327

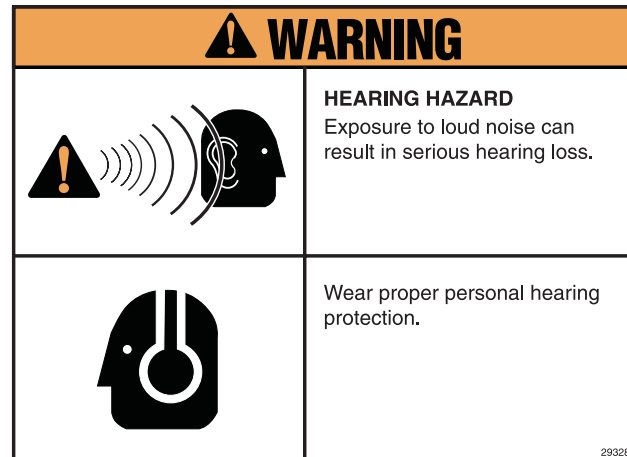


Figure 1-22: Item 13: 29328

Safety

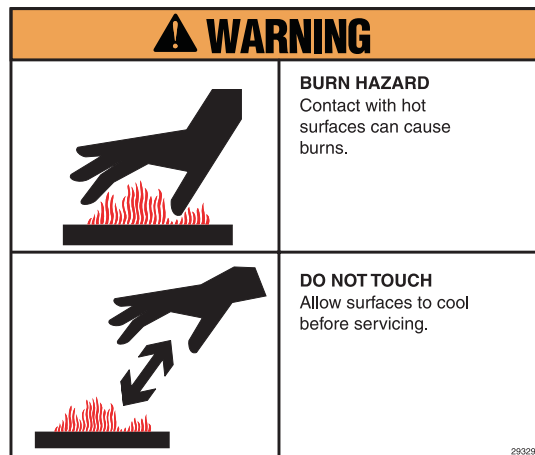


Figure 1-23: Item 14: 29329



Figure 1-24: Item 15: 29330





Figure 1-25: Item 16: 29333

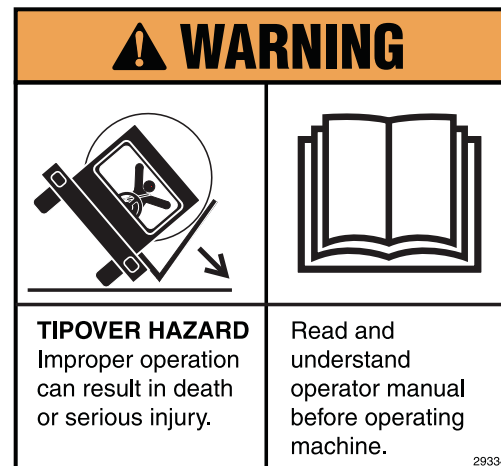
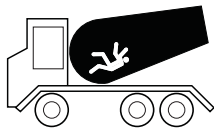






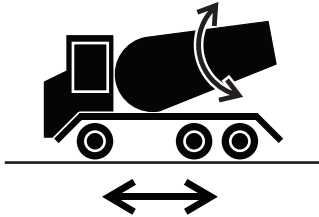


Figure 1-26: Item 17: 29334

⚠ WARNING	
	<p>ENTANGLEMENT HAZARD Drum movement with personnel inside or around drum can result in death or serious injury</p>
<p>1. </p> <p>2. </p> <p>3.  </p> <p>4.  </p>	<p>1. Stop Engine.</p> <p>2. Remove Key.</p> <p>3. Apply hang tags to Steering Wheel and over Ignition Switch.</p> <p>4. Lock drum from rotating. Read operator manual.</p>

29335

Figure 1-27: Item 18: 29335

NOTICE

<p>DRUM TRACK DAMAGE Drum must be rotating when vehicle is moving.</p>

29337

Figure 1-28: Item 19: 29337



 WARNING	
	Failure to wear seatbelts can result in death or serious injury.
	Driver and passenger must wear seatbelts.
29338	

Figure 1-29: Item 20: 29338


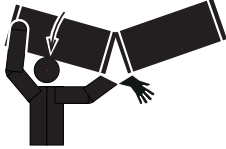
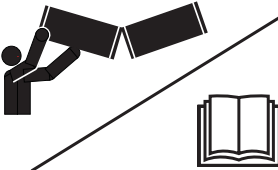


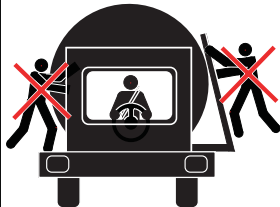
 WARNING	
	
CRUSH AND CUT HAZARDS Falling chute can result in death or serious injury.	Install chute correctly. Read operator manual.
29344	

Figure 1-30: Item 21: 29344

 WARNING	
	
FALL HAZARD Death or serious injury can occur during vehicle movement.	NO RIDERS.

29349

Figure 1-31: Item 22: 29349

 DANGER	
	CONFINED SPACE HAZARD Failure to follow proper procedures for entering drum can result in death or serious injury.
 	DO NOT enter drum unless items below are followed: <ol style="list-style-type: none">1. Comply with OSHA regulations for working in confined spaces. OSHA 1910.146.2. Follow procedure to lockout mixer drum. Refer to operator manual.

29377

Figure 1-32: Item 23: 29377



Figure 1-33: Item 24: 29378

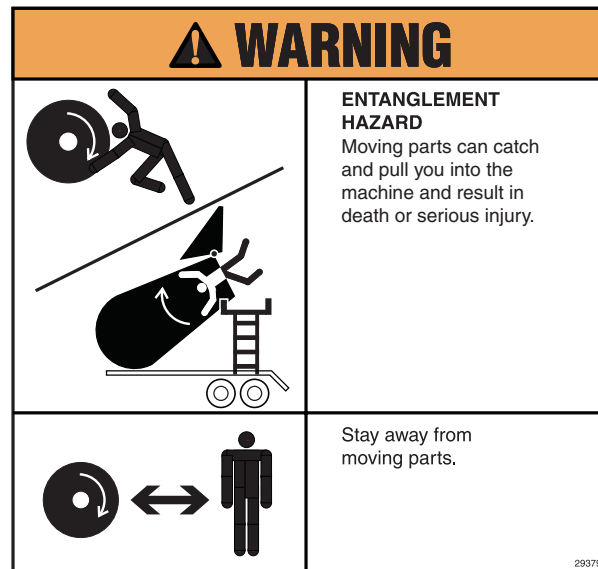
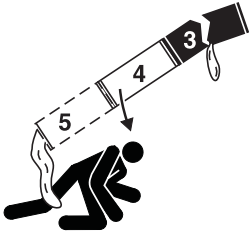


Figure 1-34: Item 25: 29379

 WARNING	
	
<p>IMPACT HAZARD Material overload can cause chute breakage and result in death or serious injury.</p>	<p>DO NOT exceed <u>four (4)</u> chute extensions.</p> <p>Read operator manual.</p>

29346

Figure 1-35: Item 26: 29346

 WARNING	
	
<p>IMPACT HAZARD Material overload can cause chute breakage and result in death or serious injury.</p>	<p>DO NOT exceed <u>two (2)</u> chute extensions.</p> <p>Read operator manual.</p>

29359

Figure 1-36: Item 27: 29359



Figure 1-37: Item 28: 29345



Figure 1-38: Item 29: 41317



Figure 1-39: Item 30: 29336

Safety

[illegible]

Section 2

Front View of Mixer	2-2
Rear View of Mixer.....	2-3
General Cab View - Workspace Cab	2-4
Trainer Seat - Workspace Cab	2-5
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Machine Descriptions

Front View of Mixer

1. Hopper
2. Wash-Down Hose
3. Hopper Lift Cylinder
4. Drum Track
5. Drum Roller
6. Optional Pressure Controls and Gauges
7. Water Tank Fill
8. Water Tank Control
9. Ladder
10. Tow Plate
11. Chute Hoist Cylinder
12. Chute
13. Folding Chute Cylinder
14. Folding Chute
15. Charge Hopper

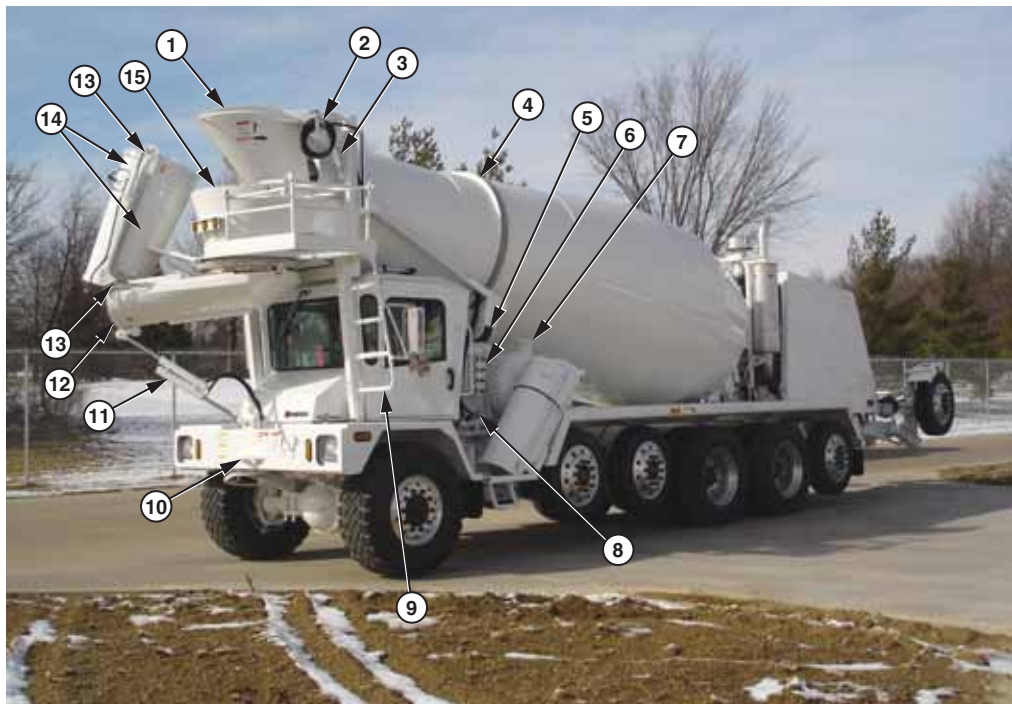


Figure 2-1: Front View of Mixer



Rear View of Mixer

1. Drum Drive Motor
2. Drum Roller
3. Drum Track
4. Chute Swing Motor
5. Remote Chute Controls
6. Water Level Gauge
7. Water Tank
8. Air Tank



Figure 2-2: Rear View of Mixer

Machine Descriptions

General Cab View - Workspace Cab

The actual cab of your mixer may not include all the options shown. For information on controls and gauges, refer to Section 3, **Operation — Cab** and Section 4, **Operation — Drum**.

1. Optional Water Flow Meter
2. Radio
3. Slump Meter/Charge Hopper Control and Indicator
4. Left Instrument Panel
5. Air Dampener Control
6. Center Instrument Panel
7. Right Instrument Panel
8. Joystick Control
9. Console Instrument Panel

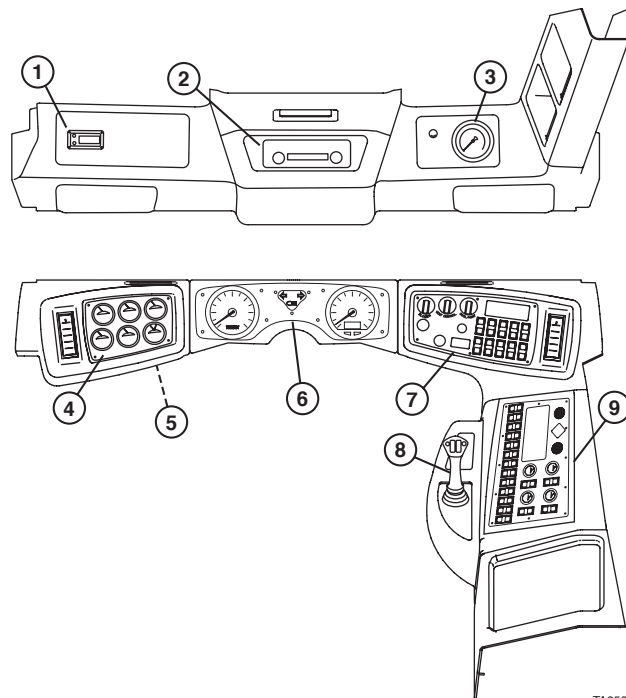


Figure 2-3: General Cab View - Workspace

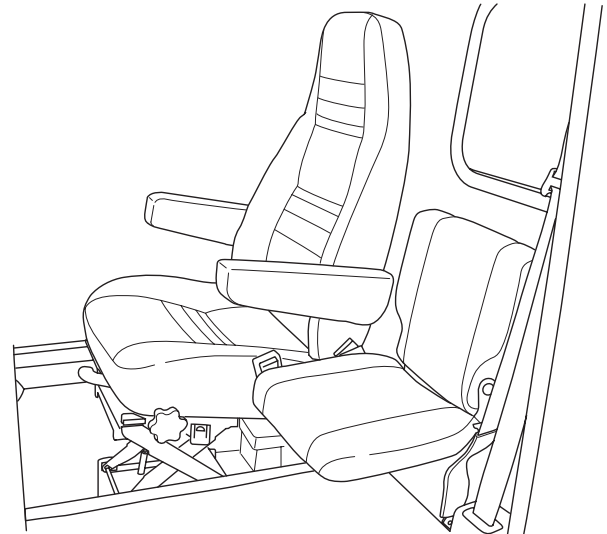


Trainer Seat - Workspace Cab

The optional Trainer Seat is used for training personnel on the use of the front-discharge mixer. The Trainer Seat is only available in the workspace cab. The Training Seat is the only seat to be used in the mixer and to carry a second passenger.

DANGER

Ejection from the cab will cause death or serious injury. All occupants must wear seat belt anytime the vehicle is in motion.



TA110

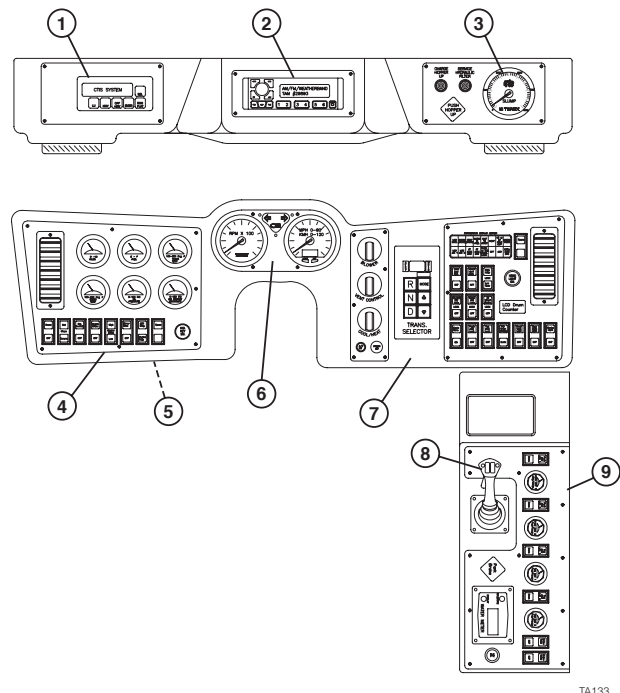
Figure 2-4: Optional Trainer Seat - Workspace

Machine Descriptions

General Cab View - Standard Cab

The actual cab of your mixer may not include all the options shown. The controls and gauges used in the Standard Cab operate and function in the same manner as the Workspace Cab. The controls and gauges are located differently to compensate for the narrower cab. For information on controls and gauges, refer to Section 3, **Operation — Cab** and Section 4, **Operation — Drum**.

1. Operational Central Tire Inflation System (CTIS), refer to the CTIS manufacturer's operator's manual.
2. Radio
3. Slump Meter/Charge Hopper Control and Indicator/Service Hydraulic Filter Indicator
4. Left Instrument Panel
5. Air Dampener Control
6. Center Instrument Panel
7. Right Instrument Panel
8. Joystick Control
9. Console Instrument Panel



TA133

Figure 2-5: General Cab View - Standard



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Entry and Exit

This section contains information on the features of the cab and covers many of the options available. Your vehicle may not have all the features in this section since many are options available from TEREX.



WARNING

Slipping and/or falling can cause death or serious injury. Observe the guidelines and practice safe habits when entering or exiting the cab. Use the three point rule to enter and exit the vehicle. One hand and two feet or two hands and one foot should always be in contact with a secure surface.

The steps should only be used for entering or exiting the cab. DO NOT allow anyone to occupy the steps or the platform when the vehicle is in motion.

DO NOT allow any riders unless the vehicle is equipped with a training seat and seat belt.

Make sure:

- the cab entry/exit bar and step are in good working order.
- the cab entry/exit bar and step are clean and free of debris or obstacles.
- your hands are empty.
- your soles are clean.
- you face the cab, when entering or exiting.
- you hold the cab entry/exit bar and your feet are positioned firmly.
- you use only the cab entry/exit bar and steps to enter or exit.
- you use the three point rule.



Operation — Cab

Safety Belts



Ejection from the cab will cause death or serious injury. Wear your seat belt anytime the vehicle is in motion.

Safety belt systems are designed to limit occupant motion by restraining occupants' bodies within the vehicle and prevent, or reduce the severity of, injuries during most types of collisions. When safety belts are used properly, they are effective in reducing the risk of injury.

The safety belts must be worn by the driver and passenger properly anytime the vehicle is in motion. Get in the habit of connecting the safety belt anytime you enter the cab. **DO NOT** start the machine outside the cab or attempt to fasten the belt when the vehicle is in motion, this leads to inattentive driving and bad safety habits.

The safety belt assemblies meet FMVSS 209, "Type 1" and "Type 2" requirements. This system does not meet the requirements of passengers less than 50 lbs. (25 kg). If a passenger is less than this weight, other considerations must be put in place.

Operating the Safety Belt

To fasten, pull the belt out of the retractor with the latch and insert into the buckle. Make sure the latch is locked.

Adjust the slack so the lower portion of the belt is snug across the hip and with a maximum of 1 in. (25 mm) between the belt and chest. More slack reduces the efficiency of the safety belt.

The release button on the buckle unfastens the belt. Hold the buckle and belt after it is released and allow the retractor to draw in the belt completely. **DO NOT** allow the belt and buckle to "slap" back into the retractor or damage to the system can result.



Inspecting the Safety Belt System

Inspect the safety belt system regularly. The hardware, mounts, retractor and belt should work freely. The belt and/or components must not show signs of deterioration. If you suspect any part of the system is in need of repair, have the system repaired or replaced immediately and use only parts designed for the safety system.

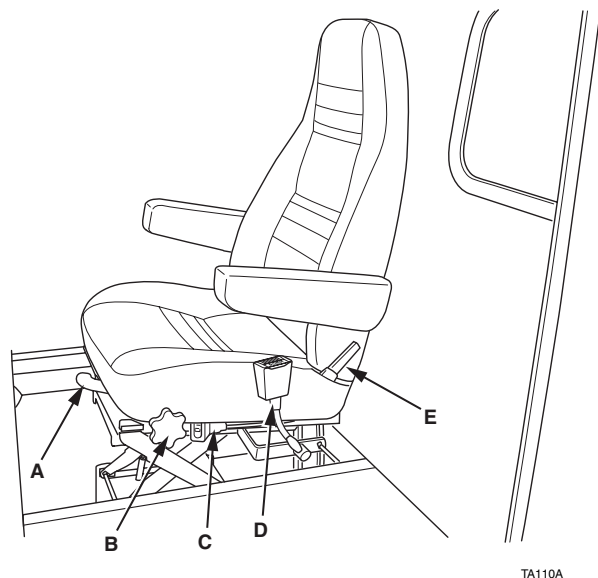
DO NOT alter or temper with any safety belt system components. The system should be replaced at least every five years.

DO NOT use harsh cleaners, bleach or any products which could cause the belt material to deteriorate.

Operation — Cab

Operator Seat Adjustments

The driver seat has adjustments for practical purposes and comfort. Adjust the seat before operating the vehicle.



A = Forward and back adjustment.

B = Lumbar support.

C = Height adjustment. Use care to prevent pinching of hand or fingers.

D = Safety belt buckle.

E = Seat back adjustment.

Figure 3-1: Operator Seat Adjustments



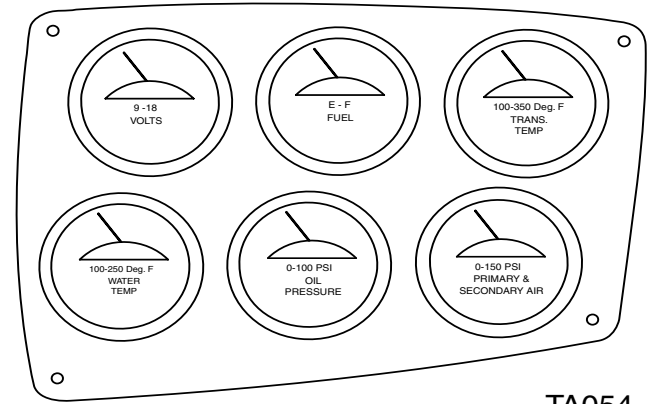
WARNING

The Stop Engine feature can stop the vehicle under certain conditions to protect the vehicle. If the warning is ignored, possible loss of control can occur. Take the necessary measures when the Stop Engine warning is activated.

Left Instrument Panel

Locate the instruments and controls, and become thoroughly familiar with their operation and function before driving this vehicle.

After starting and when driving, always check that the instrument readings are normal. Never choose to protect equipment from damage before personal injury.



TA054

**Figure 3-2: Left Panel Gauges -
Workspace Cab**

Operation — Cab

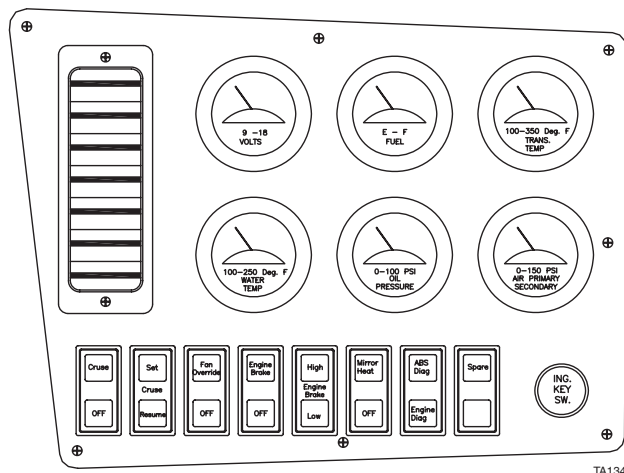


Figure 3-3: Left Panel Gauges - Standard Cab



Volts

This gauge monitors the battery condition and the charging system.

When the ignition is ON and the engine is not running, the gauge will indicate the battery's condition. If the voltage is below 12 volts, the battery may be damaged.

When the engine is running, the gauge will indicate the charging system condition. Normal voltage when the engine is running should be 13 to 15 volts.



Fuel

This gauge monitors the approximate level of fuel in the tank. If the fuel level reaches a low level, the Low Fuel

indicator light will illuminate and an audible alarm will sound.



Transmission Temperature

This gauge monitors transmission temperature. The LED will illuminate and an audible alarm will sound when

the transmission temperature reaches an above normal operating temperature and possible transmission damage can occur.



The CHECK TRANS indicator will illuminate and an audible alarm will sound when a fault has been detected. The CHECK TRANS Warning telltale will illuminate with a steady-on audible alarm when a fault is detected. The tone will stop after 15 seconds and the telltale indicator will remain illuminated.



Pressure (psi)

This gauge monitors the air pressure of the primary air delivery system, which supplies air to the entire air system.

Normal operating pressure is 70 psi to 90 psi (4,8 bar to 6,2 bar).

Other air pressures gauges are within the primary system which can monitor the particular feature designated to the gauge. These gauges are to be used when regulating pressure to those features (brakes, axles, etc.).

Observe the pressure gauges to monitor and detect a drop in pressure, this can be an early detection of an air leak and can identify the circuit affected.

Each air circuit has a low pressure warning switch to identify if the pressure drops below a certain threshold.



Engine Coolant Temperature

This gauge indicates engine coolant temperature. For normal engine operating temperature, refer to the engine manufacturer's operator's manual. The temperature range for the coolant will vary depending on the type of engine, load, grade, ambient air temperature, operating conditions and fluid levels. If the temperature remains below or above the normal temperature range, the cooling system should be checked for problems by your TEREX distributor.

The high temperature warning is based on the engine manufacturer's electronics programming. At an above normal temperature, the CHECK ENGINE light will illuminate with an audible alarm. This warning indicates the engine is at risk of possible damage and the ECU (Electronic Control Unit) will reduce the engine's power. Power will be lost gradually and will reduce to 50% as long as the temperature remains above the activation threshold.

When temperature returns to below the activation threshold, power will gradually return to normal. The problem must be corrected immediately to prevent engine damage. If the engine continues to operate



Operation — Cab

above the activation threshold, and the ECU is programmed to stop the engine, the STOP ENGINE light will illuminate and the audible alarm will sound for 30 seconds, at this point the engine will only allow you time to safely pull off the road, and the engine will shut down.

Allow the engine to cool before attempting to restart. The ECU will determine whether or not to allow a restart, based on the engine temperature and will only allow the engine to start when the engine temperature has returned to the normal operating range.

DO NOT continue to operate the vehicle until the problem has been corrected.

IMPORTANT

Avoid serious equipment damage. Correct the problem causing the warning.

The STOP ENGINE warning will remain on even when the temperature returns to normal. The ignition key must be turned OFF, then ON to clear and reset the warning.



Engine Oil Pressure

This gauge monitors the engine's lubrication system oil pressure. Normal pressure can range from 30 to 70 psi (210 - 480 kPa) during normal operating temperature. At idle, the pressure may be as low as 5 - 20 psi (35 - 140 kPa).

During a cold start, oil pressure may exceed the normal pressure range. If the oil pressure is below the normal operating range, check for problems.

A low oil pressure warning may be programmed in the engine's electronics. When oil pressure is low, the CHECK ENGINE warning light will illuminate and an audible alarm will sound. This warning indicates the engine is at risk of possible damage and the ECU will reduce the engine's power. Power will be lost gradually and will reduce to 50% as long as the oil pressure remains below the activation threshold.

When oil pressure returns to above the activation threshold, power will gradually return to normal. The problem must be corrected immediately to prevent engine damage. If the engine continues to operate below the activation threshold, and the ECU is programmed to stop the engine, the STOP ENGINE



light will illuminate and the audible alarm will sound for 30 seconds, at this point the engine will only allow enough time to safely pull off the road, and the engine will shut down.

The engine oil pressure problem must be corrected before attempting to restart. The ECU will determine whether or not to allow a restart, based on the engine oil pressure and will only allow the engine to start when the oil pressure has returned to the normal operating range.

DO NOT continue to operate the vehicle until the problem has been corrected.

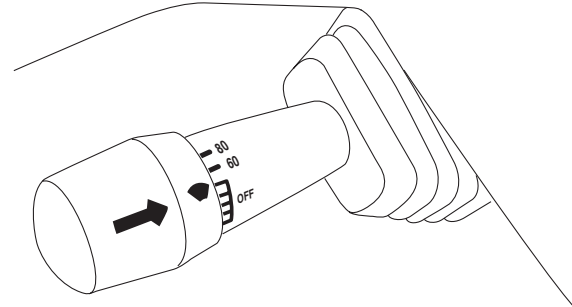
CAUTION

Ignoring warnings may cause serious equipment damage. Correct the problem causing the warning.

NOTICE:

The STOP ENGINE warning will remain on even when the pressure returns to normal. The ignition key must be turned OFF, then ON to clear and reset the warning.

Steering Wheel/Column Multi-purpose Control



TA068

Figure 3-4: Multi-purpose Control

The multi-purpose control has four positions. NEUTRAL, FORWARD, BACK and UP.

Operation — Cab



Turn Signal

Move the control forward to activate the right signal and back for the left signal.

The directional symbols illuminate when the selection is active. The turn signal does not self cancel, it must be returned to NEUTRAL (center) after use. Move and hold the control slightly from the NEUTRAL position for changing lanes.



Headlight Low/High-Beam

Pull the control up to change the intensity of the headlight beam. The “High-Beam” symbol will illuminate

when the high-beam selection is active. Pull up on the control again to return to low-beam.

Hazard Light Switch

The hazard or four-way warning circuit is activated by pulling out the tab under the turn signal lever until it locks in place.

The hazard lights function independently from the ignition switch. To cancel the hazard lights, move the turn signal lever either up or down.

Use only when the vehicle is stopped where it might be a danger to other vehicles or to alert others of a problem that change traffic flow.

Windshield Wiper

Operate the wiper by rotating the end of the control. The switch has HI (high), LO (low) and INT (intermittent) positions. The OFF position is between LO and INT. Rotate the switch forward to LO or HI and back to intermittent. Rotating it further back, increases the rate of wipe in the INT mode. There are six rates in the INT mode. The wiper motor has a protective switch to shut down the motor if it is overloaded.

NOTICE

The wiper motor contains a built-in protective thermal switch that will shut down the motor if it is overloaded. The continued operation of the wipers over a dry windshield for an extended period may overload the wiper motor sufficiently to trip the thermal switch.

Windshield Washer

Press the switch in to activate the windshield washer. The washer will continue to dispense fluid until it is released. The wiper must then be turned on manually.





Horn

An electric horn is located in the center of the steering wheel as standard equipment.

Air Horn

Pull the cord above the driver's door to activate the optional air horn. When the cord is pulled, a valve releases air to the horns.

Steering Column Tilt

The steering column can be adjusted for driving comfort. The adjustment lever is located below the Steering Wheel/Column Multi-purpose Control.

Push the lever forward to adjust the column. Pull the lever back to lock into adjusted position.

Center Instrument Panel

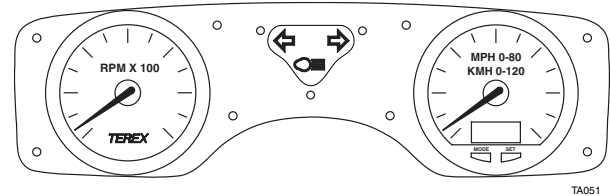


Figure 3-5: Center Panel - Workspace Cab

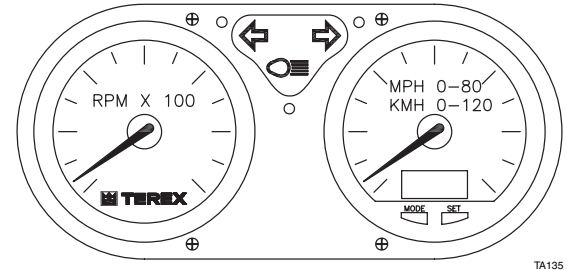


Figure 3-6: Center Panel - Standard Cab

Operation — Cab

Tachometer

The tachometer operates from a signal from the engine ECU. Monitor the tachometer to guide you through the correct gear shifting rpm with a manual transmission to prevent engine over-speed when shifting, descending or climbing steep grades. Each engine has certain operating ranges for power and economy. Refer to the engine manufacturer's operator's manual to verify the best operating range of the engine your vehicle is equipped with.

Always monitor the tachometer. DO NOT allow the engine to over-speed; operating above the engine's limits can cause serious engine damage.

Speedometer

The speedometer operates from a signal from the engine ECU. It displays the vehicle speed in MPH (Miles Per Hour) and Km/h (kilometers per hour). The speedometer has been calibrated for the tires the vehicle is equipped with. Tire size should not be altered, since this will have a direct impact on loads, capacities and the speedometer signal. If the tire size is altered, recalibration of the speedometer must be performed.

Odometer

The odometer is a LCD (Liquid Crystal Display) in the lower portion of the speedometer. The odometer will register up to 999,999.9 miles or kilometers.

Trip Odometer / Hour Meter / Auto Test

The odometer LCD in the lower portion of the speedometer is a multi-function display. It can be used as a trip odometer, engine hour meter, to test the instrument panel and for on-board diagnostics. Use the MODE and SET buttons to navigate the onboard diagnostic functions.

Trip Odometers (TRIP 1, TRIP 2) – There are two resettable trip odometers. Each trip odometer can display up to 9999.9 miles or kilometers. To reset to 0: display the selected trip odometer and press “SET.”

Trip Odometer 2 – Press “SET” again to display trip odometer 2.

Hour Meter – The hour meter displays engine hours up to 9999.9 hours, then returns to 0. Each time the ignition is switch on, and every 10 seconds, the System Control Unit (SCU) requests engine hours from the ECU. The hour meter cannot be reset and the SCU does not store total engine hours.



Auto Test – The auto test feature allows you to test the gauges and the Information Display Center (IDC). Use the MODE and SET buttons to navigate and test.

NOTICE

All dash gauges will respond to this test except the pressure gauge.

Press MODE and select “DIAGTST,” “AUTO” will display.

Pressing SET while AUTO is displayed starts the four-phase Auto Test sequence:

- “MIN” will display, and all gauge pointers will move to their minimum position in unison, then
- “MID” will display, and all gauge pointers will move to their mid-point position in unison, then
- “MAX” will display, and all gauge pointers will move to their maximum position in unison, then
- “LED” will display, and all gauge pointers will return to the “off” position and the gauge LEDs will illuminate.

The sequence will continue until the MODE or SET button is pressed, and “AUTO” will display.

This test will indicate all gauges and LEDs are working.

Manual – The manual mode allows you to test the gauges and the Information Display Center (IDC) individually. Use the MODE and SET buttons to navigate and test.

Press the mode button to select an individual gauge or IDC indicator to test and press the SET button to perform the test. The SET button functions in the same manner as in Auto Test. The IDC indicators will display to show they are functioning.

“SPEED”	checks:	speedometer and LED
“TACH”	checks:	tachometer gauge and LED
“OIL PSI”	checks:	engine oil pressure gauge and LED
“H2O”	checks:	engine coolant temperature gauge and LED
“VOLTS”	checks:	voltage gauge and LED
“TRANS”	checks:	transmission fluid temperature gauge and LED
“FUEL”	checks:	fuel gauge and LED

Operation — Cab

- “LB1” checks: IDC indicators
Press “SET”.
- “TT1” checks: LOW COOL (low engine coolant)
- “TT2” checks: CHECK ENGINE
- “TT3” checks: STOP ENGINE
- “TT4” checks: WATER IN FUEL
- “TT5” checks: WAIT TO START
- “TT6” checks: RR TAG DIF (rear tag axle differential)
- “TT7” checks: DT AXLE DIF (drive transfer axle differential)
- “TT8” checks: CHECK TRANS
- “TT9” checks: LOW AIR 1 (primary air tank)
- “TT10” checks: LOW AIR 2 (auxiliary air tank)
- “TT11” checks: FT AXLE ENG (front axle engagement)
- “TT12” checks: FT AXLE DIFF (front axle differential)
- “TT13” checks: PUSH WHEEL LOCK
- “TT14” checks: TAG WHEEL LOCK
- “TT15” checks: ABS
- “TT16” checks: INTER AXL ENG (inter axle engagement)



Right Instrument Panel

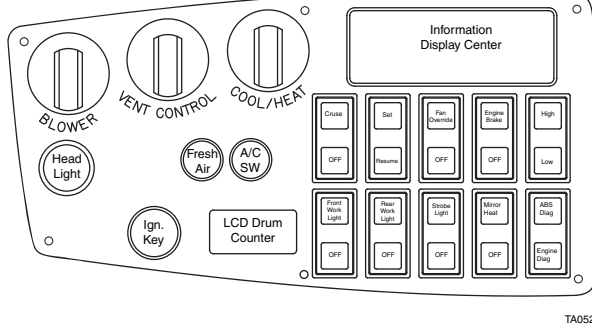


Figure 3-7: Right Panel - Workspace Cab

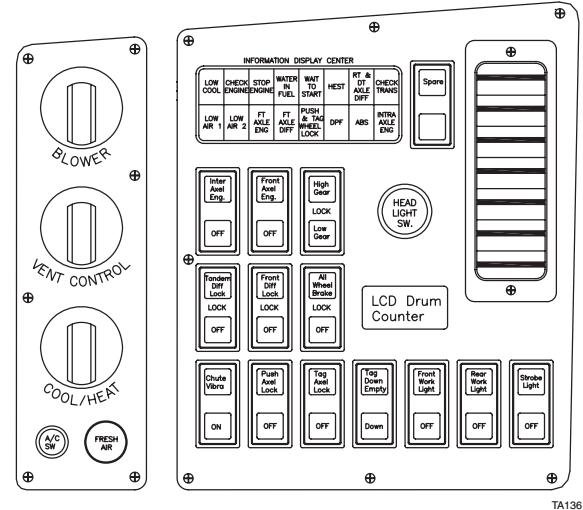


Figure 3-8: Right Panel - Standard Cab

Cab Ventilation

The cab ventilation system is designed to provide comfort to the cab.

Operation — Cab

Ventilation Controls

The ventilation controls work with the heat, air conditioning and the economy mode (no A/C).

Blower – Adjusts the volume of air flow. Counterclockwise reduces and clockwise increases air flow.

Vent Control – Directs air flow. Counterclockwise directs air to the floor and clockwise directs air from the floor to the vents, then to the windshield. Complete clockwise will direct all the air flow to the windshield for defrost mode.

Cool/Heat – Adjusts the air temperature. Counterclockwise lowers the air temperature and clockwise increases air temperature.

Fresh Air – Allows cab to be supplied with fresh outside air without the blower operating. This ventilation system uses the movement of the vehicle to supply air flow.

A/C – Activates the air conditioning compressor. The COOL/HEAT can be adjusted for desired comfort level.

Air Dampener Control – The Air Dampener Control can direct airflow to the floor of the cab and to the windshield, or all the air in the air dampener plenum can be directed to the windshield.

The dampener is located under the left control panel, underneath the dash. The air diffuser can be opened to allow more air flow toward the floor or closed to direct all the air to the windshield. The diffuser also rotates to direct air to a desired direction.



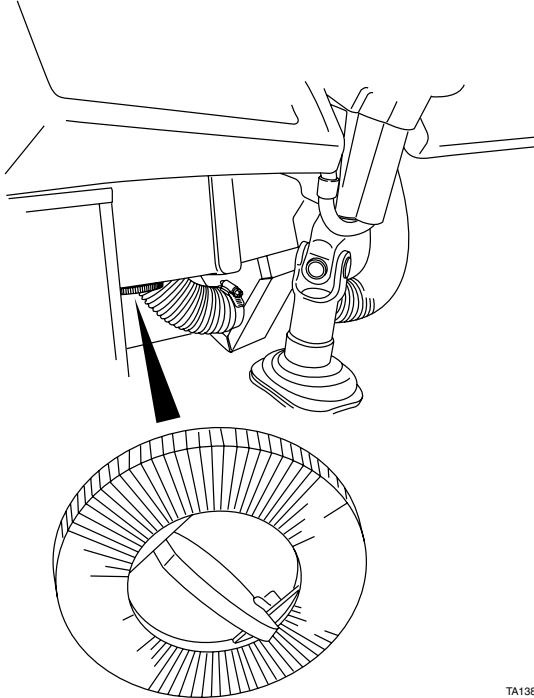


Figure 3-9: Air Dampener Control

Drum Counter – Counts the number of rotations of the drum. (RPM – Revolutions per Minute) **RESET** – Is used to reset counter after each payload is discharged.

Liquid Crystal Display (LCD) – Display information panel for the speedometer “Auto Test” functions, refer to **Center Instrument Panel, Speedometer – Auto Test**.

Cruise On/Off – Activates the cruise control system. The cruise control switch must be in the ON position before it can be set and the system only operates above 25 MPH. DO NOT use the cruise control in heavy traffic areas and the system only operates throttle control.

To engage the cruise control system and set the vehicle speed:

1. Set the CRUISE ON/OFF switch to ON.
2. When the desired speed has been reached, move the SET/RESUME switch to SET.

Vehicle speed can be adjusted by pressing the SET to accelerate or RESUME to decrease speed. The speed will increase as long as SET is held, or decrease as long as RESUME is held. Release the switch when the desired speed has been reached.

Operation — Cab

To return to a preset speed after the brake is pressed, press RESUME.

Pressing the SET in increments of one, will increase speed one MPH every time SET is pressed, or pressing the RESUME in increments of one, will decrease speed one MPH every time RESUME is pressed. The cruise control system must be set at a desired speed before this feature functions.

Fan Over-ride – Over-rides the engine's cooling fan temperature sensor. The engine's cooling fan is activated by a sensor which turns the fan off or on at certain temperatures. If high engine temperatures are recognized, or a warning is indicated, press the "fan" icon to turn on the fan. The fan will continue to operate until the FAN OVER-RIDE side of the switch is pressed.

Engine Brake – Retards engine speed to reduce vehicle speed. An engine brake system does not replace the conventional braking system on your vehicle for stopping, and should only be used under certain conditions.

The engine brake system will not be as responsive as the conventional braking system, make sure you become familiar on how it functions.

Some braking systems are compression brakes and are similar in operation. The selection of power levels can vary based on the engine. Use the ENGINE BRAKE – HIGH / LOW, to select the amount of power. Refer to the engine's operators manual.

Work Lights and Strobe Light – Operates exterior work lights and strobe lights. Make sure these lights are off before getting back into traffic.

Mirror Heat – Operates the heated mirrors. The heated mirrors are set on a timer and will turn off automatically.

ABS and Engine Diagnostics – Selects the diagnostic mode for either the ABS or engine. Refer to the engine's operators manual.

Cruise Control

To engage the cruise control and set the vehicle speed:

1. Set the cruise control ON/OFF switch to the ON position.
2. When the desired vehicle speed is reached, move the SET/RES switch to the SET position.
3. If the vehicle speed needs to be increased, push the SET/RES switch upward to accelerate the



vehicle. The vehicle speed will increase as long as the switch is held. Release the switch when the desired speed is reached.

4. To reduce the vehicle speed, push the SET/RES switch downward to decelerate the vehicle. The vehicle speed will decrease as long as the switch is held. Release the switch when the desired speed is reached.

NOTICE

As an option, some vehicles may be equipped with Base PTO Mode.

Base PTO Mode allows the vehicle to be operated below 30 MPH with the cruise control engaged. This feature is a function of the electronic engine control unit. Refer to the engine manufacturer's operator's manual for more information.

NOTICE

The cruise control switches may be used to control more functions than just the cruise control. Ensure that you are familiar with the operating characteristics of the vehicle and any additional functions the cruise control switches have control over.

Engine Brake

Press the top of the switch to turn on engine braking.

Press the bottom of the switch to turn off engine braking.

High/Low

Press High to accelerate the braking rate of retardation.



Headlights

The headlight switch is a three position switch which controls the parking lights and headlights, and rotates to control the instrument panel lighting. The first position (in) is OFF. The middle position will illuminate the parking lights, vehicle marker lights and taillights. The third position (out all-the-way) will add the heads lights to all the other lights illuminated.

Rotate the switch clockwise to increase the intensity of the instrument panel lights. Rotate the switch counterclockwise to dim the instrument panel lights.

The headlights are halogen sealed beam. If one of the lights fails, replace the whole light.

Operation — Cab

Daytime running lights (DRL) are standard and will illuminate when the parking brakes are released and the ignition is ON and will stay on until the parking brakes are engaged or the headlights are switched on.

Ignition/Start Key

The starter switch consists of a keyed ignition switch. Key positions are OFF, ACC (accessories), IGN (ignition) and STR (start) for all engines. Refer to **Engine Operation** on page 3-29 for proper starting and preheating procedures.

Turn the key switch to ON to start the engine. Turn the key to OFF to stop the engine.

Keys are available as unique for only one vehicle or a common key can be ordered for a whole fleet.

LCD Drum Counter

Displays the number of drum revolutions. Press the button to reset.

Press Low to decelerate the braking rate of retardation.

Anti-Lock Brake System



Different tire size combinations can cause death or serious injury from loss of control. Replace tires with the same size and type.

DO NOT change the tire sizes. The ECU is programmed with the tires installed during production. Installing different size tires can result in reduced braking force and longer stopping distances.

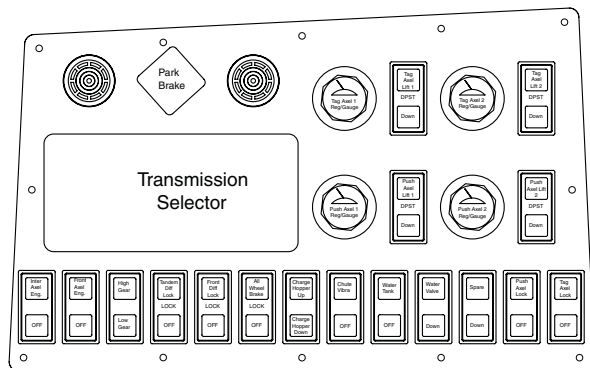
The ABS system will go through its self test when the ignition switch is turned on. The indicator will illuminate and should stay on until the self test is over. If the indicator stays on, there is a problem with the ABS.

If the indicator illuminates during driving, the ABS self test has detected a fault in the system.

The vehicle can still be driven with a problem in the ABS temporarily, but the ABS will not be operating and standard air braking will be in effect. The vehicle should not be operated without ABS since braking characteristics will be different.

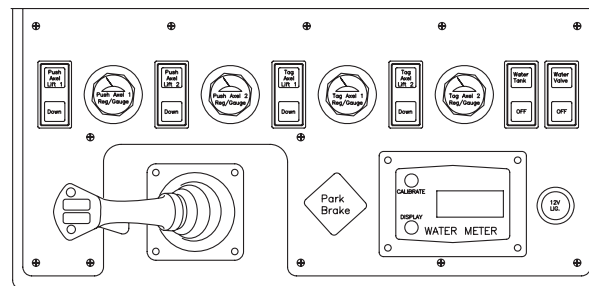


Console Instrument Panel



TA053

Figure 3-10: Console Instrument Panel - Workspace Cab



TA137

Figure 3-11: Console Instrument Panel - Standard Cab

Operation — Cab

Inter-Axle Engage

This two position switch controls the inter-axle power divider.

The inter-axle lock is used to provide additional traction in conditions where all drive wheels are slipping. The inter-axle lock switch, when engaged, locks the forward-rear and the rear-rear axle together, so both axles receive equal power.

Use the inter-axle lock switch only to move the truck out of conditions where all drive wheels are slipping. When traction has been achieved, disengage the inter-axle lock.

NOTICE

DO NOT engage the inter-axle lock while the vehicle is in motion or when the wheels are turning.

The inter-axle lock can be disengaged while the vehicle is in motion.

Front Axle Engage

This two position switch engages/disengages the front axle.

Press the bottom of the switch (OFF) to disengage the front axle wheels from the transfer case. Use this setting during all hard surface operation.

Press the top of the switch to engage the front axle. In this setting, the axle is driven by the transmission, through the transfer case. Use this setting during off road operation.

You can engage the front axle in either “High” or “Low” range (refer to High Gear/Low Gear) but the vehicle should be moving less than 15 mph or at a complete stop. The front axle is automatically engaged when “Low” range is selected.

Only disengage the front axle in “High” range and with the vehicle traveling 15 mph or less. It is not usually possible to disengage the front axle when the vehicle is stopped.

NOTICE

“Drive line wind up” could occur when a mismatch exists between the front axle and the tandem axle. In this situation, stop the vehicle, shift to reverse and back the vehicle a short distance to allow disengagement.



High Gear/Low Gear

The transfer case is a two-speed capable of either high or low range operation. Press High Gear or Low Gear to adjust operation. The “Low” range provides maximum pulling power and reduced vehicle speed.

To change the transfer case range:

1. Completely stop the vehicle.
2. Disengage the parking brake, depress the brake pedal and press High Gear or Low Gear.
3. Continue to depress the brake pedal with the engine at idle and shift the transmission to drive, then to neutral, then to reverse and back to neutral. This ensures proper engagement/disengagement of the front axle and the transfer case.

NOTICE

DO NOT shift the transfer case when the vehicle is moving. Shift only while the vehicle is stopped and in “Neutral.” Failure to do so will result in vehicle damage.

IMPORTANT

If a grinding noise when shifting the transfer case, shift to NEUTRAL until the noise stops

and then repeat the transmission gear selection.

Tandem/Front Differential Locks

There are tandem (Driver Controlled Differential) and front differential locks. The differential lock eliminates one-wheel spin on slippery surfaces and improves traction. When the wheel lock is engaged, an indicator will display in the differential lock switch.

NOTICE

When the differential lock is engaged, the turning ability of the vehicle is affected. Engage the tandem differential lock in off road situations where minimal turning is required. Avoid damage axles and tires, DO NOT operate the vehicle with the differentials locked any longer than necessary.

Only use the differential lock on icy or slippery conditions, at low speed. Never engage differential locks during a wheel-spin condition, engage the locks in advance. If the vehicle is already slipping, come to a complete stop, engage the locks and continue.

Operation — Cab

All Wheel Brake

The all wheel brake applies service brakes on all axles.

IMPORTANT

DO NOT use the all wheel brake as a parking brake.

Charge Hopper Up/Down

The charge hopper can be moved up and out of the way.

Press Charge Hopper Up to move the hopper up over the cab.

Press Charge Hopper Down to move the hopper to operating position.

Chute Vibration

Chute vibration is controlled from the cab.

Press Chute Vibration to vibrate the chute.

Press OFF to stop chute vibration.

Water Tank

Pressurizes the water system.

WARNING

Explosion from over pressure to the water system can cause death or serious injury. DO NOT exceed 120 psi (8.3 bar) or pressurize an empty tank, or modifying it. If pressure exceeds this value, depressurize the tank and replace air regulator valve.

IMPORTANT

Always relieve the water tank air pressure during periods of non-use. Refer to Section 7, Bleeding Air from Water System.

Water Valve

The water valve switch controls water pressure. Press the bottom of the switch to turn the water pressure off. Press the top of the switch to turn the water pressure on. Always depressurize the water tank before filling.

Spare

Optional accessory control.



Push Axle/Tag Axle

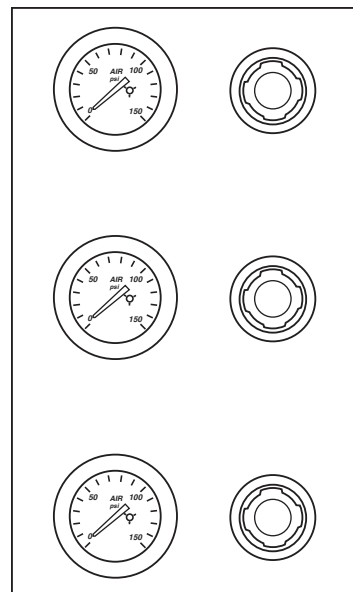
The vehicle retractable axles are controlled by switches in the cab except where regulations require external pressure adjustment controls.

The panel includes switches to lift and lower tag and push axles as well as pressure regulators with gauges which allow the operator to control and monitor the air pressure for each axle. There are also switches to lock the push and tag axles.

If your trailer tag axle has hydraulic cylinders, they are used to stow and deploy the trailer axle only. Down pressure must still be applied from the pressure regulator to compensate any additional load.

IMPORTANT

Air pressure regulators on retractable axles must be adjusted according to payload weight and state weight requirements per axle. Contact Terex if you are unsure what your particular state weight law requirements are.



TA114

Figure 3-12: Push Axle/Tag Axle Exterior Switch and Pressure Gauge Panel

Operation — Cab

Warning BEEPERS

Warning beepers sound in the cab when:

- the vehicle is put in reverse with the steerable retractable axles in the DOWN position. Switch the retractable axles to the UP position and the beeper will turn OFF.
- engine oil pressure drops below the minimum operating pressure. This beeper sounds momentarily when the engine is started but should stop when the operating oil pressure is reached.
- water temperature rises above 215°F (102°C).
- transmission oil temperature rises above 300°F (149°C). Put the transmission in neutral and run the engine at 1500 rpm until the air cooler reduces the oil temperature.

NOTICE

If the warning buzzer sounds during normal operation, stop the vehicle, stop the engine and investigate immediately. A major system failure can occur if you continue to operate the vehicle.

Daily Checklist

Each day before operation, visually inspect the following:

- hydraulic pump.
- hydraulic lines.
- motor to drum transmission connection.
- transmission fluid level.
- hydraulic fluid reservoir (fluid level).
- hydraulic cylinders.
- chute swing mechanism.
- extension chutes.
- control valves.
- slump meter.
- drum to roller alignment.
- drum roller lube.

Make sure that all water valves and drains are closed. Check for fluid leakage, broken components and excessive wear.



After daily operation, completely drain the chassis air system.

Weekly Checklist

Make sure:

- mixer mounting bolts, direct drive mounting bolts, water tank brackets and PTO mounting bolts are secure.
- roller alignment is correct.
- direct drive lubrication is full.
- chute lifter reservoir is full with chutes down.

Engine Operation

The Allison automatic transmission is electronically controlled. The control's package oversees the operation of the transmission, controlling transmission upshifts and downshifts and providing important information about the operation of the drive system. For detailed information, refer to the transmission operation manual provided with the vehicle.

Warm Up

Allow the engine to warm to operating temperature before moving the vehicle or operating the on-board systems. Observe the left panel gauges whenever the engine is running.

- Allow all engines with turbo chargers to idle until the turbo charger temperature stabilizes.
- Verify that the oil pressure is correct and that the engine coolant is within recommended limits.
- Check the voltmeter to verify battery charging system operation. The charging voltage may surge immediately following start, but should drop to the normal range soon after.
- The low air pressure warning light illuminates until the air system achieves the operating pressure of 60 psi (4.1 bar). Optional audible low air warning buzzers may be installed.
- All engines installed by Terex comply with the U.S. Clean Air Act. Once the vehicle is delivered, compliance with those regulations becomes the responsibility of the owner/operator.

Operation — Cab

DANGER

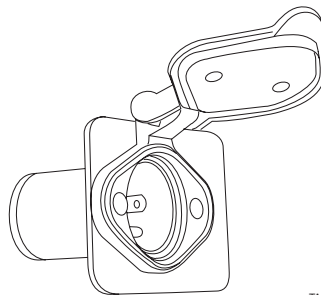
Carbon monoxide will cause death or serious injury. DO NOT operate the vehicle in a closed area.

New Engines

Refer to the engine operation and maintenance manual provided with the vehicle.

Cold Weather Starting Aids

Each chassis is equipped with an engine heater to assist with starting during cold weather. The heater can be plugged into a standard 110 volt circuit at night if cold weather is expected. The extension cord must be OSHA approved and rated for a minimum of 15 amps.



TA067

Figure 3-13: Engine Heater Plug

WARNING

Fire, explosion or electrocution can cause death or serious injury. Refer to the engine's operators manual before using starting fluids or electrical boosters.

NOTICE

Some starting fluids or electrical battery boosters can cause severe damage to the vehicle's engine or electrical system.



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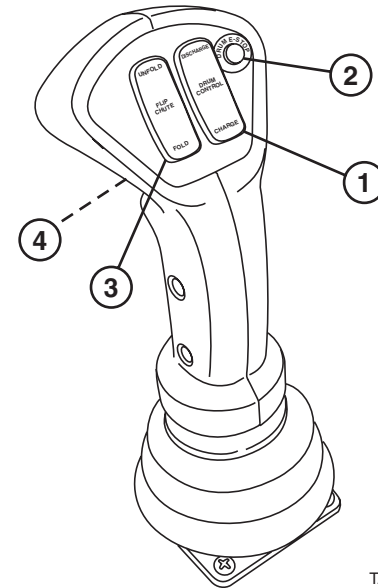


Drum Drive Cab Control Electric/Hydraulic Joystick

The following illustration and table identify and describe the controls used on the TEREX mixer. Not all the instruments and controls shown here are on your equipment, as items covering various models and options are illustrated.

In order to ensure proper operating procedures and to avoid hazardous operating conditions, refer to this section to become familiar with how to read and use the instruments and controls on this equipment.

In some cases, other sections in this manual are referred to in order to provide more detailed information on operating this vehicle. Familiarize yourself with these sections before placing this equipment in service.



TA069

Figure 4-1: Electric/Hydraulic Joystick

Operation — Drum

Drum Control

CHARGE/DISCHARGE (1) - controls the direction and RPM of the drum. Holding Drum Control in either direction will increase drum RPM. When the switch is released, the RPM speed will maintain. If Drum Stop is pressed and the drum is stopped, when Drum Stop is pressed again, the drum RPM will continue at the previous RPM and direction.

To reduce drum RPM speed, press and release CHARGE or DISCHARGE, based on direction of rotation, until desired RPM is reached. Pressing and releasing CHARGE or DISCHARGE will also take the drum rotation to neutral (no rotation). If Drum Stop is pressed when the drum is in NEUTRAL, the drum will not resume rotating until CHARGE or DISCHARGED is press to give the drum direction.

- Activate trigger and hold, and push CHARGE (mix) payload.
- Activate trigger and hold, and push DISCHARGE payload.

Flip Chute

UNFOLD/FOLD (2) - unfolds and folds the discharge chute. The vehicle must be parked when the chutes are unfolded or folded.

- Activate trigger and hold, and push UNFOLD.
- Activate trigger and hold, and push FOLD.

Drum E-Stop

Start / Stop Button (3) - starts or stops the rotation of the drum. Pressing Start / Stop when the drum is in NEUTRAL will not start the drum rotation, CHARGE or DISCHARGED must be pressed to give the drum direction. If the engine is shut off and restarted when the drum is in neutral, the CHARGE or DISCHARGED must be pressed to restart the drum rotation and give the drum direction.



Control Trigger

Control Trigger (4) - controls all joy stock operation.

- Activate trigger and hold while moving the joystick toward curbside, directs chutes curbside.
- Activate trigger and hold while moving the joystick toward street side, directs chutes street side.
- Activate trigger and hold while moving the joystick forward, moves chutes down.
- Activate trigger and hold while moving the joystick backward, moves chutes up.

The discharge chutes must be in the transport position (cradle) when the vehicle is in transit.

NOTICE

DO NOT hold the trigger unless other functions of the joystick are used. Continuous activation of the trigger can damage the hydraulic system.

Operation — Drum

Load

DO NOT overload the mixer. Never exceed weight restrictions or Gross Vehicle Weight (GVW) ratings, limits/equipment ratings, and tire, spring or suspension capacities. Overloading will reduce equipment life and create serious potential safety hazards.

If your loads/needs require additional load carrying capacity, optional equipment is available.

Transit

When in transit, rotate drum. If the vehicle is equipped with the drum START/STOP feature, you must restart the drum after starting the vehicle.

IMPORTANT

The manual chute lock must be in the locked (transport) position when the vehicle is in transport.

Make sure chute, chute extensions, tools and ladders are in their transport positions.

Daily Checklist

Grease:

- PTO shaft from pump to engine or transmission.
- drum rollers and drum tire.
- front control.
- cab control.
- chute pivot points.

Check before startup:

- oil level in reservoir.
- transmission fluid level.
- hydraulic fluid reservoir fluid level.
- hoses for cuts, abrasions and damage.
- components for breakage.

Visually inspect:

- hydraulic pump.
- hydraulic lines.
- hydraulic cylinders.



- motor to drum transmission connection.
- chute swing mechanism.
- extension chutes.
- control valves.
- slump meter.
- drum to roller alignment.
- drum roller lube.

Close:

- all water valves.
- all drains.

Cold Weather Start-up

Allow the drum to operate at 4-5 RPM for 15 minutes.

NOTICE

Start-up in cold consistent temperatures below 30°F (0°C) could cause damage to the hydraulic system.

Always inspect hydraulic system following safe inspection procedures.

IMPORTANT

Before adding payload, allow the drum to operate unloaded at 2-4 RPM for 10 minutes.

Check after start-up:

- hydraulic motor for leaks.
- hydraulic pump for leaks.
- PTO shaft doesn't have vibration.
- drum rollers for rotation.
- drum rotates in both directions.
- Inspect hoses for cuts, abrasions and damage.

Operation — Drum

Weekly Checklist

Make sure:

- mixer mounting bolts, direct drive mounting bolts, water tank brackets and PTO mounting bolts are secure.
- roller alignment is correct.
- direct drive lubrication is full.
- chute lifter reservoir is full with chutes down.

IMPORTANT

Drum must be rotating while in transit to prevent drum roller damage. Air pressure in the water tank should not exceed 120 psi (8.3 bar).

Slump Meter/Charge Hopper Control

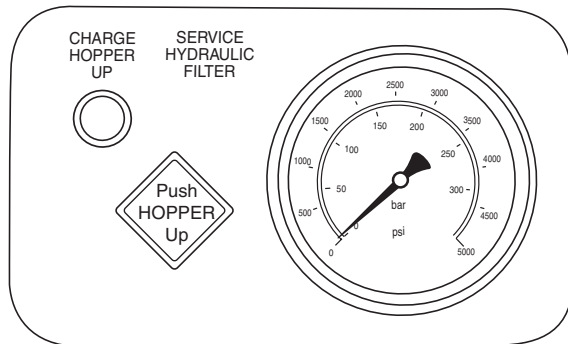


Figure 4-2: Slump Meter/Charge Hopper Control

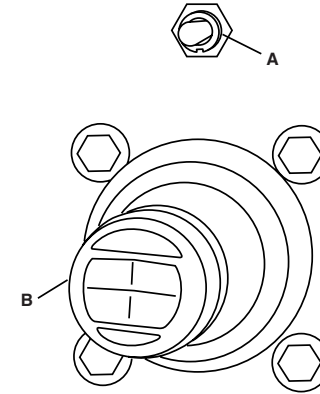
The Slump Meter is an oil pressure gauge located on the overhead panel in the vehicle cab that measures the hydraulic pressure required to turn the mixing drum. Refer to **Charge and Inspect the Payload** on page 4-19.



The Charge Hopper Control controls the hopper up or down. Pull to raise hopper, push to lower. The indicator will illuminate when the hopper is up.

Curbside (Outside Cab) Remote Station Control

The delivery chute can be controlled manually from outside the vehicle by using the controls located on the curb side of the cab.



A = Opens and closes chute from stowed position.
B = Directional joystick for directing chute.

Figure 4-3: Curbside (Outside Cab) Remote Station Control

Operation — Drum

Front Bumper Remote Station Control

The front bumper controls work with the manual controls in the cab.

IMPORTANT

Direction of the Chute - UP/DOWN or Chute - RIGHT/LEFT controls are based on the configuration of how your mixer was built. Try the controls and become familiar with the direction they operate before discharging the load.

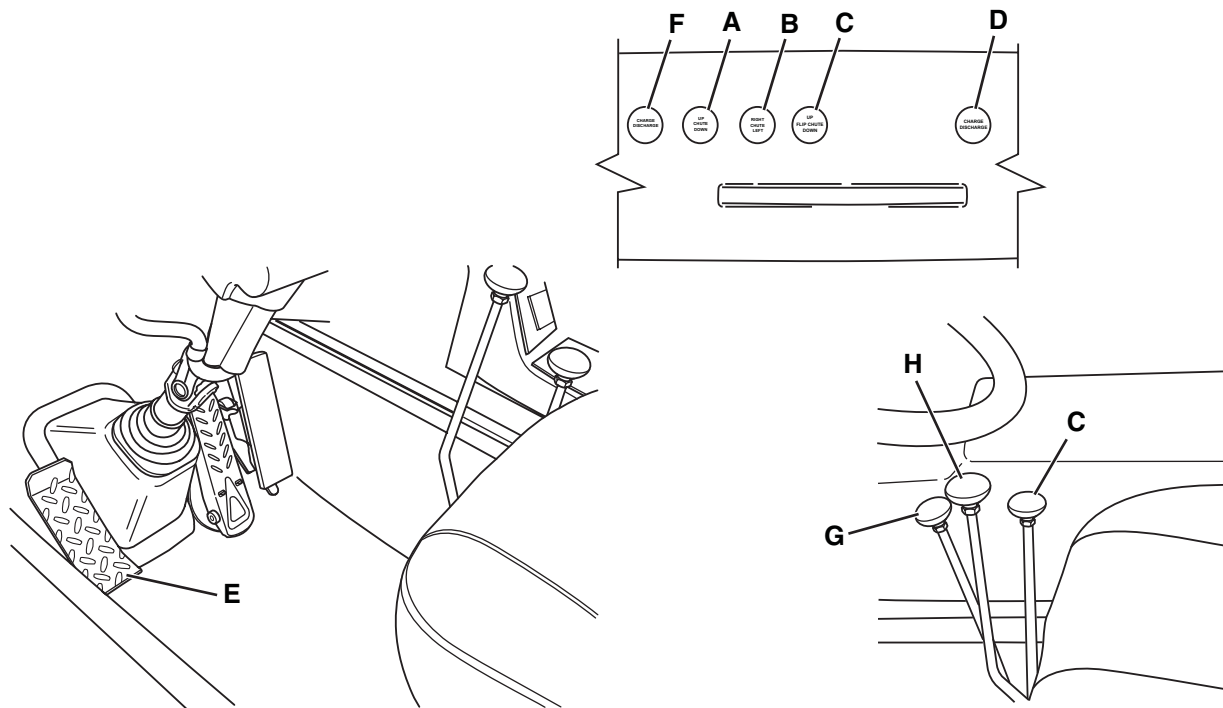
A = CHUTE - UP/DOWN: Push in or pull out to raise or lower chutes.
B = CHUTE - RIGHT/LEFT: Push in or pull out to swing right or left.
C = FLIP CHUTE (optional) - UP/DOWN: Push in to flip chute up (stow position). Pull out to fold out chute.
D = CHARGE/DISCHARGE: Push in to charge. Pull out to discharge.

If the front bumper controls on your mixer are as shown, the CHARGE/DISCHARGE (D) is connected with the CHARGE/DISCHARGE foot control (E) located left of the steering column, on the cab floor.

If the front bumper controls has the CHARGE/DISCHARGE control on the curb side of the controls, the CHARGE/DISCHARGE (F) is connected with the CHARGE/DISCHARGE hand control (G) located next to the driver seat in the cab.

CHUTE - UP/DOWN - RIGHT/LEFT (H) is a combination control which operates all directions of the chutes.





TA111

Figure 4-4: Front Bumper Remote Station and Cab Controls

Operation — Drum

Radio Remote Control System

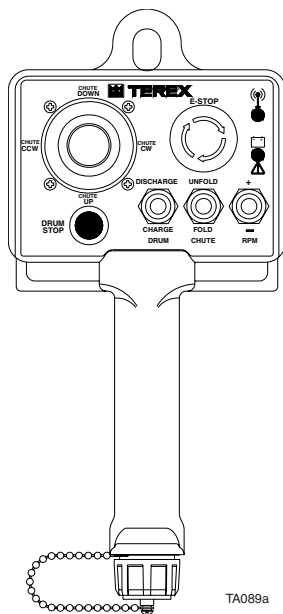


Figure 4-5:

Description

This radio remote control system is a state of the art microprocessor based Radio Frequency (RF) remote control system designed to provide the machine operator with the ability to remotely operate equipment. The machine operator is still required to follow OSHA and other applicable standards when operating the equipment.

This system is designed with Frequency Hopping Spread Spectrum (FHSS) and Digital Phase Lock Loop (PLL) for the optimum performance in radio remote products.

The remote control system consists of two major modules, the transmitter (pendant) and the radio receiver controller.

The transmitter is designed with a Hall-effect dual-axis proportional joystick for proportional control of the CHUTE UP/DOWN and CHUTE CW/CCW functions and a Hall-effect trigger. The transmitter also includes a push button for the DRUM STOP function and toggle switches for DRUM CHARGE/DISCHARGE, CHUTE FOLD/UNFOLD and RPM +/- functions. As a safety feature, the trigger must be pulled to operate all transmitter functions except truck engine RPM and



DRUM STOP. The transmitter also includes a “twist-to-release” E-STOP switch for transmitter power and emergency stop functions. Twisting and pulling the E-STOP to the up position activates the transmitter. Moving a switch or operating the proportional joystick while pulling the pendant trigger will then activate the transmitter functions.

Each transmitter is preprogrammed with a special radio ID code. The receivers are programmed to respond only to the transmitter with the ID code for which it is set. This feature allows the equipment to work in wireless mode in close vicinity of one another without interference. In the event that a transmitter becomes damaged and a new one is needed, the receivers can be reprogrammed to respond to the new transmitter. See the RF ID CODE PROGRAMMING section of this manual for this procedure.

The transmitter has two LED indicators, the red **BATTERY/DIAGNOSTIC** and the green **TRANSMIT** indicators. The red indicator starts blinking when 80% of the battery capacity has been used or there is a problem at the receiver. The green indicator blinks twice every second anytime the transmitter is

operated and communicating with the receiver. If receiver is off or the transmitter is out of receiver communication reach, the green light blinks every second.

NOTICE

To check for transmitter battery condition, turn receiver off and leave transmitter on. If the red light blinks, then charge the transmitter. If the red light blinks only when the receiver is on, count the number of the blinks or check error code display on the receiver and refer to the error code chart for additional information.

The transmitter is powered, and the rechargeable battery can be recharged, by the +12 volt electrical system of the truck when connected to the machine by the machine charger cable or the cigarette lighter charger cable.

A 9.6 Volt, 2.1 Ah Nickel-Metal Hydride (NiMH) battery powers the transmitter. Both frequency and duration of use determine the operation time of the battery. Power is being used any time the transmitter power is on. To turn transmitter power off, press the E-STOP switch to the down position. To save battery life, the transmitter is designed with an auto shutdown feature. This

Operation — Drum

feature turns the transmitter off when none of the switches or buttons are used for a period of 15 Minutes. The user must then cycle the E-STOP switch to turn transmitter power back on.

To charge the battery, simply plug the charger cable to the transmitter connector. To prolong the battery life and efficiency, the pendant should not be left on charge for a long period of time and should be discharged periodically. A complete charge can be achieved in about eight hours. The radio receiver controller is designed with six solid-state sourcing on/off, four solid-state current-regulated proportional, and two sinking (pull-to-ground) outputs. Turning on the power for the receiver and operating the transmitter operates the machine functions.

Routine Maintenance

1. Clean transmitter and receiver regularly with a damp cloth and mild detergent.
2. Periodically check receiver antenna for tightness.
3. Inspect electrical wiring for wear points or other damage. Repair as required.
4. Inspect all connections for looseness or corrosion. Tighten and/or “seal” as necessary.

There are no user-serviceable parts inside the transmitter or the receiver. Return the units for service.

Maintenance Precautions

When performing any inspection or maintenance work on the TEREX RADIO REMOTE CONTROL system, always exercise care to prevent injury to yourself and others or damage to the equipment. The following are general precautions, which should be closely followed in carrying out any maintenance work.

1. DO NOT have hydraulic power available to the valves when performing electrical tests.
2. Never operate or test any function if any person is in an area where they could be hurt by being hit or squeezed by the hydraulic equipment.
3. Turn power off before connecting or disconnecting valve coils or other electrical loads.



DANGER

Death or serious injury will result from not following safe practices for using the remote control. Operated following all safety regulations, rules, and practices.

Instruction to the User

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- reorient or relocate the receiving antenna.
- increase the separation between the equipment and receiver.
- connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- consult the dealer or an experienced radio/TV technician for help.

This equipment has been certified to comply with the limits for a class B computing device, pursuant to FCC Rules. In order to maintain compliance with FCC regulations, shielded cables must be used with this equipment. Operation with nonapproved equipment or unshielded cables is likely to result in interference to radio and TV reception. The user is cautioned that changes and modifications made to the equipment without the approval of manufacturer could void the user's authority to operate this equipment.

The term "IC:" before the certification/registration number only signifies that the Industry Canada technical specifications were met.

Operation is subject to the following two conditions:

- this device may not cause interference and

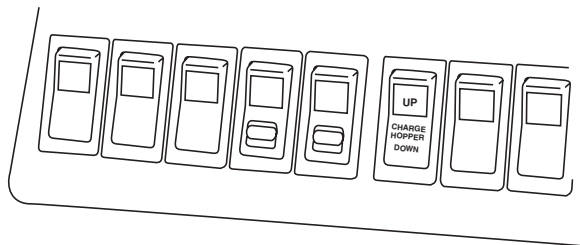
Operation — Drum

- this device must accept any interference, including interference that may cause undesired operation of the device.

Air Lift Hopper

The charge hopper can be lifted up and out of the way. The push button control is located on the auxiliary dash panel in the cab.

- Press UP to raise the hopper.
- Press DOWN to lower the hopper.

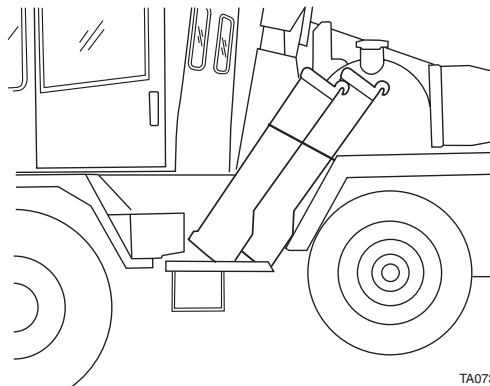


TA072

Figure 4-6: Air Lift Hopper Control

Chute Storage

Storage for chute extensions is provided on the operator's side of the vehicle.



TA073

Figure 4-7: Chute Storage

To remove the extensions, detach the bungee cord from either the fender or the water tank. Remove one section at a time and assemble the chute.



Fill the Water Tank

IMPORTANT

Fill the water tank before leaving for the discharge site. You will need water to discharge the payload and for cleanup at the discharge site.

1. Depressurize the water tank before filling.
2. Locate the Water Valve Control Switch and press the bottom of the switch to turn the water pressure off.

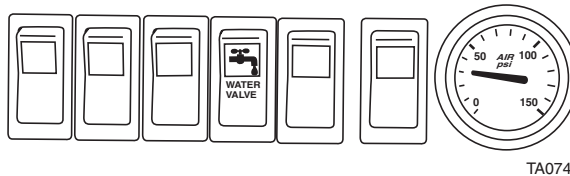


Figure 4-8: Water Valve Control Switch

WARNING

Explosion from over pressure to the water system can cause death or serious injury. **DO NOT** exceed 120 psi (8.3 bar) or pressurize an empty tank, or modify it. If pressure exceeds this value, depressurize the tank and replace air regulator valve.

3. Insert the water supply hose in the water tank.
4. Fill the water tank with water.
5. Remove the water supply hose from the tank.
6. Press the top of the Water Valve Control Switch to turn the water pressure on.
7. Inspect the water system for water and air leaks. Be sure to check the wash down nozzle.

IMPORTANT

Always relieve the water tank air pressure during periods of non-use.

Operation — Drum

Operate During Cold Weather

1. Drain the tank, hoses and pipes during cold weather operation.
2. Remove ice or frost on the rollers. Ice or frost may cause roller failure and damage.
3. Each chassis is equipped with an engine heater to aid starting in cold weather. The heater can be plugged into a standard 110 volt circuit at night if cold weather is expected. The extension cord must be OSHA approved and rated for a minimum of 15 amps.

The engine heater plug is located on the curbside rear of the vehicle.

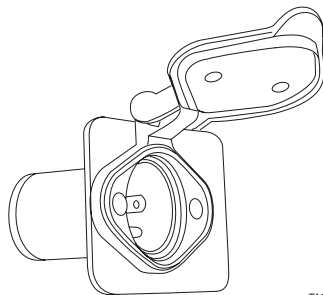


Figure 4-9: Engine Heater Plug

Load the Drum

1. Position the hopper under the discharge chute at the batch plant.
2. Increase engine to 1200 RPM to ensure proper pump operation. Improper RPM may cause erratic drum operation or cause the drum to stop turning.
3. Operate mixer at maximum CHARGE. Be sure the drum rollers are rotating with the drum. Be alert for any noise, scraping or popping.
4. Increase engine RPM so the drum RPM is 16.
5. Transfer the payload to the mixer.



Charge and Inspect the Payload

Charging the Payload

1. Check the slump meter.

IMPORTANT

Be aware of pressure at all times. The higher the pressure, the stiffer the payload or the lower the slump. When the pressure is lower, the payload is softer and the slump is higher.

2. Adjust the drum speed for load conditions. A proper charge is usually achieved with 70 drum revolutions.

Inspecting the Payload

Move the mixer to the inspection and cleanup area. Observe all safety precautions.

1. Reduce the engine RPM to idle.
2. Reduce the drum speed to 1 - 6 RPM.
3. Move the mixer to wash area.

WARNING

Rotating parts can cause death or serious injury. DO NOT touch any rotating parts and make sure all safety guards are in place. Use the three point rule to enter and exit the vehicle. One hand and two feet or two hands and one foot should always be in contact with a secure surface.

4. Climb the ladder.
5. Check the condition of the payload in the drum. Check for consistency. There should not be any clumping and the payload should not be too wet or too dry.
6. Rinse spills and splatters from the hopper (**Figure 4-12, 2**), chutes (**Figure 4-12, 1**) and the front of the vehicle.
Reduce the drum speed for transport. Set the drum speed between 1 and 6 RPM; depending upon the length of haul.
 - Use a slower speed for a longer transport.
 - Use a higher speed for a shorter transport.

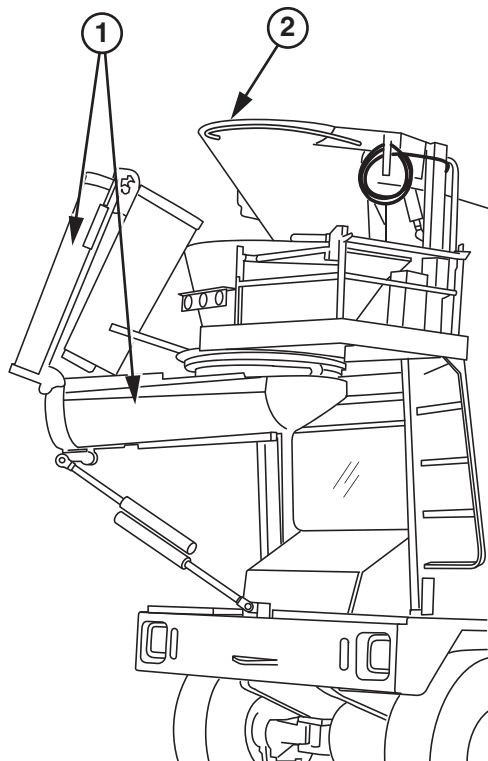


Figure 4-10: Payload Inspection

Charge and Agitate

WARNING

Accidental concrete discharge can cause death or serious injury to yourself and others. Keep the charge switch in the CHARGE position to avoid accidental discharge.

Observe these guidelines in transit to the discharge site:

- monitor the drum RPM. Maintain 1 - 6 RPM to ensure the payload sets up properly and there is not a decrease in the drum RPM.
- monitor slump meter pressure.



Setup at the Discharge Site

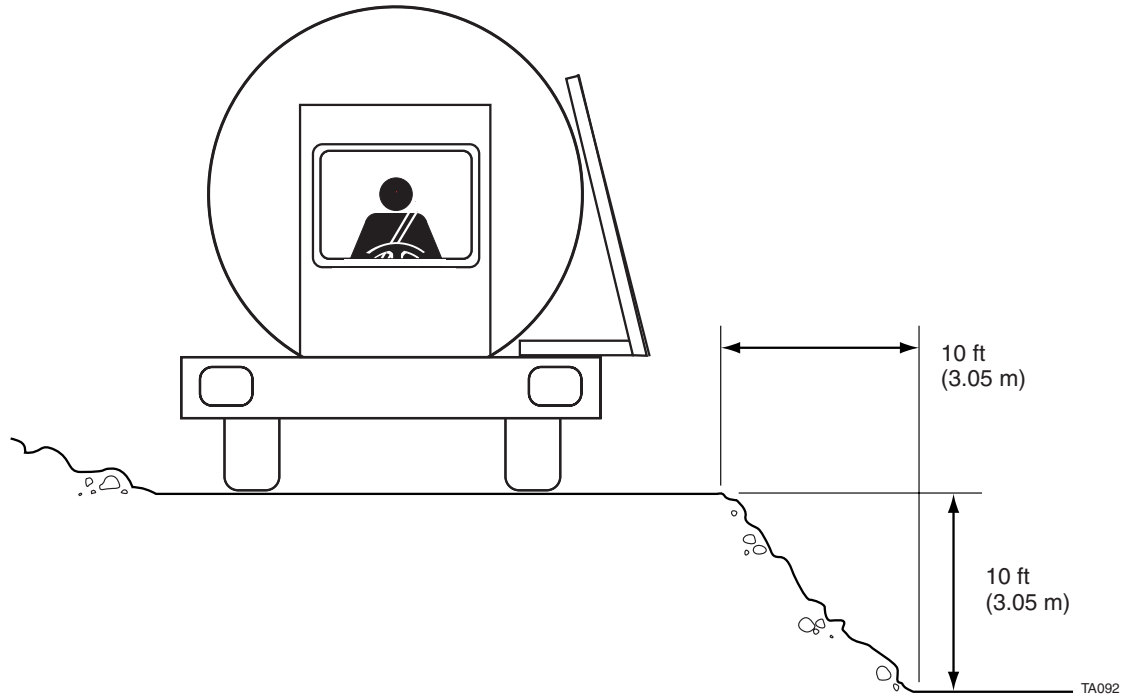


Figure 4-11:

Operation — Drum

WARNING

Electrocution or rollover can cause death or serious injury. DO NOT set up near power lines and always make sure the vehicle is stable.

Set up on stable soil and stay back from the base edge of an excavation site. Use the 1 to 1 rule: if the excavation is 10 feet (3.05 meters) deep, stay 10 feet (3.05 meters) back from the bottom edge.

Maintain communication with others. Choose the setup point for the payload delivery.

The setup point should have:

- no obstructions.
- accessibility.
- soil to support the weight of the mixer.
- an area leading to the setup point.

Operate at the Payload Discharge Site

Prepare the mixer for use before moving it to the discharge site.

WARNING

Crush and cut from falling chutes can cause death or serious injury. Install the chutes correctly.

Handle the chutes at the center and at the opposite end of the pivot. Stay clear of the chute pivot points when assembling. DO NOT use more than four or any other type of extensions that are not designed for your TEREX mixer. Use only the extensions provided with your mixer.

Stay clear of the chutes after they are installed.

Operating

1. Unfold the chute. Unlock and position the chute. Add extensions if needed. Lock the chute before backing up.



WARNING

Chute breakage from material overload can cause death or serious injury. DO NOT exceed 4 chute extensions.

2. Pull the vehicle into position. Use a guide.
3. Unlock the chute and position the chute over the delivery point. Lock the chute in place.
4. Raise or lower the chute.
5. Press the top of the Water Valve Control Switch to turn the water pressure ON.
6. Gather tools.
7. Wet the chute and the front of the vehicle.

IMPORTANT

DO NOT put water in a pump hopper. This may cause blockages.

8. Activate the joystick trigger and hold while pressing the discharge switch to discharge.
9. Dump a small amount of payload for inspection. Add water if needed and charge.

IMPORTANT

Add water carefully so payload does not have too much liquid and discharge with care.

10. Discharge as directed. Activate the joystick trigger and hold while pressing the discharge switch to control the discharge flow.
11. Return the chute, chute extensions, tools and ladders to their transport positions.

Discharging to a Lift Pump

Use caution when pulling up to the pump and always watch for signals.

DO NOT:

- Back up without a guide.
- Allow the level of concrete to go below the agitator, unless specified by the pump operator.
- Allow air to enter the pump by letting the hopper level become too low. If air enters the system, stop the pump or alert pump operator.
- Allow the concrete to go below the top of the valve! Press the emergency stop if air is sucked into the pump.

Operation — Drum

Stopping the Discharge

1. Push the DRUM stop switch to STOP. Then push the DRUM CHARGE/DISCHARGE switch and CHARGE at 4 RPM.
2. Empty the balance of the payload and clean up.

DANGER

Rotating equipment will cause death or serious injury. Only use the drum water discharge to add water to the drum when you are cleaning the drum and the drum is rotating. Stay clear of the drum opening and do not use an alternate source of water when the drum is rotating.

Leave the Discharge Site

1. Operate the drum in CHARGE at 4 RPM to prevent build up or damage to the rollers, drum and/or vehicle.
2. Press the bottom of the Water Valve Control Switch to release the air pressure.

Prepare the Mixer for Storage

1. Operate the mixer in DISCHARGE mode to empty the drum completely. Operate the drum at an adequate speed.
2. Fill the water tank.
3. Fill the drum with an adequate amount of water by placing the hopper under the wash water spout.
4. Operate the mixer in maximum CHARGE position.
5. Move the mixer truck to the wash out area.
6. Empty the water out of the drum. Engine should be at idle speed and the mixer in the DISCHARGE mode.
7. Operate the mixer in full CHARGE mode with engine at 1200 RPM.
8. Transfer all water from the tank to the drum by opening the hopper water valve.
9. Cycle from CHARGE to DISCHARGE slowly. Repeat 2-3 times, cycling water from front to back in drum to rinse the fins.
10. Turn the water pressure control valve to OFF.
11. Empty all wash water from the drum. The engine should be at idle and the drum in DISCHARGE mode.



12. Examine the vehicle for damage, wear, unusual noise, leaks or unusual operation. Report all findings to the appropriate personnel.
13. Move the clean vehicle to storage.

Operating a Disabled Mixer

If vehicle, mixer pump or mixer motor failure occurs, both the pump and motor must be replaced. If one of these fails or becomes damaged and both are not replaced, premature failure can occur to the new unit.

To operate and/or discharge payload from a disabled truck using the hydraulic system and the controls of a working vehicle, follow this procedure.

IMPORTANT

Keep all fittings and connections clean, DO NOT spill fluid or allow dirt to enter either hydraulic system and take note of the position of the hoses and fittings.

WARNING

Pressure from system can cause death or serious injury. Relieve all hydraulic pressure from system before disconnecting any hydraulic connections and make sure all lockout and hydraulic safety measures are in place.

Disconnect fittings slowly and be careful of pressure buildup at the fittings.

Make sure:

- all the safety warnings pertaining to hydraulic safety are followed.
- the vehicles are not running.
- the hydraulic systems and vehicles are cooled.
- all hydraulic pressure is relieved.
- the drum on both the disabled vehicle and the working vehicle are balanced and able to rotate freely BEFORE removing the hydraulic motor from the drum drive gear reducer. Using the motor from the working vehicle will prevent contamination of the hydraulic system of the disabled vehicle.



Operation — Drum

- once again, make sure all pressure is relieved from the hydraulic system.

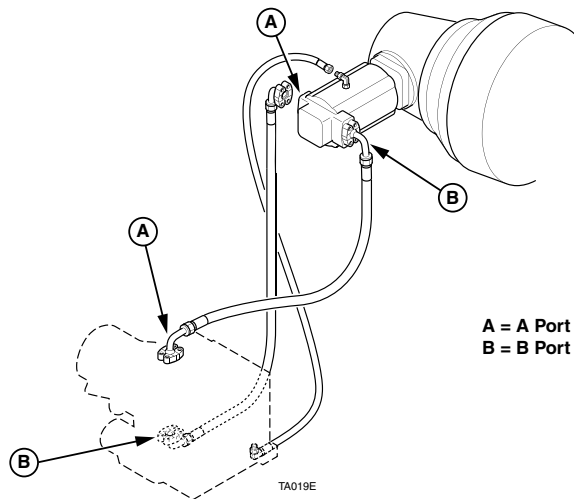


Figure 4-12: Jumper Connection Points

1. Disconnect the high pressure hoses (4 bolt flange) and the case drain hose from the hydraulic motor of the disabled vehicle. Check that there is no oil pressure buildup. Buildup can cause fluid to spray from fittings.
2. Remove the hydraulic motor from the drum drive gear reducer on the disabled vehicle.
3. From the working vehicle, disconnect the high pressure hoses (4 bolt flange) and the case drain hose from the hydraulic motor.
4. Remove the hydraulic motor from the working vehicle and install on the disabled vehicle.
5. From the working vehicle, disconnect the high pressure hoses and lower case drain hose from the hydraulic pump.
6. Connect jumper hoses the same as the originals (2 high pressure and 1 case drain). Be sure hoses are clean and filled with approved hydraulic fluid. Fittings must be loose at the pump during filling from the motor end. Bleed air out completely before tightening hoses. **DO NOT** operate until all fitting are fastened securely.
7. Use jumper hoses to extend the working vehicle's hydraulic lines from the pump to the motor of the same system.
8. Check the fluid level in the hydraulic fluid reservoir. Add fluid if the level is not in the operating range.
9. Use the controls of the working vehicle to operate the disabled vehicle.

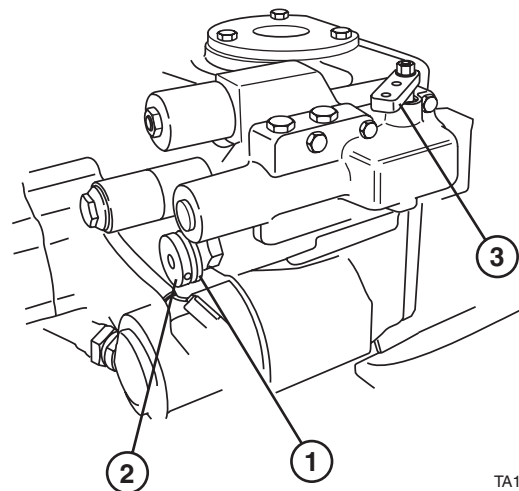


Mixer Pump Bypass

If vehicle mixer pump electrical control failure occurs, the pump can be bypassed in an emergency situation to charge or discharge the payload. To bypass the mixer pump, follow this procedure. The pump is located in front of the engine, next to the hydraulic fluid reservoir cap.

NOTICE

Repair the electrical system and return the pump back to its normal operating mode to prevent damage to the system.



TA113

Figure 4-13: Mixer Pump Bypass (Pump is shown upside down to show control valve.)

1. Loosen the RE valve locknut (1).

Operation — Drum

2. Turn valve (2) all the way out (counterclockwise) for manual function bypass.

The control valve (3) controls direction of the drum (the control valve is located below, RE valve). The control valve has three detent positions:

FORWARD = CHARGE

CENTER = NEUTRAL

BACK = DISCHARGE

NOTICE

After the electrical system is repaired, return the pump back to its normal operating mode to prevent damage to the system.



Section 5

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Maintenance — Chassis

Lubrication Points and Inspection Time Table



WARNING

Entanglement hazard. Rotating parts can cause death or serious injury. Stay away from fan and belt when engine is running.

DO NOT operate the engine without the engine cover attached, unless required for servicing, the cover is a machinery guard.

NOTICE

For drive train components, follow the manufacturers' of the components recommendations for levels, types of lubricants and replacement or inspection intervals, unless otherwise specified.



Maintenance — Chassis

Item	Lube	Application	Frequency
Drag Link	Multi-Purpose Grease	Apply	Weekly
Slack Adjuster			
Spring Hanger			
Spring Shackle			
Lift Axle Bearings			
Spring Pin			
“S” Cam			
King Pin, Upper and Lower		Zerks	
Tie Rod			

For Drum Hydraulic System, refer to **Section 6, Maintenance – Mixer, Lubrication Points and Inspection Time Table.**

Maintenance — Chassis

Automatic Lubrication System

The optional automatic lubrication system operates from the electrical system. When the vehicle is operating, an electronic timer operates the pump and at pre-determined intervals, grease is pumped to a distributor which distributes a specific amount of grease to the designated lubrication points of the system.

The major components of the system are; a pump with reservoir, a lubricant distributor or feeder with a network of lubrication lines, and a control unit. Refer to the lubrication system operators manual.

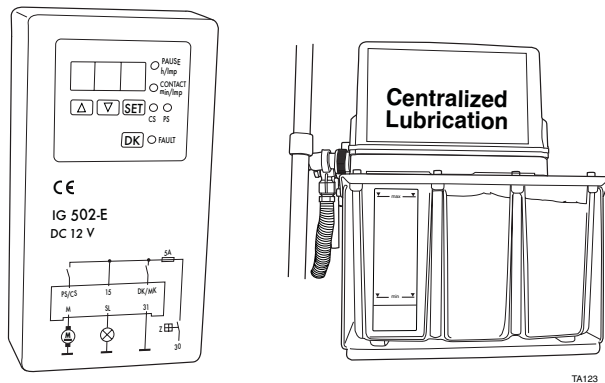


Figure 5-1: Automatic Lubrication System



Check Engine Oil Level

Check the engine oil level daily before operating the truck. When checking the oil level, park the vehicle on a flat level surface.

Check the exterior of the engine for any leaks. If any leaks are found, have them repaired before operating truck.

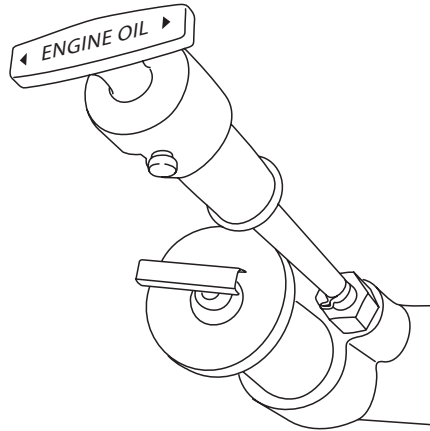


Figure 5-2: Cummings Engine Oil Dipstick

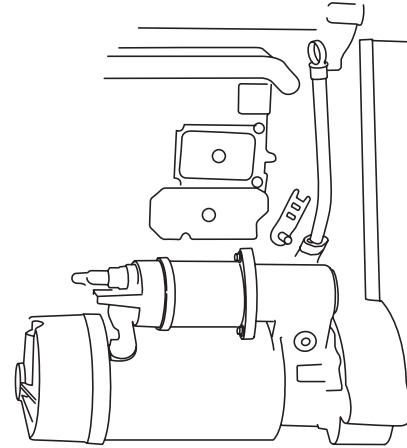


Figure 5-3: Cat Engine Oil Dipstick

Remove the dipstick from the engine and check the engine oil level. Use the engine manual supplied with the truck for determining the correct oil level and the type of oil to be used.

Maintenance — Chassis

Check Engine Coolant Level

Check the engine coolant level daily before operating the truck. The engine coolant level should be checked when the engine is cold.

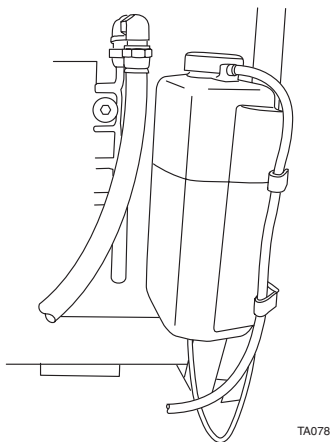


Figure 5-4: Engine Coolant Level

Check that the coolant level is between the upper and lower level marks on the recovery tank. If there is no coolant in the recovery tank remove the radiator cap and check the coolant level in the radiator.

If the coolant level is low in the radiator, check the cooling system for leaks.

Radiator Maintenance

The radiator must be inspected and cleaned weekly. Buildup of debris will reduce the radiators ability to cool and protect the engine and other systems.

Visually inspect the radiator for damage, leaks and excessive debris. Clean the radiator weekly by blowing air from engine side out and having it steam cleaned at least once a year or more often in severe conditions. The radiator can have sharp edges and fins. DO NOT inspect the radiator with bare hands.

WARNING

Flying debris can result in serious injury or eye damage. Wear safety glasses and the proper personal protective equipment.



Check Transmission Fluid Level

Check the transmission fluid level daily before operating the truck. Check the level at normal operating temperature with the truck on a flat level surface.

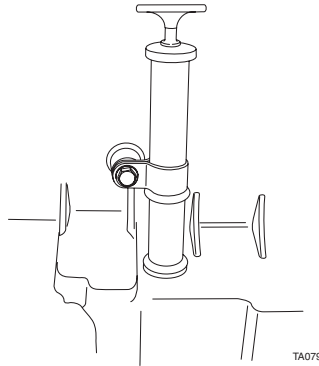


Figure 5-5: Transmission Dipstick

Check Transfer Case Fluid Level

Check the transfer case fluid level daily before operating the vehicle. Check the level at normal operating temperature with the vehicle on a flat level surface.

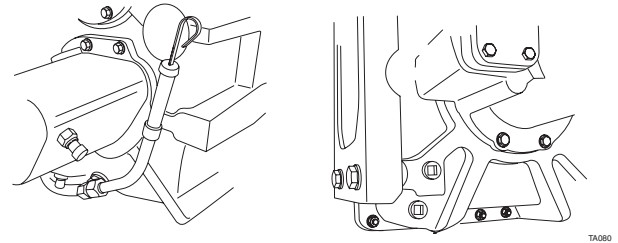


Figure 5-6: Transfer Case Check Plug

Remove the check plug(s) and check the oil level. The oil level should be just at the level of the check plug or just beginning to drip out of hole. If the oil level is low, add oil through the check plug hole until oil just begins to drip out.

Maintenance — Chassis

Check the Axle Oil Level

Check the axle oil level every 6,000 miles (9,656 km) (3,000 miles in severe use [4,828 km]) of truck operation. Park the truck on a flat level surface when checking the oil level.

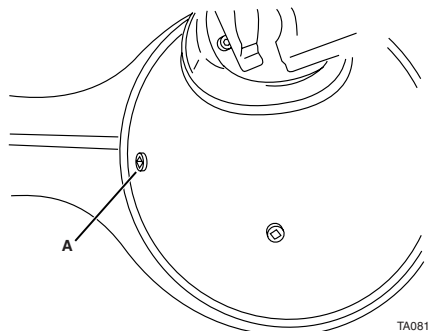


Figure 5-7: Axle Check Plug

Remove the check plug(s) and check the oil level. The oil level should be just at the level of the check plug (A) or just beginning to drip out of hole. If the oil level is low, add oil through the check plug hole until oil just begins to drip out.

Install the check plug(s) in the axle.



Check Drive Shafts

Check the drive shafts daily before operating the vehicle.

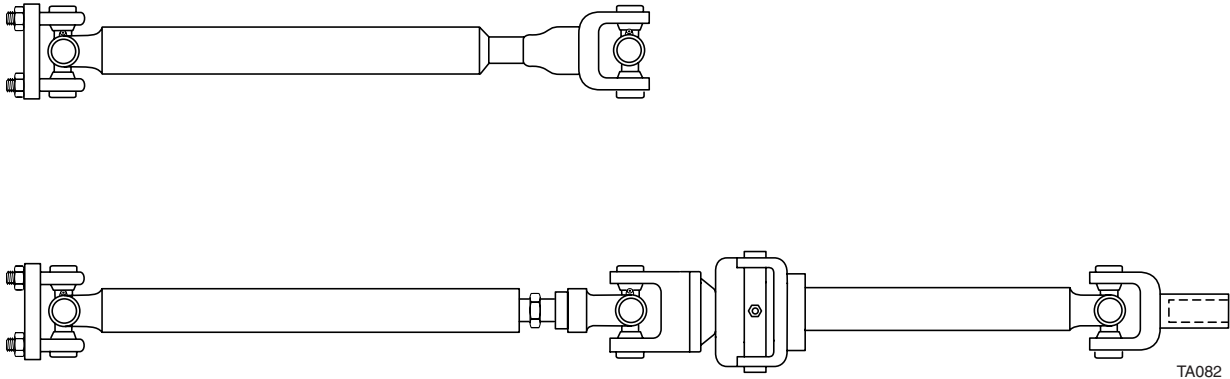


Figure 5-8: Drive Shafts

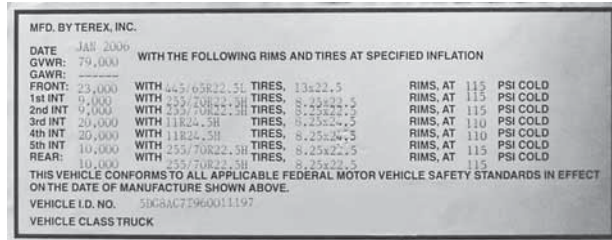
Maintenance — Chassis

Joint Lubrication	
Add	Normal use: each 6,000 miles (9,656 km) or 150 hours. Severe use: each 3,000 miles (4,828 km) or 50 hours.
Lubricant	EP multipurpose lithium 12 hydroxysterate, NLGI No. 2. MIL-G-10924B in arctic operating conditions. Apply pressure lubrication until fresh grease shows at all four journal seals on each journal cross.
Spline Lubrication	
Add	Normal use: each 6,000 miles (9,656 km) or 150 hours. Severe use: each 3,000 miles (4,828 km) or 50 hours.
Lubricant	EP multipurpose lithium 12 hydroxysterate, NLGI No. 2. MIL-G-10924B in arctic operating conditions. Apply pressure lubrication until fresh grease appears at the pressure relief hole in the “Welch” plug, in the yoke sleeve and at the end of the spline. Cover the relief hole with a finger and continue to grease until grease appears at the sleeve yoke sleeve.
Note: Arctic conditions are considered to be consistently below 0°F (-18°C). DO NOT use arctic lubricants above 0°F (-18°C) for more than one hour and only under unloaded conditions.	



Check Tire Pressure

Check the air pressure in the tires daily before operating the vehicle. Check the tire pressure when the tires are cold. Refer to the table on the back wall inside the cab for the correct tire pressures for your vehicle.



MFD. BY TEREX, INC.

DATE: JAN 2009
GVWR: 79,000

WITH THE FOLLOWING RIMS AND TIRES AT SPECIFIED INFLATION

FRONT: 23,000	WITH 445/65R22.5L TIRES, 13x22.5	RIMS, AT 115	PSI COLD
1st INT. 9,000	WITH 235/70R17.5 TIRES, 8.25x22.5	RIMS, AT 115	PSI COLD
2nd INT. 9,000	WITH 235/70R17.5 TIRES, 8.25x22.5	RIMS, AT 115	PSI COLD
3rd INT. 20,000	WITH 11R24.5H TIRES, 8.25x24.5	RIMS, AT 110	PSI COLD
4th INT. 20,000	WITH 11R24.5H TIRES, 8.25x24.5	RIMS, AT 110	PSI COLD
5th INT. 10,000	WITH 235/70R17.5 TIRES, 8.25x22.5	RIMS, AT 115	PSI COLD
REAR: 10,000	WITH 235/70R17.5H TIRES, 8.25x22.5	RIMS, AT 115	PSI COLD

THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE.

VEHICLE I.D. NO. 50CRAC7960011197

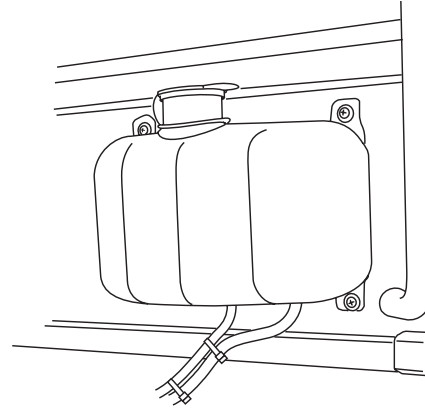
VEHICLE CLASS TRUCK

TA083

Figure 5-9: Sample of Tire Pressure Chart

Check Windshield Washer Fluid

Check the windshield washer fluid daily before operating the vehicle.



TA084

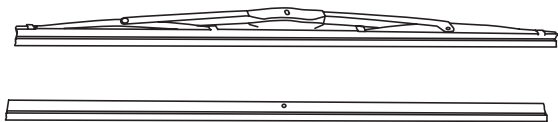
Figure 5-10: Windshield Washer Fluid Reservoir

Remove the cap from reservoir and add washer fluid till the level is at the full mark on the reservoir. Install the cap on the reservoir after it is filled.

Maintenance — Chassis

Windshield Wiper Blade Replacement

The windshield wiper blades should be inspected every 6,000 miles (4,828 km) and replaced when worn.



TA085

Figure 5-11: Windshield Wiper Replacement

Battery and Battery Box

DANGER

Explosion from battery gasses will cause death or serious injury. DO NOT smoke or expose battery gases to open flame or sparks. Always wear protective clothing and/or gear around batteries.

Batteries when charging produce sulfuric acid which can cause severe burns.

Inspect the battery and battery box.

Make sure:

- The battery terminals are clean, securely tighten and secured to prevent movement.
- Battery cables and cases are not damaged or leaking.
- Battery box securely mounted and shows no signs of damage.



NOTICE

If the battery cables are removed, always disconnect the main ground terminal first. When reconnecting, always connect the main ground terminal last.

If other ground cables are connected to the battery, ECU or other components, disconnect those ground cables first and then remove the main battery ground cable to prevent damage to the electronic components or system.

Battery Jump Starting and Charging

NOTICE

Charge the batteries using a low-charge voltage below 16 volts. DO NOT use battery chargers with “boosting” capability. These types of chargers produce high voltage that can damage electrical components and system.

If the batteries need to be jumped:

- Connect directly from one set of batteries in one vehicle, to the other set of batteries in the other vehicle.
- Connect the jumper cable to the discharged battery first, then to the charged battery. Make the connections quick and firm to reduce sparking.
- Connect the jumper cables to the positive, terminal first, then the ground terminal. When disconnecting the cables, disconnect the ground terminal first.



Maintenance — Chassis

Notes: _____

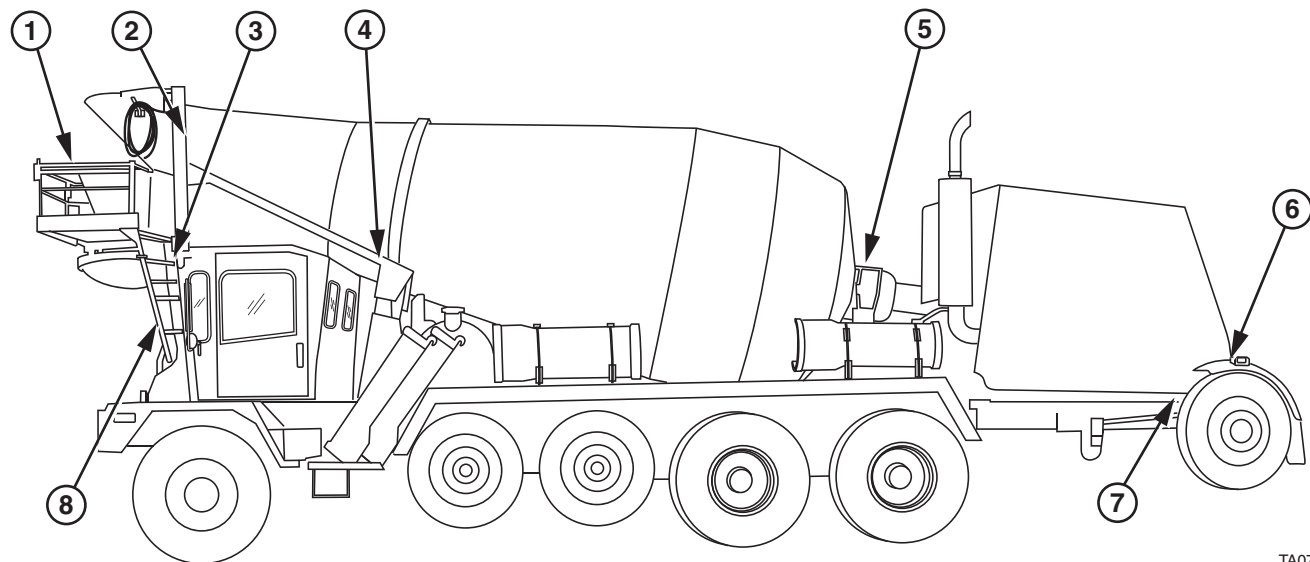
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Maintenance — Mixer

Lubrication Points and Inspection Time Table



TA075

Figure 6-1: Lubrication Points



Maintenance — Mixer

Item	Topic	Lube or Adjustment	Application	Frequency
1	Turntable Gearbox Top Bearing	Multi-Purpose Grease	Grease Zerk	Weekly
	Turntable Gearbox Housing	85W140	Pour or Pump	Replace every six months or 250 hours
2	Hopper Pivot Points	Multi-Purpose Grease	Spray On	Weekly
	Hopper Cylinder Pivot Points			
3	Chute Pivot Points		2 Grease Zerks	Daily
	Chute Rotation Bearing			Weekly
4	Drum Roller Track	Multi-Purpose Grease	Brush On	Daily
	Drum Rollers (2)	Multi-Purpose Grease	Grease Zerks	Daily
5	Mixer Transmission	Drain after first 50 hours of operation. Refill with 85W140 oil. Drain again after every 2000 hours or once a year, whichever comes first. Refill with 85W140 oil. Check level at sight glass every 30 days.		
6	Hydraulic Oil Reservoir	Hydraulic oil meeting ISO VG 46 Standards. See note below.	Fill to sight gauge level. Approximately 65 qts.	Check daily. Replace once yearly.

Maintenance — Mixer

Item	Topic	Lube or Adjustment	Application	Frequency
7	Hydraulic Pump Drive Shaft	Multi-Purpose Grease	Three Grease Zerk	Weekly
8	Chute Pivot Ring		Grease Zerk	Daily
Not Shown	Hydraulic Oil Filters	Replace when changing oil in reservoir.		
	Hoses and Fittings	Check visually for oil leaks. Retighten as required.		Daily

Notes:

Draw a sample of hydraulic oil from the reservoir and check for the presence of water (weekly). If water is present, the oil will be milky in appearance. Drain milky oil from the system and replace with clean oil. Find the source of the water entry and repair.

Check for and correct any external oil or air leaks. Check hoses and tubes for cuts, abrasions and chafing. DO NOT tighten or loosen any connections while systems are under pressure.

* - Refer to **Hydraulic System Fluid and Filter Element** in this section.



Maintenance — Mixer

The following topics are not identified in the figure but must be maintained.

Topic		Application	Frequency
Hydraulic Hoses and System	-	Check	Daily
Drain Moisture From Air Tanks	-	Perform	Daily
Chipped Paint or Rust	-	Check	Weekly
Collector and Drip Ring Clearance	-	Check	Weekly
Water System	A	Check	Weekly
Cooler Fins	-	Clean	Monthly

A - Refer to **Water System**.

IMPORTANT

Increase frequency under severe conditions.

Maintenance — Mixer

Drum Lockout

The drum lockout procedure must be done when personnel are working in or around the drum.

WARNING

Entanglement hazard. Drum movement with personnel inside or around drum can cause death or serious injury.

Confined work space hazard. Failure to follow proper procedures for entering the drum can result in death or serious injury.

DO NOT enter the drum unless items below are followed:

1. Comply with OSHA regulations for working in confined spaces. OSHA 1910.146.
2. Follow procedure to lockout mixer drum.

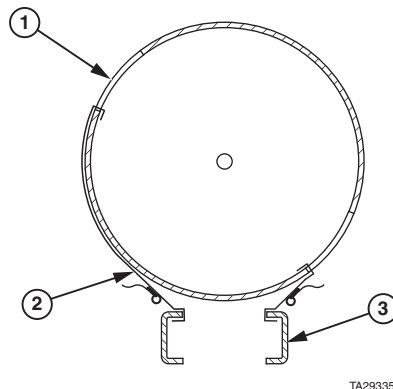
Lockout Procedure

1. Stop engine.
2. Remove key.

3. Apply WARNING hang tag – Person working inside or near drum, to steering wheel and ignition switch.
4. Lock drum from rotating.

Locking Drum

After the access panels are removed and access passage (**Figure 6-2, 1**) is clear, attach straps (**Figure 6-2, 2**) to the chassis (**Figure 6-2, 3**). The straps must have a minimum breaking strength of 10,000 lbs. (4536 kg.). Remove slack from straps in steps, until both straps are tight.



TA29335

Figure 6-2: Locking Drum



Change Fluid and Filter

Fluid and Recommendations

IMPORTANT

A change in the performance of the hydraulic system can indicate a fluid change is required, or a filter or system restriction.

Use only the fluid recommended, failure to do so can jeopardize your safety, the fluid's life and can lead to premature equipment failure.

Hydraulic System Fluid and Filter Element

Change the hydraulic fluid and filter after first 100 hours and every six months/1000 hours thereafter.

IMPORTANT

Change fluid more often under severe conditions.

Recommended Hydraulic System Fluid:

- Over 80°F (27°C) use ISO100 Hydraulic Oil
- Under 80°F (27°C) use ISO68 Hydraulic Oil
- Under 32°F (0°C) use ISO46 Hydraulic Oil

Filter:

Minimum Filter Rating for Hydraulic System:

- Beta 10=2 with 28" vacuum capability
- ISO 18/13 cleanliness must be maintained

Capacity:

Fill until fluid level is visible in the sight gauge. Normal level is the center of the sight gauge.

A reputable supplier can help you make the best selection of hydraulic fluid for the Eaton products used in the TEREX MIXER.

- The filter system used in the hydraulic circuit should be capable of cleaning and maintaining the fluid to meet ISO Cleanliness Code 18/13 per SAE J1165. This code allows a maximum of 2500 particles per milliliter greater than 5 µm and a maximum of 80 particles per milliliter greater than 15 µm.
- At normal operating temperatures optimum viscosity ranges from 80-180 SUS (16-39 cSt). Viscosity should never fall below 60 SUS (10 cSt) and, at the lowest expected startup temperature, should not exceed 10,000 SUS (2158 cSt).

Maintenance — Mixer

- The fluid should be chemically stable, incorporating rust and oxidation inhibitors.

Specific types of fluid that meet these requirements are:

- premium quality, industrial anti-wear type hydraulic fluid.
- engine crankcase oil - SAE 10W, SAE 20W-20, SAE 30.
- automatic transmission oil.
- hydraulic transmission oil.
- synthetic fire resistant fluid - Quintolubric, Cosmolubric or equivalent.

IMPORTANT

If the natural color of the fluid has become black or milky, it is possible an overheating or water contamination problem exists.

Drum Transmission Oil

Recommended Oil

GL5 spec. 85W-140

Capacity

Fill to sight glass. Fluid level must be visible in the sight gauge. Normal level is the center of the sight gauge.

Fluid Breakdown

Chemical reactions caused by a combination of heat, pressure, air, water and other contaminants can cause breakdown. Make sure all hydraulic components are clean, dry and free of debris before reassembly.

Overheating

Fluid temperatures should operate at 120-140°F (49-60°C) during normal conditions. Never allow the system to operate above 180°F (82°C). Operating at or above these temperatures reduces the fluid's life and can lead to premature equipment failure. Make sure the fluid cooler stays clean and free of air restriction.

Add Fluid

Check the fluid level daily. Fluid level must be visible in the sight gauge. Normal level is the center of the sight gauge. Always check fluid level when fluid is cold and never mix different brands of fluids. When adding fluid, inspect the cap and seal. Replace the seal or cap if there are signs of deterioration.



Drain the Hydraulic Fluid Reservoir

WARNING

Pressure from system can cause death or serious injury. Relieve all hydraulic pressure from system before disconnecting any hydraulic connections and make sure all lockout and hydraulic safety measures are in place.

Cleaning solvents can cause death or serious injury. Cleaning solvents are extremely flammable and toxic if inhaled. DO NOT use near sparks or flame and avoid inhaling. Use in a well-ventilated area and follow the manufacturer's warnings on use and handling.

Disconnect fittings slowly and be careful of pressure buildup at the fittings.

NOTICE

The cleanliness of working on the hydraulic system is extremely important to the safety and reliability of the system. Always make sure the tools are clean, the fittings are clean on the outside before removing them from their connections, and the fittings are capped and plugged when removed. Place all hydraulic components in a clean rag or container until they are reinstalled.

When draining to filter the fluid, make sure the container is clean and free of debris and impurities or replace the fluid. Dispose of any used fluids in an environmentally safe manner.

If after the hydraulic system is drained or a filter changed, the system can operate in a "jerking" mode. If this occurs, purge the system to remove any air which may be present. Refer to Purge Air from the System in this section.

Make sure all hydraulic components are clean, dry and free of debris.

Maintenance — Mixer

Draining the hydraulic fluid reservoir if your shop is equipped with a filter cart

Pump the fluid into a clean container.

Draining the hydraulic fluid reservoir if your shop is not equipped with a filter cart

1. Remove the drain plug and drain fluid.
2. Clean the drain plug and remove any remaining Teflon[®] tape from the threads. Place the clean plug in a clean container or on a clean surface.
3. Apply Teflon tape to the clean threads prior to reinstalling the plug and filling the reservoir.
4. Wipe up any spilled fluid.
5. Fill the reservoir with the specified, fresh fluid. Make sure the fluid level is at the appropriate operating level.
6. Inspect the drain plug for leaks.
7. Check the fluid level again.

Replace Filter

Change the filter any time the fluid is changed or filtered.

1. Remove the filter and discard in an environmentally safe manner.
2. Clean the seal mating surface and the filter mounting threads.
3. Apply clean or fresh fluid to the filter seal.
4. Fill the new filter with the recommended clean or fresh fluid prior to installing to reduce the amount of air in the system.
5. Install the filter and hand tighten, plus 3/4 of a turn. Wipe up any spilled fluid.
6. Operate the hydraulics and shut down.
7. Check the fluid level again.



Purge Air from the System

Follow all the safety warnings in Section 1 pertaining to hydraulic safety.

1. Clean the pump purging hex nut located on the top front (drum side) of the pump to expose the nut and the area around it.
2. With all hydraulics in neutral, “resting position,” and engine off, loosen the air purging nut gently to allow air to purge. Listen for an audible “hiss” or watch for fluid, then tighten the nut. Torque to 120 in•lb (13.6 N•m) maximum.
3. Wipe up any spilled fluid.
4. Make sure the fluid level is at the appropriate operating level. Operate the hydraulics.
5. Inspect the purging nut for leaks.

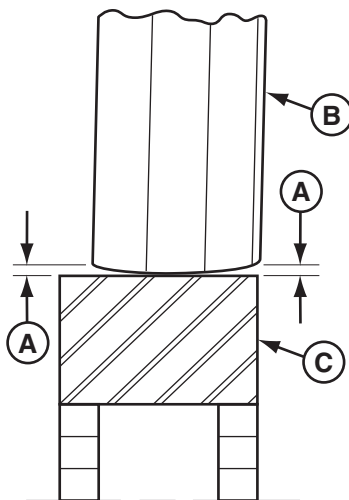
NOTICE

Before placing the equipment back into service, inspect all hose assemblies and fittings for signs of chafing or deterioration and leaks. Inspect all hardware for signs of damage or deterioration. Replace any hose assemblies and/or hardware which are damaged, chafed or show deterioration.

Maintenance — Mixer

Rollers

Inspect Drum Tire and Roller Contact



TA022

Figure 6-3: Drum Tire and Roller Contact

A. 0.012-0.015 inch (0.030-0.038 mm)

B. Drum Tire

C. Roller Assembly

NOTICE

The drum must be empty when inspecting the Drum Tire and Roller Contact. Inspect both rollers.

Inspecting Drum Tire and Roller Contact

Measure the distance between the drum tire and the roller on both the front and back.

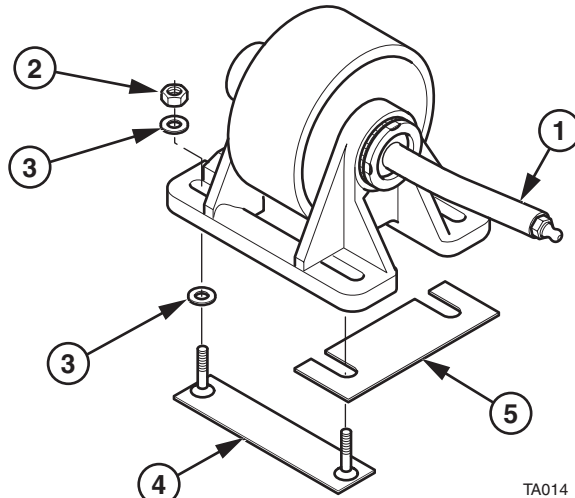
NOTICE

If the gap distance is not between 0.012-0.015 inch (0.030-0.038 mm), on both sides, adjust the tire and roller contact. If the gap distance is within the limits, check the roller alignment.

Refer to Adjust Tire and Roller Contact or Inspect Roller Alignment in this section.



Adjust Drum Tire and Roller Contact



1. Hose and Fitting Assembly
2. Nuts
3. Washers
4. Mounting Flange
5. Shims

Figure 6-4: Drum Tire and Roller Contact

⚠ WARNING

Crush hazard from falling drum or lifting device failure can cause death or serious injury. Only use a lifting device capable of lifting and supporting the drum during any drum maintenance procedures.

Make sure:

- the drum is empty when it is lifted.
 - the lifting device is capable of lifting and supporting the weight during any drum maintenance procedures.
 - to raise the drum **ONLY** enough to service the rollers or severe damage will occur to the drum and drum drive transmission.
1. Raise the drum only enough to take the load off the rollers.
 2. Loosen the four nuts (Figure 6-4, 2).
 3. Install any necessary shim(s) (Figure 6-4, 5) between the roller support (Figure 6-4) and the roller mounting surface to achieve the correct clearance.

Maintenance — Mixer

4. Tighten the nuts (Figure 6-4, 2).
5. Perform **Inspect Drum Tire and Roller Contact** on page 6-12.

Inspect Roller Alignment

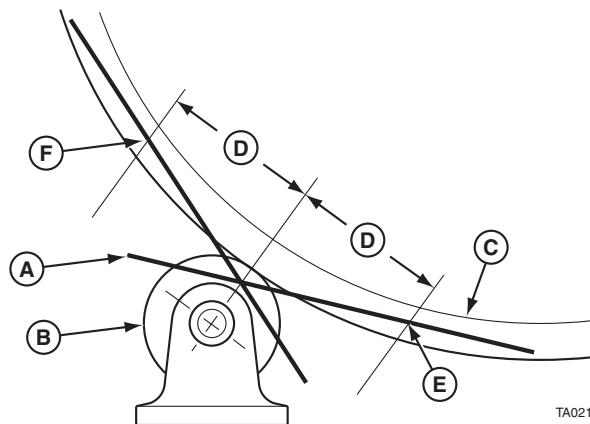


Figure 6-5: Roller Alignment

- A. Straight Edge
B. Roller Assembly
C. Drum Tire

- D. One Foot (305 mm)
E. Position E
F. Position F

NOTICE

Inspect the front side of both rollers with a straight edge that has one “knife” edge.

1. Place the straight edge (Figure 6-5, A) across the side of the roller assembly (Figure 6-5, B).
2. Measure the distance from the straight edge to the drum tire (Figure 6-5, C), approximately one foot (305 mm) (Figure 6-5, D) from the centerline of the roller assembly to position (Figure 6-5, E).
3. Reposition the straight edge and measure the distance from the straight edge to the drum tire at approximate one foot (305 mm) (Figure 6-5, D) from the centerline of the roller assembly to position point (Figure 6-5, F).
4. Compare the measurements, if the measurements are not within 1/32 inch (0.8 mm) of each other, adjust the roller alignment. Refer to **Inspect Roller Alignment** on page 6-14.



Adjust Roller Alignment

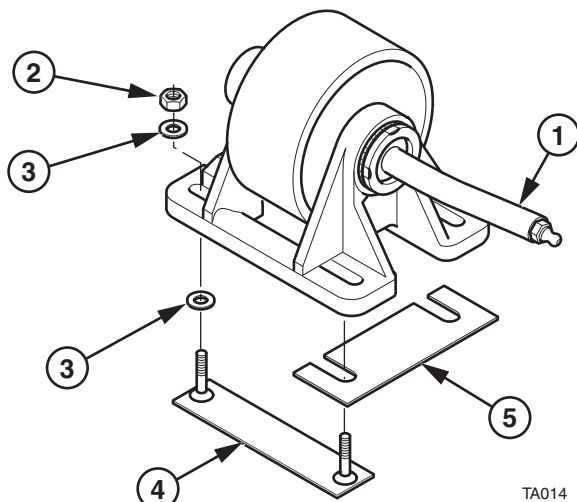
1. Raise the drum only enough to take the load off the rollers.
2. Loosen the four nuts (Figure 6-4, 2) and rotate the roller assembly to achieve alignment.
3. Tighten the nuts (Figure 6-4, 2).
4. Lower drum onto rollers and reinspect alignment.

NOTICE

*If proper alignment cannot be achieved, the rollers may have to be replaced. Refer to **Replace Drum Roller** on page 6-16.*

Maintenance — Mixer

Replace Drum Roller



1. Hose and Fitting Assembly
2. Nuts
3. Washers
4. Mounting Flange
5. Shims

Figure 6-6: Drum Roller

NOTICE

If you suspect the roller assemblies are damaged, replace them. Service part number 40830, two required. The cleanliness of replacing drum roller assemblies is extremely important to reliability. Always make sure they are kept clean. Place components on a clean rag or in a container until they are installed.

Removing a Drum Roller

1. Raise the drum only enough to take the load off the rollers.
2. Remove the hose and fitting assembly (Figure 6-6, 1) from the roller shaft.
3. Remove the four nuts (Figure 6-6, 2), washers (Figure 6-6, 3), mounting flange (Figure 6-6, 4) and shim(s) (Figure 6-6, 5).
4. Remove the roller assemblies from the roller mounting surface.

Installing a Drum Roller

1. Install the roller assembly and any removed shim(s) (Figure 6-6, 4) onto the roller mounting surface with the mounting flange (Figure 6-6, 4), washers (Figure 6-6, 3) and nuts (Figure 6-6, 2).



2. Install the hose and fitting assembly (1) into the roller shaft.
3. Fill the roller assembly with multi-purpose grease slowly until a small amount of grease purges from the oil seals. DO NOT use too much pressure.
4. Perform **Inspect Drum Tire and Roller Contact** on page 6-12 and **Inspect Roller Alignment** on page 6-14.

Hopper Angle Adjustment

The hopper angle can be adjusted to compensate for any wear which can occur. The top surface of the hopper should be maintained level with the mixer when on level ground.

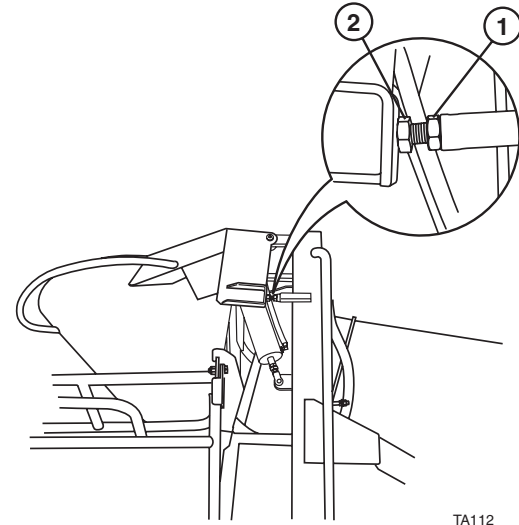
Moving the adjustment screw out will raise the leading edge of the hopper. Moving the adjustment screw in will lower the leading edge of the hopper.

Adjusting Hopper Angle

1. Raise the hopper.
2. Loosen the adjustment locknut (Figure 6-7, 1) while holding the adjustment screw (Figure 6-7, 2) from rotating.

3. Move the adjustment out to raise the leading edge of the hopper.

After adjustment, check level of hopper. When adjustment is achieved, tighten locknut while holding adjustment screw.



TA112

Figure 6-7: Hopper Angle Adjustment

Maintenance — Mixer

Notes: _____

[illegible]

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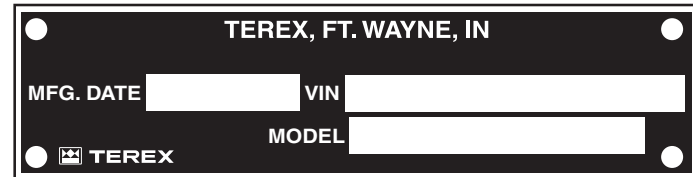
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Vehicle Identification



TA045

Figure 7-1: Vehicle Identification

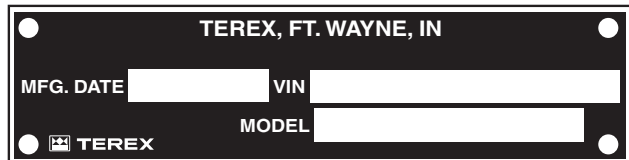
Specifications

Chassis and Certification Identification Labels

This vehicle has been designed and assembled for a maximum gross vehicle weight rating (GVWR). Actual rating is on the label located inside the cab. If any of these ratings are exceeded and overloading occurs, instability or poor handling, premature wear or failure of parts can occur.

The manufactured date, Vehicle Identification Number (VIN) and model are stamped into a plate which located on the door jam. Use the information on this plate whenever replacement parts, service information or literature is required.

This plate contains information Terex can use to quickly identify the structure and major components your vehicle has been built from.



TA048

Figure 7-2: Chassis and Certification Label

Federal law prohibits these labels from being removed from the vehicle.

TMMB Identification



TA046

Figure 7-3: TMMB Identification

XX = Actual maximum cubic capacity of the mixer.

Mixing Specifications



TA047

Figure 7-4: Mixing Specifications

XXX = Actual maximum cubic capacity or volume of the mixer.

Specifications

Specifications

Mixer Model (axles)	FD3000 (3)	FD4000 (4)	FD4000 (4)	FD5000 (5)	FD5000 (5)	FD6000 (6)	FD6000 (6)	FD7000 (7)
Permissible Gross Weight	66,000 lbs. (29,937 kg)	73,280 lbs. (33,239 kg)	63,500 lbs. (28,803 kg)	70,000 lbs. (31,751 kg)	70,000 lbs. (31,751 kg)	70,000 lbs. (31,751 kg)	70,000 lbs. (31,751 kg)	78,500 lbs. (35,607 kg)
Chassis and Mixer	28,230 lbs. (12,805 kg)	29,810 lbs. (13,522 kg)	30,480 lbs. (13,826 kg)	32,010 lbs. (14,519 kg)	31,220 lbs. (14,161 kg)	34,600 lbs. (15,694 kg)	32,580 lbs. (14,778 kg)	35,150 lbs. (15,944 kg)
Water Capacity/ Weight	150 gal. (568 L)/ 1,250 lbs. (567 kg)	150 gal. (568 L)/ 1,250 lbs. (567 kg)	120 gal. (454 L)/ 960 lbs. (435 kg)	120 gal. (454 L)/ 960 lbs. (435 kg)	120 gal. (454 L)/ 960 lbs. (435 kg)	120 gal. (454 L)/ 960 lbs. (435 kg)	120 gal. (454 L)/ 960 lbs. (435 kg)	120 gal. (454 L)/ 960 lbs. (435 kg)
Fuel Capacity/ Weight	70 gal. (265 L)/ 490 lbs. (222 kg)	70 gal. (265 L)/ 490 lbs. (222 kg)	50 gal. (189 L)/ 350 lbs. (159 kg)	50 gal. (189 L)/ 350 lbs. (159 kg)	50 gal. (189 L)/ 350 lbs. (159 kg)	50 gal. (189 L)/ 350 lbs. (159 kg)	50 gal. (189 L)/ 350 lbs. (159 kg)	50 gal. (189 L)/ 350 lbs. (159 kg)
Empty Weight	29,970 lbs. (13,594 kg)	31,550 lbs. (14,311 kg)	31,790 lbs. (14,420 kg)	33,320 lbs. (15,114 kg)	32,530 lbs. (14,755 kg)	35,910 lbs. (16,289 kg)	33,890 lbs. (15,372 kg)	36,460 lbs. (16,538 kg)
Legal Concrete Load	36,030 lbs. (16,343 kg)	41,730 lbs. (18,928 kg)	31,710 lbs. (14,383 kg)	36,680 lbs. (16,638 kg)	37,470 lbs. (16,996 kg)	34,090 lbs. (15,463 kg)	36,110 lbs. (16,379 kg)	42,040 lbs. (19,069 kg)
Axle Weights with Loads Shown								
Front Driving Axle	22,000 lbs. (9,979 kg)	19,115 lbs. (8,670 kg)	20,690 lbs. (9,385 kg)	18,000 lbs. (8,165 kg)	18,000 lbs. (8,165 kg)	18,000 lbs. (8,165 kg)	18,000 lbs. (8,165 kg)	20,000 lbs. (9,072 kg)
Pusher Axle	-	20,000 lbs. (9,072 kg)	-	13,000 lbs. (5,897 kg)	13,000 lbs. (5,897 kg)	-	-	-



Specifications

Mixer Model (axles)	FD3000 (3)	FD4000 (4)	FD4000 (4)	FD5000 (5)	FD5000 (5)	FD6000 (6)	FD6000 (6)	FD7000 (7)
Dual Pusher Axle	-	-	-	-	-	8,000 lbs. (3,629 kg)	8,000 lbs. (3,629 kg)	13,500 lbs. (6,123 kg)
Tag Axle	-	-	8,810 lbs. (3,996 kg)	13,000 lbs. (5,897 kg)	13,000 lbs. (5,897 kg)	10,000 lbs. (4,536 kg)	10,000 lbs. (4,536 kg)	-
First Tag Axle	-	-	-	-	-	-	-	8,000 lbs. (3,629 kg)
Rear Tag Axle	-	-	-	-	-	-	-	10,500 lbs. (4,763 kg)
Dual Driving Tandem	44,000 lbs. (19,958 kg)	34,165 lbs. (15,497 kg)	34,000 lbs. (15,422 kg)	26,000 lbs. (11,793 kg)	26,000 lbs. (11,793 kg)	34,000 lbs. (15,422 kg)	34,000 lbs. (15,422 kg)	26,500 lbs. (12,020 kg)
Total Weight	66,000 lbs. (29,937 kg)	73,280 lbs. (33,239 kg)	63,500 lbs. (28,803 kg)	70,000 lbs. (31,751 kg)	70,000 lbs. (31,751 kg)	70,000 lbs. (31,751 kg)	70,000 lbs. (31,751 kg)	78,500 lbs. (35,607 kg)
Tire Size								
Front and Tandem Axles	445/65R22.5	445/65R22.5	445/65R22.5	445/65R22.5	445/65R22.5	445/65R22.5	445/65R22.5	445/65R22.5
Pusher Axle(s)	-	445/65R22.5	-	11R22.5	11R22.5	265/75R22.5	265/75R22.5	265/75R22.5
Tag Axle	-	-	10R22.5	-	11R22.5	265/75R22.5	265/75R22.5	265/75R22.5
Mixer Size	10 cu. yd. (7.6 cu. m)	11 cu. yd. (8.4 cu. m)	11 cu. yd. (8.4 cu. m)	11 cu. yd. (8.4 cu. m)	10 1/2 cu. yd. (8.0 cu. m)	11 cu. yd. (8.4 cu. m)	11 cu. yd. (8.4 cu. m)	11 cu. yd. (8.4 cu. m)
Drum Opening	46 in. diameter (1,168 mm Ø)	46 in. diameter (1,168 mm Ø)	46 in. diameter (1,168 mm Ø)	46 in. diameter (1,168 mm Ø)	46 in. diameter (1,168 mm Ø)	46 in. diameter (1,168 mm Ø)	46 in. diameter (1,168 mm Ø)	46 in. diameter (1,168 mm Ø)
Length, Axle to Axle								



TEREX®

Front-Discharge

7-7

Specifications

Mixer Model (axles)	FD3000 (3)	FD4000 (4)	FD4000 (4)	FD5000 (5)	FD5000 (5)	FD6000 (6)	FD6000 (6)	FD7000 (7)
1 to 2	171 in. (4,343 mm)	109 in. (2,769 mm)	164 in. (4,166 mm)	122 in. (3,099 mm)	110 in. (2,794 mm)	76 in. (1,930 mm)	85 in. (2,159 mm)	85 in. (2,159 mm)
1 to 3	223 in. [18 ft. 7 in.] (6 m)	-	3 in. - 4 in. (76 mm - 102 mm)	-	-	-	-	-
1 to 4	-	211 in. [17 ft. 7 in.] (5 m)	379 in. [31 ft. 7 in.] (10 m)	-	-	-	-	-
1 to 5	-	-	-	274 in. [22 ft. 10 in.] (7 m)	262 in. [21 ft. 10 in.] (7 m)	-	-	-
1 to 6	-	-	-	-	-	278 in. [23 ft. 2 in.] (7 m)	319 in. [26 ft. 7 in.] (8 m)	-
1 to 7	-	-	-	-	-	-	-	379 in. [31 ft. 7 in.] (10 m)
2 to 3	52 in. (1,321 mm)	50 in. (1,270 mm)	72 in. (1,829 mm)	49 in. (1,245 mm)	49 in. (1,245 mm)	46 in. (1,168 mm)	42 in. (1,067 mm)	42 in. (1,067 mm)
3 to 4	-	52 in. (1,321 mm)	158 in. (4,013 mm)	52 in. (1,321 mm)	52 in. (1,321 mm)	48 in. (1,219 mm)	47 in. (1,194 mm)	47 in. (1,194 mm)
4 to 5	-	-	-	51 in. (1,295 mm)	51 in. (1,295 mm)	54 in. (1,372 mm)	52 in. (1,372 mm)	52 in. (1,372 mm)



Specifications

Mixer Model (axles)	FD3000 (3)	FD4000 (4)	FD4000 (4)	FD5000 (5)	FD5000 (5)	FD6000 (6)	FD6000 (6)	FD7000 (7)
5 to 6	-	-	-	-	-	54 in. (1,372 mm)	93 in. (2,362 mm)	47 in. (1,194 mm)
6 to 7	-	-	-	-	-	-	-	106 in. (2,692 mm)
Ground Clearance								
Pusher Axle	-	6 in. - 8 in. (152 mm - 203 mm)	-	4 in. - 6 in. (102 mm - 152 mm)	4 in. - 6 in. (102 mm - 152 mm)	-	-	-
Dual Pusher Axle	-	-	-	-	-	6 in. - 8 in. (152 mm - 203 mm)	6 in. - 8 in. (152 mm - 203 mm)	8 in. - 10 in. (203 mm - 254 mm)
Tag Axle	-	-	18 in. - 19 in. (457 mm - 483 mm)	4 in. - 6 in. (102 mm - 152 mm)	4 in. - 6 in. (102 mm - 152 mm)	13 in. (330 mm)	13 in. (330 mm)	-
First Tag Axle	-	-	-	-	-	-	-	8 in. - 10 in. (203 mm - 254 mm)
Rear Tag Axle	-	-	-	-	-	-	-	13 in. (330 mm)

Weights include aluminum options with aluminum disc wheels on driving axles.

Specifications

Exhaust and Noise Emissions Exhaust Emissions

Exhaust Emissions

The Environmental Protection Agency (EPA) and Environment Canada issue limits of exhaust emissions for the manufacturers' of engines to follow and adhere to. It is up to the owner to keep the engine maintained so the limits are kept within certain parameters.

California Air Resources Board (CARB) has different emission limits for vehicles operating in the state of California.

The engine manufacturer manual will also include an emission statement, refer to the engine's operators manual.

Noise Emission Control

A Noise Emission Control label is located on the curb side in back of the cab. It is up to the owner to keep the vehicle maintained so the limits are kept within parameters to conform to EPA noise regulations and Canadian CMVSS-1106 regulations.

The engine manufacturer manual will also include information on what components of the Noise Emission Control system that cannot be altered, refer to the engine's operators manual.

<p style="text-align: center;">VEHICLE NOISE EMISSION CONTROL INFORMATION</p> <p style="text-align: center;">TEREX, INC.</p> <p style="text-align: center;">MONTH AND YEAR OF MANUFACTURE _____</p> <p>THIS VEHICLE CONFORMS TO U.S. EPA REGULATIONS FOR NOISE EMISSION APPLICABLE TO MEDIUM AND HEAVY TRUCKS.</p> <p>THE FOLLOWING ACTS OR THE CAUSING THEREOF BY ANY PERSON ARE PROHIBITED BY THE NOISE CONTROL ACT OF 1972: (A) THE REMOVAL OR RENDERING INOPERATIVE, OTHER THAN FOR PURPOSES OF MAINTENANCE, REPAIR, OR REPLACEMENT, OF ANY NOISE CONTROL DEVICE OF DESIGN (LISTED IN THE OWNER'S MANUAL) INCORPORATED INTO THIS VEHICLE IN COMPLIANCE WITH THE NOISE CONTROL ACT; (B) THE USE OF THIS VEHICLE AFTER SUCH DEVICE OR ELEMENT OF DESIGN HAS BEEN REMOVED OR RENDERED INOPERATIVE.</p>

TA049

Figure 7-5: Noise Emission Control Label



Torque Specifications and Hardware Reference



WARNING

Using the incorrect hardware or torque can cause death, serious injury or failure of product. Use only TEREX specified hardware and torque.

IMPORTANT

This chart can be used for general information.

Use the torque specified in the procedure if it differs from this general information chart.

The values are stated in foot pounds (Newton meters).



TEREX®

Specifications

Torque Chart — SAE

Size	SAE Grade 7 Dry	SAE Grade 7 Lubricated	SAE Grade 8 Dry	SAE Grade 8 Lubricated
1/4-20	128-156 lb-in (15-18 N-m)	80-117 lb-in (9-13 N-m)	146-179 lb-in (17-20 N-m)	91-134 lb-in (10-15 N-m)
1/4-28	146-179 lb-in (15-18 N-m)	91-134 lb-in (9-13 N-m)	167-204 lb-in (17-20 N-m)	104-153 lb-in (10-15 N-m)
5/16-18	22-27 lb-ft (15-18 N-m)	14-20 lb-ft (9-13 N-m)	25-31 lb-ft (17-20 N-m)	16-23 lb-ft (10-15 N-m)
5/16-24	24-30 lb-ft (33-40 N-m)	15-22 lb-ft (21-30 N-m)	28-34 lb-ft (38-47 N-m)	17-25 lb-ft (24-34 N-m)
3/8-16	39-48 lb-ft (53-64 N-m)	24-36 lb-ft (33-48 N-m)	45-54 lb-ft (60-74 N-m)	28-41 lb-ft (38-55 N-m)
3/8-24	44-54 lb-ft (60-73 N-m)	27-40 lb-ft (37-55 N-m)	50-62 lb-ft (68-84 N-m)	31-46 lb-ft (43-63 N-m)
7/16-14	62-76 lb-ft (85-103 N-m)	39-57 lb-ft (33-77 N-m)	71-87 lb-ft (97-117 N-m)	44-65 lb-ft (60-88 N-m)
7/16-20	70-85 lb-ft (94-115 N-m)	43-64 lb-ft (59-86 N-m)	80-97 lb-ft (108-132 N-m)	49-73 lb-ft (67-99 N-m)
1/2-13	95-116 lb-ft (129-157 N-m)	59-87 lb-ft (80-118 N-m)	109-133 lb-ft (148-180 N-m)	68-100 lb-ft (92-136 N-m)



Specifications

Size	SAE Grade 7 Dry	SAE Grade 7 Lubricated	SAE Grade 8 Dry	SAE Grade 8 Lubricated
1/2-20	107-131 lb-ft (145-177.6 N-m)	67-98 lb-ft (90-133 N-m)	122-150 lb-ft (165-203 N-m)	76-112 lb-ft (103-152 N-m)
9/16-12	137-167 lb-ft (185.7-226 N-m)	85-126 lb-ft (116-171 N-m)	157-191 lb-ft (213-259 N-m)	97-144 lb-ft (132-195 N-m)
9/16-18	153-187 lb-ft (207-254 N-m)	95-140 lb-ft (129-190 N-m)	175-214 lb-ft (237-290 N-m)	108.7-160 lb-ft (147-217 N-m)
5/8-11	189-231 lb-ft (256-313 N-m)	118-173 lb-ft (160-235 N-m)	216-264 lb-ft (293-358 N-m)	134-198 lb-ft (182-269 N-m)
5/8-18	214-262 lb-ft (290-355 N-m)	133-196 lb-ft (180-266 N-m)	245-299 lb-ft (332-405 N-m)	152-224 lb-ft (206-304 N-m)
3/4-10	336-410 lb-ft (457-556 N-m)	209-308 lb-ft (183-418 N-m)	384-469 lb-ft (521-636 N-m)	239-352 lb-ft (324-477 N-m)
3/4-16	374-458 lb-ft (502-621 N-m)	233-343 lb-ft (316-465 N-m)	428-523 lb-ft (580-709 N-m)	266-392 lb-ft (361-532 N-m)
7/8-9	541-661 lb-ft (734-896 N-m)	337-496 lb-ft (457-673 N-m)	618-756 lb-ft (838-1025 N-m)	385-567 lb-ft (522-769 N-m)
7/8-14	597-729 lb-ft (809-988 N-m)	371-547 lb-ft (503-742 N-m)	682-834 lb-ft (925-1131 N-m)	424-625 lb-ft (575-847 N-m)
1-8	811-991 lb-ft (1100-1344 N-m)	505-743 lb-ft (685-1007 N-m)	927-1133 lb-ft (1257-1536 N-m)	577-850 lb-ft (782-1152 N-m)

Specifications

Size	SAE Grade 7 Dry	SAE Grade 7 Lubricated	SAE Grade 8 Dry	SAE Grade 8 Lubricated
1-12	888-1085 lb-ft (1204-1471 N-m)	552-814 lb-ft (748-1104 N-m)	1014-1240 lb-ft (1375-1681 N-m)	631-930 lb-ft (856-1261 N-m)
1-14	910-1112 lb-ft (1234-1508 N-m)	566-834 lb-ft (767-1131 N-m)	1040-1271 lb-ft (1410-1723 N-m)	647-954 lb-ft (877-1294 N-m)
1 1/8-7	1150-1405 lb-ft (1559-1905 N-m)	715-1054 lb-ft (969-1429 N-m)	1314-1606 lb-ft (1782-2177 N-m)	817-1204 lb-ft (1108-1632 N-m)
1 1/8-12	1289-1575 lb-ft (1748-2135 N-m)	802-1181 lb-ft (1087-1601 N-m)	1473-1800 lb-ft (1997-2441 N-m)	916-1350 lb-ft (1241.9-1830 N-m)
1 1/4-7	1622-1982 lb-ft (2199-2687 N-m)	1009-1487 lb-ft (1368-2016 N-m)	1853-2265 lb-ft (2512-3071 N-m)	1153-1699 lb-ft (1563-2304 N-m)
1 1/4-12	1796-2195 lb-ft (2435-2976 N-m)	1117-1646 lb-ft (1515-2232 N-m)	2052-2508 lb-ft (2782-3400 N-m)	1277-1881 lb-ft (1731-2550 N-m)
1 3/8-6	2126-2598 lb-ft (2883-3522 N-m)	1323-1949 lb-ft (1794-2643 N-m)	2430-2970 lb-ft (3295-4027 N-m)	1512-2227 lb-ft (2050-3019 N-m)
1 3/8-12	2420-2958 lb-ft (3281-4011 N-m)	1506-2218 lb-ft (2041.9-3007 N-m)	2766-3380 lb-ft (3750-4583 N-m)	1721-2535 lb-ft (2333-3437 N-m)
1 1/2-6	2822-3449 lb-ft (3826-4676 N-m)	1756-2587 lb-ft (2381-3508 N-m)	3225-3942 lb-ft (4373-5345 N-m)	2007-2956 lb-ft (2721-4008 N-m)
1 1/2-12	3175-3880 lb-ft (4305-5261 N-m)	1975-2910 lb-ft (2678-3945 N-m)	3628-4435 lb-ft (4919-6013 N-m)	2258-3326 lb-ft (3061-4510 N-m)



Torque Chart — Metric

Tightening Torques Untreated Screw (Black Finish) — Coarse Thread

Size	Type 8.8	Type 10.9	Type 12.9
M10	37 lb-ft (51 N-m)	53 lb-ft (72 N-m)	64 lb-ft (87 N-m)
M12	65 lb-ft (89 N-m)	92 lb-ft (125 N-m)	110 lb-ft (150 N-m)
M14	103 lb-ft (141 N-m)	146 lb-ft (198 N-m)	177 lb-ft (240 N-m)
M16	158 lb-ft (215 N-m)	224 lb-ft (305 N-m)	269 lb-ft (365 N-m)
M18	217 lb-ft (295 N-m)	309 lb-ft (420 N-m)	368 lb-ft (500 N-m)
M20	309 lb-ft (420 N-m)	435 lb-ft (590 N-m)	523 lb-ft (710 N-m)
M22	420 lb-ft (570 N-m)	590 lb-ft (800 N-m)	708 lb-ft (960 N-m)
M24	534 lb-ft (725 N-m)	752 lb-ft (1020 N-m)	899 lb-ft (1220 N-m)
M27	789 lb-ft (1070 N-m)	1113 lb-ft (1510 N-m)	1334 lb-ft (1810 N-m)
M30	1069 lb-ft (1450 N-m)	1511 lb-ft (2050 N-m)	1806 lb-ft (2450 N-m)
M33	1452 lb-ft (1970 N-m)	2042 lb-ft (2770 N-m)	2455 lb-ft (3330 N-m)
M36	1865 lb-ft (2530 N-m)	2625 lb-ft (3560 N-m)	3156 lb-ft (4280 N-m)
M39	2426 lb-ft (3290 N-m)	3407 lb-ft (4620 N-m)	4093 lb-ft (5550 N-m)

Specifications

Tightening Torques Untreated Screw (Black Finish) — Fine Thread

Size	Type 8.8	Type 10.9	Type 12.9
M10 x 1.25	38 lb-ft (52 N-m)	53 lb-ft (73 N-m)	64 lb-ft (88 N-m)
M12 x 1.25	70 lb-ft (95 N-m)	99 lb-ft (135 N-m)	118 lb-ft (160 N-m)
M14 x 1.5	110 lb-ft (150 N-m)	154 lb-ft (210 N-m)	184 lb-ft (250 N-m)
M16 x 1.5	165 lb-ft (225 N-m)	232 lb-ft (315 N-m)	280 lb-ft (380 N-m)
M18 x 1.5	239 lb-ft (325 N-m)	339 lb-ft (460 N-m)	405 lb-ft (550 N-m)
M20 x 1.5	339 lb-ft (460 N-m)	472 lb-ft (640 N-m)	567 lb-ft (770 N-m)
M22 x 1.5	449 lb-ft (610 N-m)	634 lb-ft (860 N-m)	774 lb-ft (1050 N-m)
M24 x 2	575 lb-ft (780 N-m)	811 lb-ft (1100 N-m)	958 lb-ft (1300 N-m)



Tightening Torques Zinc Plated — Coarse Thread

Size	Type 8.8	Type 10.9	Type 12.9
M10	35 lb-ft (48 N-m)	49 lb-ft (67 N-m)	59 lb-ft (81 N-m)
M12	61 lb-ft (83 N-m)	86.2 lb-ft (117 N-m)	103 lb-ft (140 N-m)
M14	97 lb-ft (132 N-m)	136 lb-ft (185 N-m)	162 lb-ft (220 N-m)
M16	147 lb-ft (200 N-m)	210 lb-ft (285 N-m)	250 lb-ft (340 N-m)
M18	202 lb-ft (275 N-m)	287 lb-ft (390 N-m)	346 lb-ft (470 N-m)
M20	287 lb-ft (390 N-m)	405 lb-ft (550 N-m)	486 lb-ft (660 N-m)
M22	390 lb-ft (530 N-m)	549 lb-ft (745 N-m)	656 lb-ft (890 N-m)
M24	497 lb-ft (675 N-m)	708 lb-ft (960 N-m)	840 lb-ft (1140 N-m)
M27	733 lb-ft (995 N-m)	1032 lb-ft (1400 N-m)	1239 lb-ft (1680 N-m)
M30	995 lb-ft (1350 N-m)	1401 lb-ft (1900 N-m)	1681 lb-ft (2280 N-m)
M33	1349 lb-ft (1830 N-m)	1902 lb-ft (2580 N-m)	2278 lb-ft (3090 N-m)
M36	1740 lb-ft (2360 N-m)	2441 lb-ft (3310 N-m)	2935 lb-ft (3980 N-m)
M39	2249 lb-ft (3050 N-m)	3163 lb-ft (4290 N-m)	3798 lb-ft (5150 N-m)

Specifications

Tightening Torques Zinc Plated — Fine Thread

Size	Type 8.8	Type 10.9	Type 12.9
M10 x 1.25	36 lb-ft (49 N-m)	50 lb-ft (68 N-m)	60 lb-ft (82 N-m)
M12 x 1.25	64 lb-ft (88 N-m)	92 lb-ft (125 N-m)	110 lb-ft (150 N-m)
M14 x 1.5	103 lb-ft (140 N-m)	143 lb-ft (195 N-m)	173 lb-ft (235 N-m)
M16 x 1.5	154 lb-ft (210 N-m)	217 lb-ft (295 N-m)	258 lb-ft (350 N-m)
M18 x 1.5	224 lb-ft (305 N-m)	313 lb-ft (425 N-m)	376 lb-ft (510 N-m)
M20 x 1.5	313 lb-ft (425 N-m)	442 lb-ft (600 N-m)	531 lb-ft (720 N-m)
M22 x 1.5	420 lb-ft (570 N-m)	590 lb-ft (800 N-m)	708 lb-ft (960 N-m)
M24 x 2	531 lb-ft (720 N-m)	737 lb-ft (1000 N-m)	885 lb-ft (1200 N-m)



Specifications

Chassis

The systems shown in this section may not depict the actual system on your vehicle since many combinations of options are offered. If you have any questions about your TEREX Mixer's chassis, contact your TEREX distributor or TEREX.

Transmissions

The normal transmission in your TEREX Mixer is an automatic transmission, but optional transmissions may be available, refer to the transmission's operators manual.

Pneumatic System

The chassis air system provides the air required to operate all systems requiring air to activate and operate the entire air system on your TEREX Mixer. The brakes, tag and pusher axles, and pressurized water system are all part of the air system.

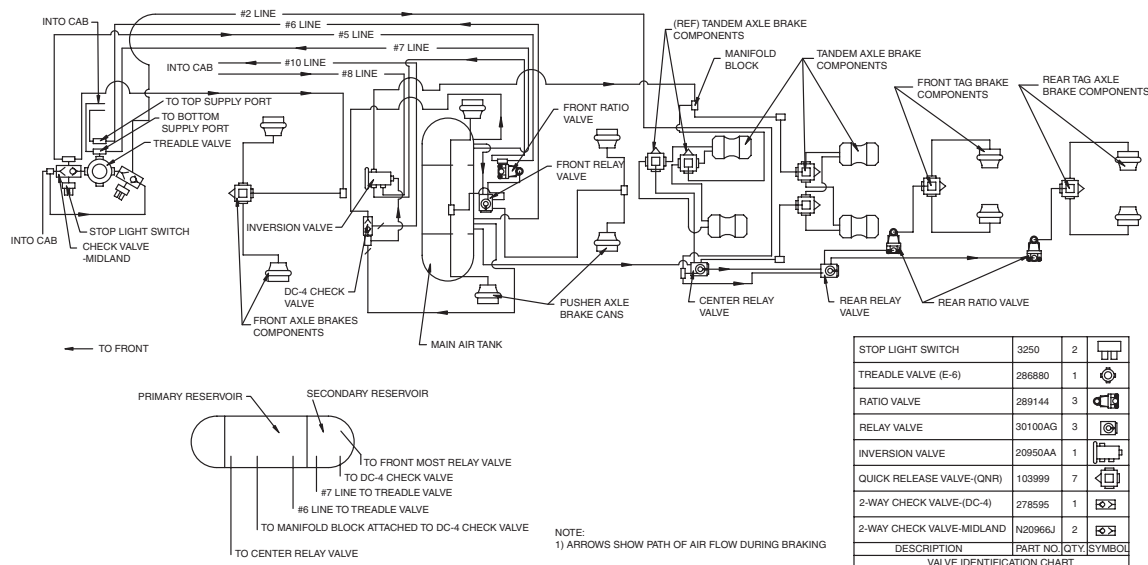
Brakes

The brake system is a dual circuit, compressed air system which has two independent brake systems controlled by one brake control. Each circuit is supplied by its own compressed air tank and is protected by a check valve. Both air tanks receive compressed air from the same supply tank (wet tank) and are charged with equal pressure. The dual circuits are connected for the parking brake system by a double check valve.

All air pressure is monitored by gauges on the main instrument panel.

Monitor the gauges to learn what is normal or to recognize changes in the system. Before operating the vehicle, make sure the gauges indicate air pressure. **Refer to Section 3, Operation – Cab, Brakes.**





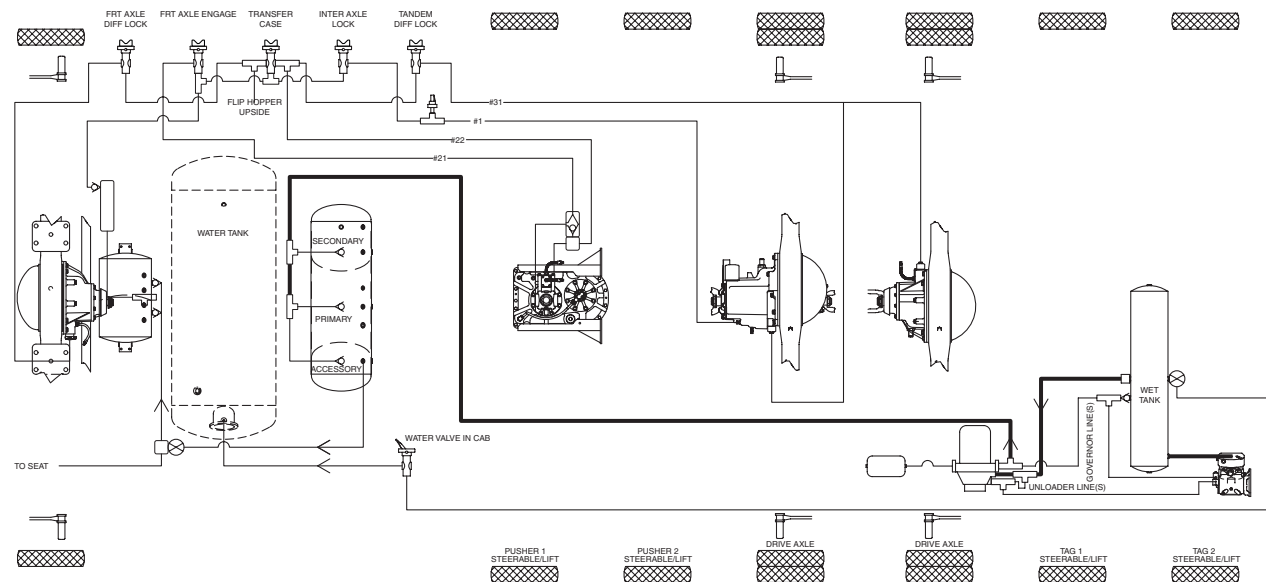
TA038

Figure 7-6:

Specifications

Transfer Cases

The transfer case connects the transmission and also to the front and rear axles by driveshafts. The transmission receives power from the engine and transfers power to the front and rear drive axles. This allows the driver to send power to a selected axle for off-road use. **Refer to Section 3, Operation – Cab, Console Instrument Panel.**



TA041

Figure 7-7:



Pusher and Tag Axles

Pusher and tag axles are used to distribute axle loads to increase payload and reduce the amount of pressure to the existing axles. **Refer to Section 3, Operation – Cab, Pusher and Tag Axles.**

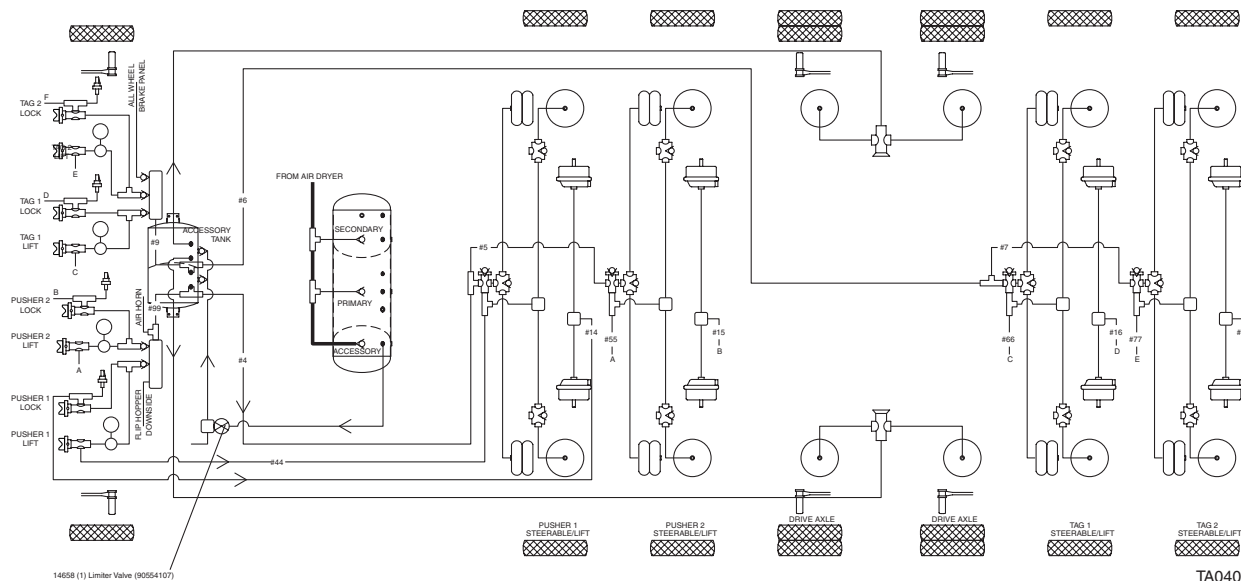


Figure 7-8:

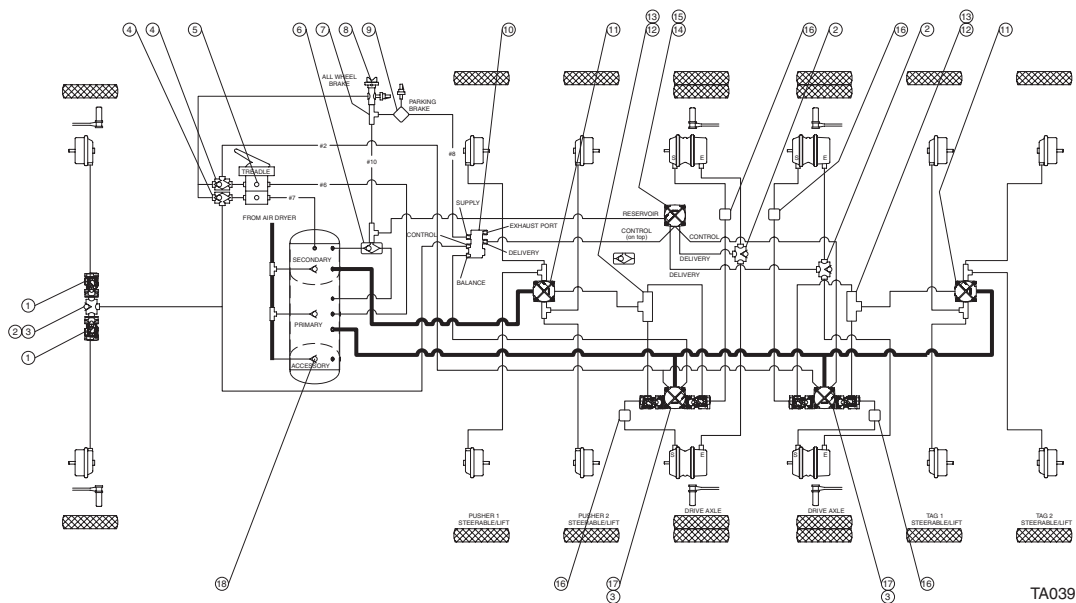


Figure 7-9:

Item	Qty.	Description
1	2	Single Port ABS Modulator Valve
2	3	Quick Release
3	3	Mount, ABS Modulator Valves
4	2	Double Check Valve
5	1	Treadle Valve
6	1	Double Check Valve
7	1	Cab Manifold
8	1	TW1 Toggle Valve
9	1	Parking Brake Valve
10	1	Inversion Valve
11	2	Relay Valve
12	2	Double Reverse Check Valve
13	6	Adapter, M22-1.5 to 1/2" NPT
14	1	Mount, R8
15	1	Relay/Anti-Compounding Valve
16	4	Manifold
17	2	Rear ABS Valve Package 6S/4M
18	3	Check Valve



Specifications

Differential Lock

Differential lock locks the drive wheels to supply equal torque to each of driving wheel. The vehicle's wheels rotate at different speeds, especially when turning corners. The differential not locked is designed to drive a pair of wheels with equal force, while allowing them to rotate at different speeds. **Refer to Section 3, Operation – Cab, Differential Lock.**

Hydraulic System – Power Steering

The power steering system is an integrated gear, hydraulic power cylinder and a power steering pump with fluid reservoir. The pump is driven from the engine by a pulley which provides hydraulic pressure to power the steering system.

If the engine is not running, steering is essentially manual, plus additional effort will be required since the power steering assistance is not operating.



WARNING

Power steering failure can lead to death or serious injury. DO NOT operate the vehicle if the power steering is not operating.

Check the power steering fluid level periodically and maintain the proper fluid level following the engine's manufacturer's recommendations.



Drum Drive Operation

The TEREX Front Discharge mixer is a truck chassis mounted mixer. The vehicle becomes mobile equipment for mixing (charging, clockwise rotation), transporting and discharging (counter-clockwise rotation) payload (cement) made to certain requirements. The mixer also employs its own pressurized water system.

The drum has two (2) sets of one-piece, formed fins which make up the flighting to both mix and elevate. The fins are placed opposite of each other, running the entire length of the drum. To mix (charge), the drum is rotated by hydrostatic transmission power from the truck engine. The rotation of the drum is controlled by the drum drive control, located in the cab or the remote station control. Refer to Section 4, **Operation — Drum**.

The pressurized water system provides water for charging the payload and for cleanup. The high pressure of the water system allows for faster discharge of the water. The water system is pressurized by the truck's air system.

The discharge chutes located in the front of the vehicle are hydraulically operated to allow the payload to be discharged at different heights. The chutes can be positioned left and right by the driver for different locations.

After the payload is discharged, the drum can be cleaned by rotating the drum in the CHARGE direction and placing water into the drum from the drum water discharge located at the opening of the drum. **DO NOT** use either wash down hose near the drum opening when the drum is rotating.

DANGER

Rotating equipment will cause death or serious injury. Only use the drum water discharge to add water to the drum when you are cleaning the drum and the drum is rotating. Stay clear of the drum opening and do not use an alternate source of water when the drum is rotating.

Specifications

The drum residue is emptied by rotating the drum in DISCHARGE direction. The chutes can be cleaned after the drum is emptied, using the cleanup hose. Refer to **Pneumatic and Water Systems** in this section.

IMPORTANT

The drum and chutes must be cleaned after any charging and discharging operation.

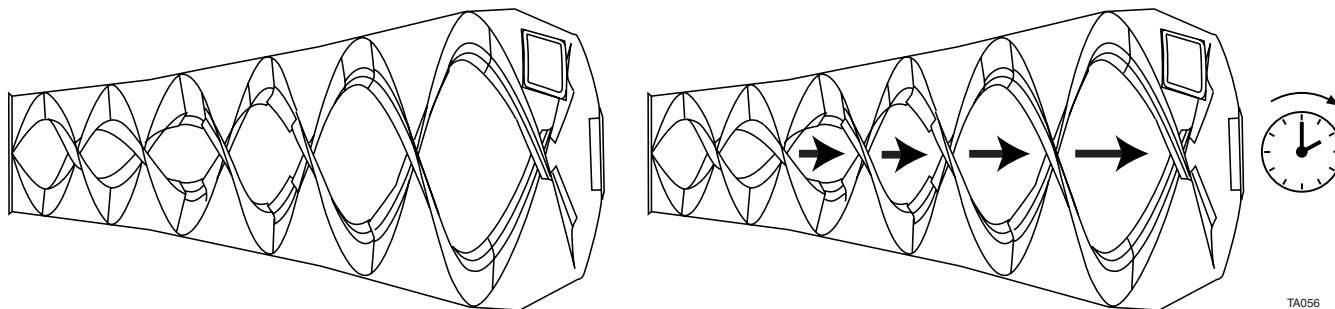


Figure 7-10: Clockwise = CHARGE (mixing payload)



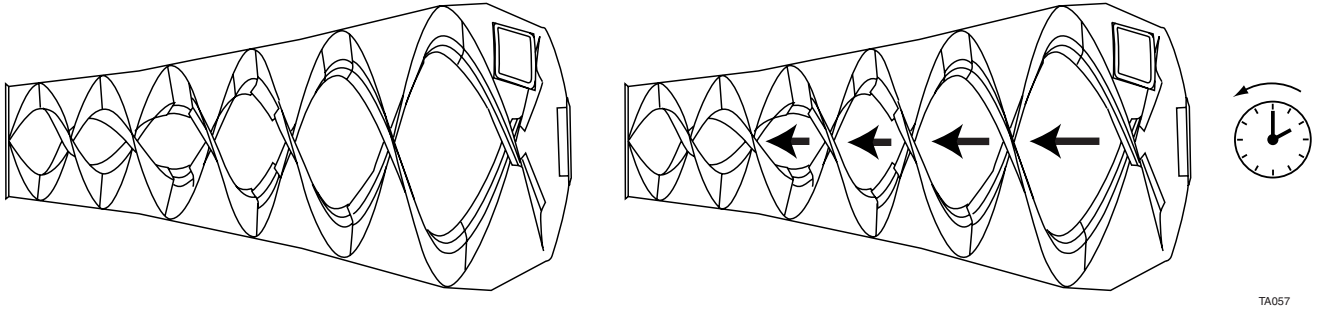
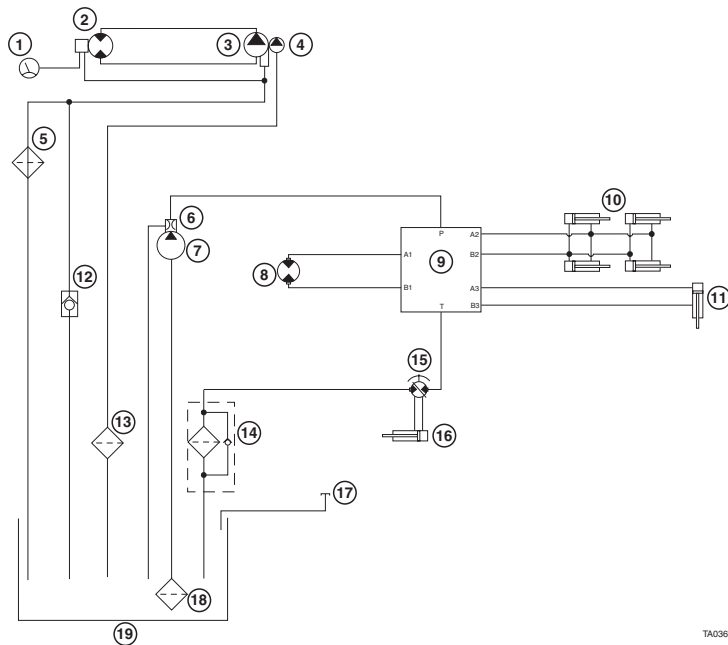


Figure 7-11: Counterclockwise = DISCHARGE

Specifications

Hydraulic System

Hydraulic Schematic



1. Slump Meter
2. Mixer Motor
3. Hydrostatic Pump
4. Charge Pump
5. Hydraulic Oil Cooler
6. Flow Divider
7. Steering Pump
8. Chute Swing Motor
9. Spool Valve
10. Folding Chute Cylinders
11. Chute Lift Cylinder
12. Check Valve (25 psi)
13. Inlet Filter (10 micron)
14. Return Filter (10 micron)
15. Steering Gear
16. Steering Cylinder
17. Hydraulic Reservoir Vent
18. Strainer
19. Hydraulic Oil Reservoir

Figure 7-12: Hydraulic Schematic

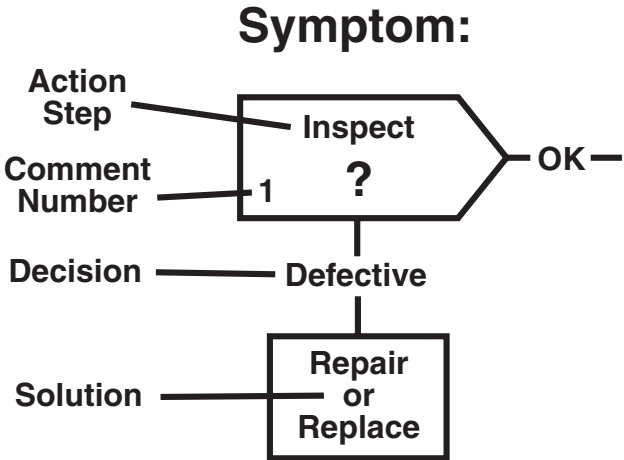


Drum Drive Troubleshooting

This guide will help locate and correct minor problems, eliminating unnecessary mixer down time. Match the symptoms with the problem statements and follow the action steps.

Action comments follow the diagrams. The statements help explain the action steps to take. When action statements apply, the action comment number appears in the action block. Refer to Figure 7-13.

If the mixer pump or mixer motor, or electrical switches to discharge or charge the payload fail, refer to Section 4, **Operating a Disabled Mixer or Mixer Pump ByPass**.

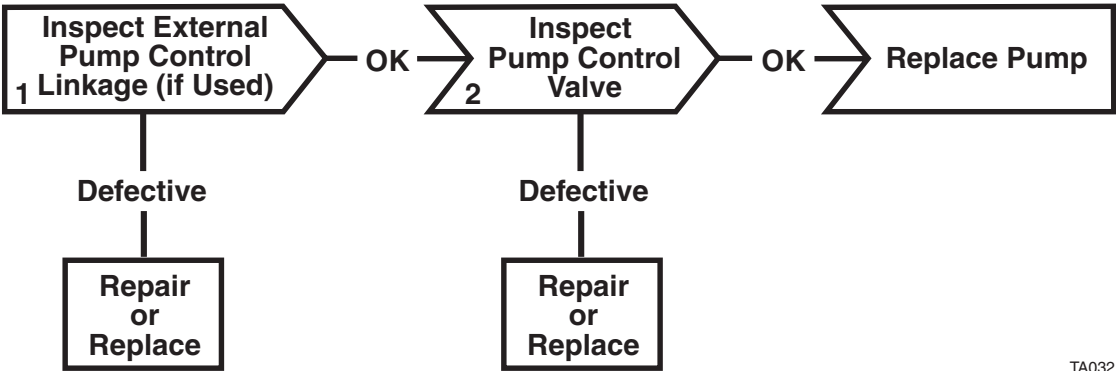


TA031

Figure 7-13: Troubleshooting Key

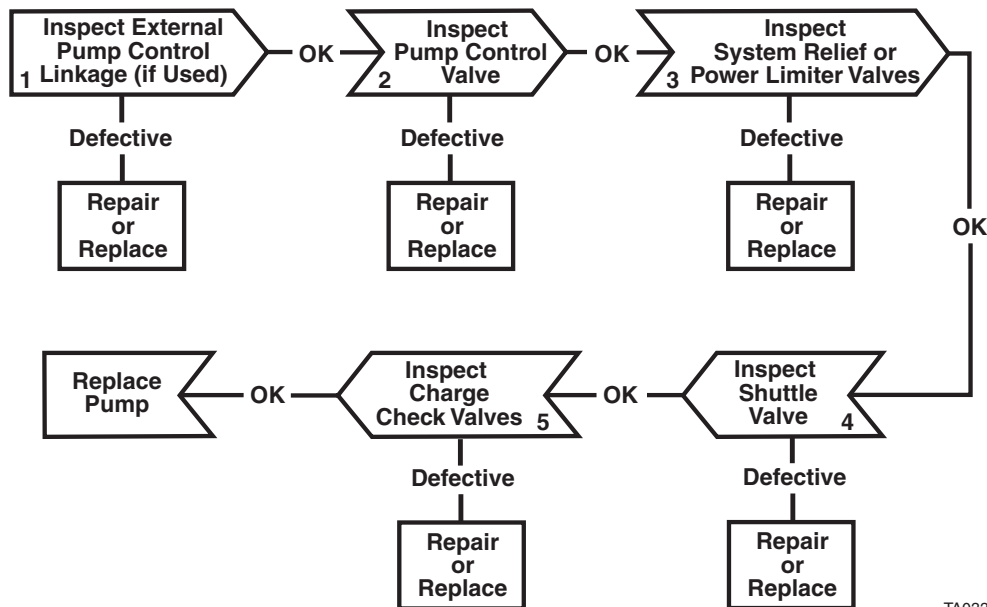
Specifications

Neutral Difficult or Impossible to Find



TA032

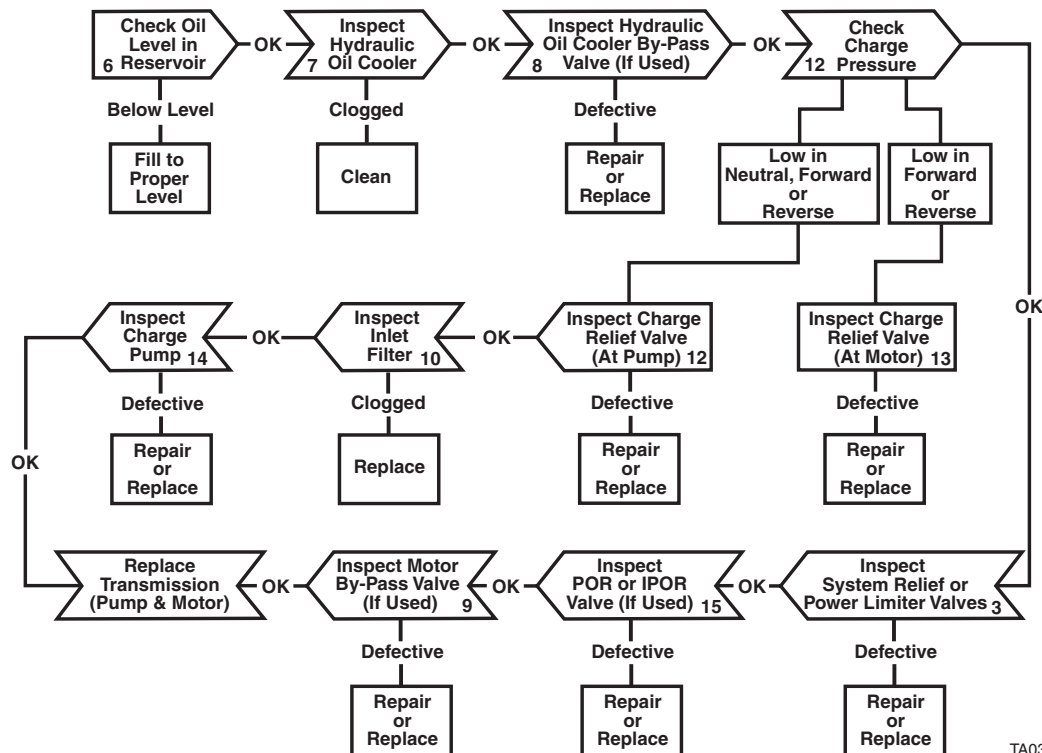
Transmission Operates in One Direction Only



TA033

Specifications

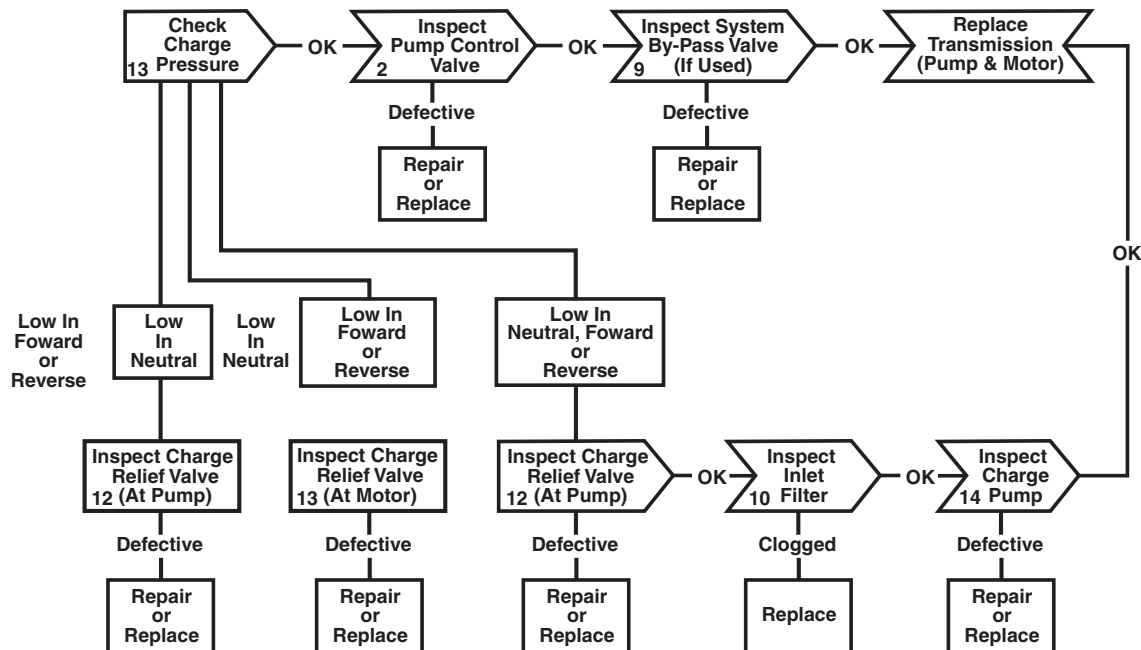
System Operating Hot



TA037



System Response Sluggish



TA035

Specifications

Action Steps

1. Inspect External Pump Control Linkage for:

(Manual Operated Controls)

- A. misadjusted or disconnected links.
- B. binding, bent or broken links.

(Hydraulic Remote Controls)

- A. improper pilot pressure.
- B. defective proportional valve. (See proportional valve manual for repairs.)

(Electrically Operated Controls)

- A. disconnected electrical signal connection.

2. Inspect Pump Control Valve for:

(Manual Operated Controls)

- A. plugged control orifice.
- B. damaged mounting gasket.
- C. misadjusted, damaged or broken neutral return spring.
- D. broken control connector pin.
- E. broken or missing control linkage pin(s).
- F. galled, stuck or bent control spool.

(Hydraulic Remote Controls)

- A. plugged control orifice.
- B. damaged mounting gasket.
- C. misadjusted, damaged or broken neutral return spring (2).
- D. broken control connector pin.
- E. broken or missing control linkage pin(s).
- F. galled, stuck or bent control spool.

(Electrically Operated Controls)

- A. plugged control orifice.
- B. damaged mounting gasket.
- C. galled, stuck or bent control spool.
- D. stuck solenoid valve(s).
- E. defective solenoid coil(s).
- F. misadjusted speed sensor (when used).
- G. defective speed sensor (when used).
- H. defective electronics module.

NOTICE

When the electronic transit mixer control is used, follow the control box fault detector instructions.



3. Inspect System Relief or Power Limiter Valves for:
(System Relief Valves)
 - A. improper pressure relief setting. (Refer to **Action Step Comments** in this section.)
 - B. damaged or missing O-ring and/or back-up ring(s).
 - C. plugged orifice.
 - D. galled or stuck piston.
 - E. valve poppet held off seat.
(Power Limiter Valves)
 - A. improper pressure relief setting. (Refer to **Action Step Comments** in this section.)
 - B. broken spring.
 - C. valve held off seat.
4. Inspect Shuttle Valve for:
 - A. bent or broken return centering spring.
 - B. galled or stuck shuttle spool.
 - C. bent or broken shuttle spool.
5. Inspect Charge Check Valves for:
 - A. damaged or missing O-ring and/or back-up ring(s).
 - B. damaged check ball seat.
 - C. stuck check ball.
6. Check Oil Level in Reservoir:
 - A. refer to **Change Fluid and Filter** in **Section 6**.
7. Inspect Hydraulic Oil Cooler for:
 - A. obstructed air flow (air cooled).
 - B. obstructed water flow (water cooled).
 - C. improper plumbing (inlet to outlet).
 - D. obstructed or insufficient fluid flow.
 - E. cooling fan failure (if used).
8. Inspect Hydraulic Oil Cooler Bypass Valve for:
 - A. improper pressure setting.
 - B. stuck or broken valve.
9. Inspect Motor Bypass Valve for:
 - A. valve held in partial and/or open position.

Specifications

10. Inspect Inlet Filter for:

- A. plugged or clogged filter
- B. obstructed inlet or outlet
- C. collapsed inlet line to charge pump.
- D. open inlet to charge pump

11. Check Charge Pressure:

- A. refer to **Action Step Comments** in this section for charge pressure gauge installation location.
- B. refer to **Action Step Comments** in this section.

12. Inspect Charge Relief Valve for:

(at Pump)

- A. improper charge relief pressure setting
- B. plugged orifice
- C. piston galled or stuck open and/or closed
- D. damaged or missing O-ring
- E. valve poppet held off seat

13. Inspect Charge Relief Valve for:

(at Motor)

- A. improper charge relief pressure setting
- B. plugged orifice
- C. piston galled or stuck open and/or closed
- D. damaged or missing O-ring
- E. valve poppet held off seat
- F. refer to **Action Step Comments** in this section.

14. Inspect Charge Pump for:

(Standard and A-Pad Pumps)

- A. broken drive tang
- B. damaged or missing O-ring(s)
- C. broken drive key
- D. galled or broken gerotor set
- E. refer to **Action Step Comments** in this section.

(B-Pad Pumps)

- A. stripped or broken drive coupling
- B. stripped or broken drive spline
- C. damaged or missing O-ring(s)
- D. broken drive key
- E. galled or broken gerotor set



15. Inspect POR or IPOR for:

(POR, Pressure Override)

- A. plugged orifice.
- B. improper maximum pressure setting.
- C. stuck or missing check ball.
- D. stuck or broken sensing pin.
- E. stuck or broken control spool.
- F. obstructed or broken sensing line.

(IPOR, Internal Pressure Override)

- A. plugged orifice.
- B. improper maximum pressure setting.
- C. reversed load sensing pins.
- D. stuck or broken sensing pin.
- E. stuck or broken control spool.



Specifications

Action Step Comments

System / Charge Relief Valve Pressure Setting Identification

The system and charge pressure relief valves are all factory preset. For identification, a pressure code is stamped on the hex plug located on the end of the system and charge pressure valve cartridges.

This same code is also used on the power limiter valves. The code number is stamped on the end of the valve cartridge.

NOTICE

Power limiter valves must be removed to view pressure code.) To determine the pressure setting of each valve, add a zero to the right of the stamped coded number.

Charge Pressure Valve Examples

160 psi (016 = 11.0 bar) Setting

220 psi (022 = 15.2 bar) Setting

System and Power Limiter Valve Pressure Examples

4000 psi (400 = 275 bar) Setting

5000 psi (500 = 345 bar) Setting



Pneumatic and Water Systems

Pressurized Water System

The pressurized water system provides water for charging the payload and for cleanup. The water system is pressurized by the truck's air system. The high pressure of the water system allows for faster discharge of the water.

The water tank is equipped with a water level sight gauge to indicate the amount of water in the tank.

The engine must be running to charge the air supply for the water system. The air reservoir provides a limited amount of pressure after the engine stops running.

DANGER

Rotating equipment will cause death or serious injury. Only use the drum water discharge to add water to the drum when you are cleaning the drum and the drum is rotating. Stay clear of the drum opening and do not use an alternate source of water when the drum is rotating.

Specifications

Pressurized Water System Components

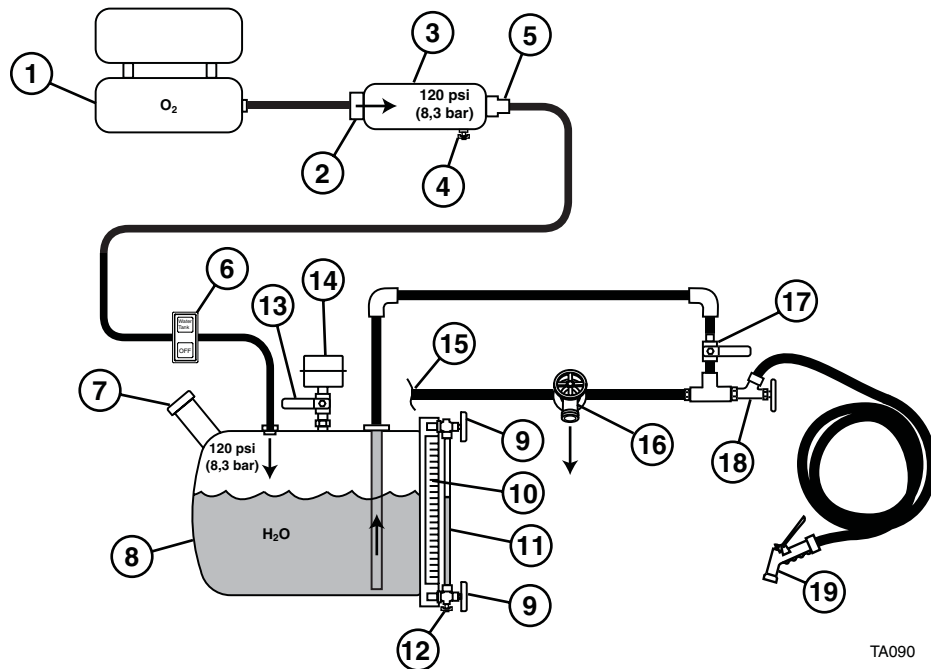


Figure 7-14: Pressurized Water System



Pressurized Water System Components

Illustration Reference Number	Component	Description
1	Truck Air Supply	Maintains the truck air supply.
2	Protection Valve	Protects the truck's air system from going below 85 psi (5.9 bar).
3	Water Tank Air Reservoir	Maintains the water tank air pressure.
4	Reservoir Drain	Provides a port for draining moisture.
5	Check Valve	Prevents the water system's pressure from going below 60 psi (4.1 bar).
6	Tank Air Pressure Switch	Controls air pressure to the water tank.
7	Water Inlet (Flapper Valve)	Prevents contamination from entering the tank and maintains air pressure.
8	Water Tank	Maintains the mixer water supply.
9	Sight Tube Valves	Opens pressure to sight tube to view level.
10	Tank Level Gauge	Indicates water supply level.

Specifications

Pressurized Water System Components

Illustration Reference Number	Component	Description
11	Sight Tube	Allows viewing of the water system level.
12	Sight Tube Drain	Allows draining of the sight tubes during periods of storage or freezing weather.
13	Air Blow-off Valve Lever	Allows blow-off or air.
14	Air Blow-off Valve Muffler	Reduces noise level.
15	Charging Water Port	Allows water to be added to mixing drum at drum opening.
16	Water Drain/Auxiliary Hose Connection	Allows draining of the system or an auxiliary hose connection.
17	Water Supply Valve	Controls water delivery.
18	Wash-Down Water Supply Valve	Controls water delivery.
19	Wash-Down Nozzle	Allows cleaning of the mixer and equipment.



WARNING

Explosion from over pressure to the water system can cause death or serious injury. DO NOT exceed 120 psi (8.3 bar) or pressurize an empty tank, or modifying it. If pressure exceeds this value, depressurize the tank and replace air regulator valve.

IMPORTANT

After any size payload is charged and discharged, the drum and chutes must be cleaned.

Preventive Maintenance

- Keep water tank fill openings clean and free of cement and sand. Contamination can lead to serious problems.
- Drain the entire system if the truck is to be stored in freezing temperatures.
- Check the operation of the water tank pressure relief valve periodically to assure proper operation.
- Secure all wash-down hoses prior to moving the mixer to prevent damage during transit.

Specifications

Cleaning the Drum and Chutes

DANGER

Rotating equipment will cause death or serious injury. Only use the drum water discharge to add water to the drum when you are cleaning the drum and the drum is rotating. Stay clear of the drum opening and do not use an alternate source of water when the drum is rotating.

1. Rotate the drum in the CHARGE direction.
2. Place water into the drum from the drum water discharge located at the port of the drum only.
3. Empty the drum residue by rotating the drum in the DISCHARGE direction.
4. Clean the discharge chutes after the drum is emptied, using the cleanup hose.

IMPORTANT

The drum and chutes must be cleaned after any amount of charging and discharging operation. The water system must be drained during periods of non-use or below freezing weather.

Draining the Water System

1. Drain the tank, hoses and pipes, and open the drain at the base of the water level sight gauge.
2. Turn the air pressure control valve to EXHAUST and allow the pressure to release. Return the control valve to OFF.
3. Leave the water drain, cleanup hose and sight gauge valve in the OPEN position.

Bleeding Air from Water System

The blow-off valve allows the bleeding of air from the water system to protect the hoses and components of the system. After the water tank is emptied, remaining air should be removed from the blow-off valve.



CAUTION

Loud noise may cause loss of hearing over time. Wear proper personal hearing protection.

1. Turn the blow-off valve lever slowly to the “OPEN” position (lever in-line).
2. Allow air to bleed completely.
3. Return the blow-off valve lever to the “CLOSED” position (lever at 90°). If the vehicle is going to be stored for a long period of non-use, the lever should be left in the “OPEN” position. Make sure the lever is returned to the “CLOSED” position before putting the vehicle back into service. **DO NOT** use the blow-off valve without the muffler in place. If the muffler is damaged, replace it.

Specifications

Water System Troubleshooting

Water System

Problem	Possible Cause	Corrective Action
No Water Discharge or Slow to Discharge	Water tank not at operating pressure.	Allow tank to build to proper pressure.
	Restriction in water line or shut-off valve.	Locate and remove restriction.
	Malfunction in valve.	Replace valve.
	Malfunction in air pressure system.	Check air pressure gauge and air valves.
Air System Unable to Maintain Proper Pressure in Water Tank	Leak in mixer air system.	Locate and correct leak.
	Truck air system pressure low.	Refer to truck air system troubleshooting.
	Leak in water tank.	Repair or replace tank.
	Malfunction in pressure protection valve.	Replace pressure protection valve.
	Malfunction in pressure regulator valve.	Replace pressure regulator valve.
	Malfunction in air pressure control valve.	Replace control valve.
	Tank fill valve flapper leaking.	Clean and replace gasket as necessary.



Electrical Schematics

TEREX offers many options and allows vehicles to be custom built to meet certain applications. The electrical schematic for your vehicle can vary from other vehicles built. For information on the electrical schematics, contact TEREX and provide your vehicle's serial number, VIN (Vehicle Identification Number) and model number.

Specifications

Notes: _____

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Section 8

Terex Mixer, Inc. (them “Seller”), warrants its new front discharge and rear discharge vehicles and parts manufactured and sold worldwide, to be free, under normal use and service, of any defects in manufacture or materials for either (a) a period of twelve (12) months or (b) 100,000 miles, whichever occurs first, commencing on the date of delivery to the original customer; provided that Seller receives written notice of the defect within forty-five (45) days of its discovery and Buyer establishes that (i) the equipment has been maintained and operated within the limits of rated and normal usage; and (ii) the defect did not result in any manner from the intentional or negligent action or inaction by Buyer, its agents or employees. If requested by Seller, Buyer must return the defective vehicle or part to Seller's manufacturing facility, or other location designated by Seller, for inspection, and if Buyer cannot establish that conditions (i) and (ii) above have been met, then this Warranty shall not cover the alleged defect. If a vehicle is put into service more than 15 days after the vehicle leaves Seller's factory, Buyer must notify Seller in writing within 15 days of the delayed service date. Defective parts or

assemblies replaced shall become the property of Seller and must be returned to Seller within 45 days unless otherwise specifically instructed by Seller in writing.

Seller's obligation and liability under this Warranty, including without limitation, any additional limited warranties contained herein, is expressly limited to, at Seller's sole option, repairing or replacing, with new or remanufactured parts or components, any part, which appears to Seller upon inspection to have been defective in material or workmanship. Such parts shall be provided at no cost to the owner, FOB Seller's parts facility. Warranty repairs do not constitute an extension of the Warranty period.

This Warranty shall be null and void if parts (including wear parts) other than genuine OEM Seller parts are used in the equipment.

Accessories, assemblies and components included in the Seller equipment, which are not manufactured by Seller, are subject to the warranty of their respective manufacturers, including, without limitation, tires and

Warranty

tubes, engines, automatic transmissions, axles and driveline components used in Seller's front discharge vehicles and the vehicle chassis and all components used in Seller's rear discharge mixers.

SELLER MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, AND MAKES NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

No employee or representative is authorized to modify this Warranty unless such modification is made in writing and signed by an authorized officer of Seller.

SELLER'S OBLIGATION UNDER THIS WARRANTY SHALL NOT INCLUDE DUTY, TAXES, OR ANY OTHER CHARGES WHATSOEVER, OR ANY LIABILITY FOR DIRECT, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES.

Improper maintenance (including use of acid or caustic cleaning solutions and failure to follow Seller's servicing procedures), improper use, abuse, improper storage, sabotage, negligence, operation beyond rated capacity, operation at excessive speed, operation after discovery of defective or worn parts, or alteration or repair of the vehicle or equipment by persons not authorized by Seller shall render this

Warranty null and void. Seller reserves the right to inspect the vehicle and review maintenance procedures to determine if the failure was due to improper maintenance, improper use, abuse, improper storage, sabotage, negligence, operation beyond rated capacity, operation after discovery of defective or worn parts, or alteration or repair of the equipment by persons not authorized by Seller.

Parts Warranty: Seller warrants the parts ordered from the Seller's parts department, with the exception of maintenance or wear parts, to be free of defect in material or workmanship for a period of 6 months after date of shipment from the factory, provided that the warranty period for any replacement parts supplied pursuant to this Warranty shall in no event exceed the vehicle Warranty period. Accessories, assemblies, and components which are not manufactured by the Seller are subject to the warranty of their respective manufacturers.

NON TRANSFERABILITY OF WARRANTY: This Warranty is limited to the original purchaser or original end-user if sold to a distributor, and is not assignable or otherwise transferable without the written agreement of Seller.



ITEMS NOT COVERED BY SELLER WARRANTY

The following items are **NOT** covered under this Warranty (the following list is not exhaustive):

1. Items sold by any individual, corporation, partnership or any other organization or legal entity that is not an authorized Seller distributor.
2. Some components which are not manufactured by and supplied by Seller are not covered by this Warranty. Such components are covered only by the warranty that is provided by the manufacturer of such components. Such components include, but are not limited to, rear discharge vehicle chassis, front discharge mixer engine and transmission. Repairs to these components must be completed by the component manufacturers authorized representative to assure warranty coverage.
3. **Replacement of assemblies:** Seller has the option to repair or replace any defective part or assembly. It is Seller's policy to refuse claims for the replacement of a complete assembly that is field repairable by the replacement or repair of defective part(s) within the assembly.
4. **Normal Operational Maintenance Services and Wear Parts:** Maintenance services and wear parts are excluded from Warranty claims. Maintenance services not covered include, but are not limited to, such items as: engine adjustments, injection pump, transmission, brakes, clutch, linkages, adjustments, diagnosis and test time. Wear parts not covered by this Warranty and are the sole maintenance responsibility of Buyer include, but are not limited to: tires, oil and fuel filters, light bulbs, brake and clutch linings, belts, wiper blades, gauges, gauge sending units, mixer water flappers, wash down hoses, mixer splashguards, drum rollers and bearings, mixer fins, main chute and extensions.
5. **Transportation cost and/ or damage:** Any damage caused by carrier handling is a transportation claim and should be filed immediately with the respective carrier.
6. **Deterioration:** Repairs, work required or parts exposed as the result of age, storage, weathering, lack of use, demonstration use, or use for transportation of corrosive chemicals.

Warranty

7. **Secondary Failures:** Should the owner or operator continue to operate a vehicle after it has been noted that a failure has occurred, Seller will not be responsible under this Warranty for resultant damage to other parts due to that continued operation.
8. **Workmanship of Others:** Seller does not accept responsibility for any installation, improper conversion, or labor costs of personnel other than authorized Seller personnel.
9. **Environmental Damage:** Parts made out of cloth, leather, wood rubber, synthetics, paint or chrome which has been affected by exposure to the elements or chemical influence, including but not limited to road salts, industrial fallout, or the use of improper cleaners, polishes, and/or waxes.
10. **Glass:** Glass breakage and scratches are not covered unless positive proof, in Seller's sole discretion, of Seller's responsibility is established.
11. **Vehicle Mileage:** This Warranty does not cover any vehicle on which the odometer has been disconnected or the mileage reading has been altered and actual mileage cannot be readily determined.
12. **Labor:** Premium for overtime and/or shift differential and excessive labor for a warrantable repair due to installation of equipment by the customer or repair center.
13. **Severe Service:** Suspension parts, including but not limited to, rubber bushings, torque rod bushings, spring pins and bushings that fail due to severe service.
14. **Miscellaneous Expenses:** Road Service, towing, meals, lodging, telephone calls, travel time, downtime, shop supplies, EPA charges, lube oil, lubricants, sealers, anti-freeze, filter elements, and labor performed by non-approved service locations.
15. **Incidental or Consequential Damage:** **SELLER SHALL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND, INCLUDING, BUT NOT LIMITED TO, LOSS OF CARGO, LOST PROFITS, LOSS OF PRODUCTION, INCREASED OVERHEAD, LOSS OF BUSINESS OPPORTUNITY, DELAYS IN PRODUCTION, COSTS OF REPLACEMENT COMPONENTS AND INCREASED COSTS OF OPERATION THAT MAY ARISE FROM THE BREACH OF THIS WARRANTY.** Customer's sole remedy shall be limited to (at Seller's sole option) repair or replacement of the defective part.



THIS WARRANTY IS EXPRESSLY IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES, EXPRESS OR IMPLIED (INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE) AND ALL OTHER OBLIGATIONS OR LIABILITY ON SELLER'S PART. THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE LIMITED WARRANTY CONTAINED

HEREIN. Seller neither assumes nor authorizes any other person to assume for Seller any other liability in connection with the sale of Seller's equipment. This Warranty shall not apply to any of Seller's equipment or any part thereof which has been subject to misuse, alteration, abuse, negligence, accident, acts of God or sabotage. No action by any party shall operate to extend or revive this Warranty without the prior written consent of Seller. In the event that any provision of this Warranty is held unenforceable for any reason, the remaining provisions shall remain in full force and effect.

IN THE EVENT OF ANY BREACH OF THE WARRANTY BY SELLER, SELLER'S LIABILITY SHALL BE LIMITED EXCLUSIVELY TO THE REMEDIES (AT SELLER'S SOLE OPTION) OF REPAIR OR REPLACEMENT OF ANY DEFECTIVE

EQUIPMENT COVERED BY THE WARRANTY. IN NO EVENT SHALL SELLER, OR ANY SUBSIDIARY OR DIVISION THEREOF BE LIABLE FOR INCIDENTAL, INDIRECT, CONSEQUENTIAL OR OTHER DAMAGES OR LOSSES RESULTING FROM A BREACH OF WARRANTY INCLUDING, WITHOUT LIMITATION, LABOR COSTS, LOSS OF USE OF OTHER EQUIPMENT, THIRD PARTY REPAIRS, PERSONAL INJURY, EMOTIONAL OR MENTAL DISTRESS, IMPROPER PERFORMANCE OR WORK, PENALTIES OF ANY KIND, LOSS OF SERVICE OF PERSONNEL, OR FAILURE OF EQUIPMENT TO COMPLY WITH ANY FEDERAL, STATE OR LOCAL LAWS.

Warranty

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