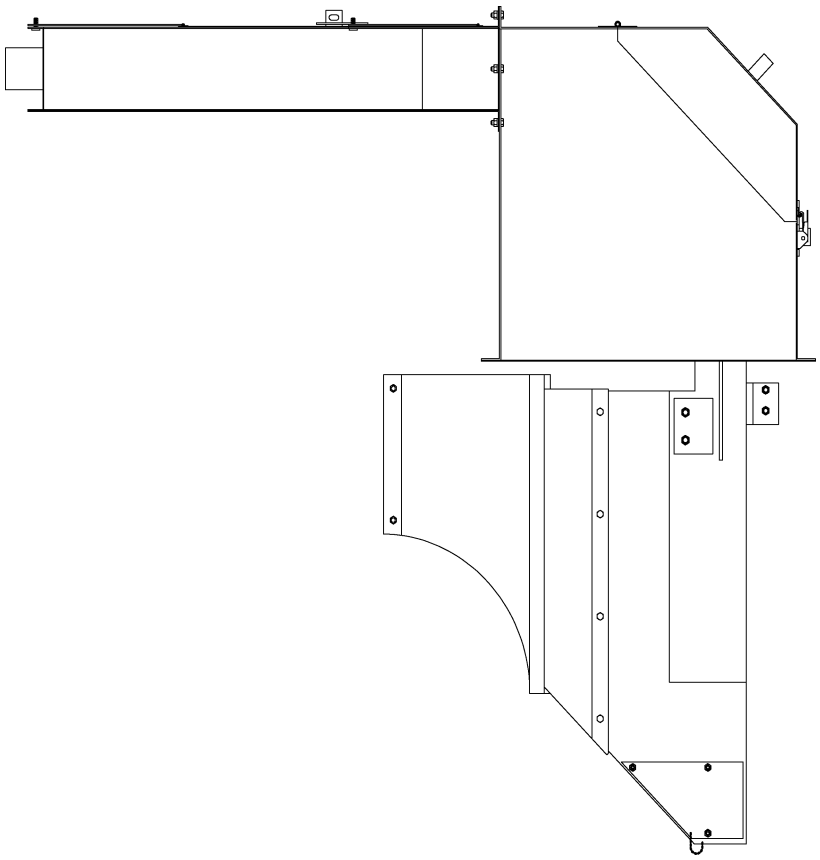


Sampler

Model: TD

Installation and Operation Manual

PNEG-2176

Version: 2.0

Date: 01-16-19

PNEG-2176

All information, illustrations, photos, and specifications in this manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.

Contents

This manual covers the installation and operation for the Sampler Modal TD. This manual provides guidelines for installing the product. You must retain a qualified contractor to provide on-site expertise. INTERSYSTEMS IS NOT RESPONSIBLE FOR THE INSTALLATION OF THIS PRODUCT.

InterSystems reserves the right to improve its product whenever possible and practical to do so. We reserve the right to change, improve and modify products at any time without obligation to make changes, improvements and modifications on equipment sold previously.

General Safety Statements

1. The Sampler system is designed and manufactured with operator safety in mind. However, residual hazards remain due to the nature of material handling, and specific material hazards. Use extreme caution at all times.
2. Modifications to equipment may cause extremely dangerous situations that could result in damage to the equipment as well as serious injury or death. Never modify the equipment.
3. Intersystems recommends that you contact the local power company to have a representative survey the installation to ensure wiring is compatible with their system and adequate power is supplied to the unit.
4. Consult InterSystems before making any changes to the sampler or its operating environment. Careless changes could result in death or serious injury to people and reduce the performance and service life of the equipment.
5. Never perform any service on this equipment or any powered equipment until all power has been shut off and locked out so that it cannot be restored without the consent and knowledge of the person who interrupted power. Power includes electrical, fluid, mechanical or pneumatic energy.
6. Never perform any service on this equipment without utilizing the required PPE (Personal Protective Equipment). Refer to the MSDS (s) (Material Safety Data Sheet (s)), on all products to which this equipment is in contact to determine what PPE is required.

This equipment is to be operated only on the voltage designated on the certified electrical drawings. Fire or explosion may result, which can cause death, serious injury and extensive damage to equipment. Do not connect to voltages other than designated.

Scope

The certified drawings list the non-standard components that have been incorporated into the equipment. InterSystems, Inc. normally stocks non-fabricated parts and non-custom OEM parts. Replacement parts for any other components, including fabricated parts and custom OEM components can be supplied upon request.

Ordering Parts

Direct parts orders or requests for technical assistance to your sales representative or to:

InterSystems, Inc.
13330 “I” St.
Omaha, NE. 68137
Phone: (402) 330-1500
FAX: (402) 330-3350

Please have available the MODEL NUMBER, SERIAL NUMBER and CUSTOMER ORDER NUMBER of the equipment in question as well as the location where the sampler is INSTALLED.

Replacement Parts

The InterSystems, Inc. sampler is a quality built piece of machinery. As with any machine, parts do wear out and fail. It is InterSystems recommendation that a small supply of spare parts be kept on hand to cover any minor breakdowns. A separate priced spare parts list will be sent identifying the suggested spare parts. It is also necessary to check the certified drawings, which will list any special or custom components utilized on this equipment.

Repair Kits

The following chart lists repair kits and parts that are available from InterSystems. These kits are offered as a more economical solution by rebuilding the defective part rather than replacing it. However in some cases the part may be beyond repair and replacement will be necessary.

Product Code	Description
34769	Standard SAE 80W-90 EP Gear Lubricant Oil Quart (Pennzoil 4096)
529601	Optional Synthetic Gear Lubricant Oil Quart (Mobil SHC634)
35342	#50 Friction Facing (Ref #3 *on Page 27*.)
35527	Limit Switch Contact Block 1 N.O. 1 N.C.

Safety Guidelines

Safety guidelines are general-to-specific safety rules that must be followed at all times. This manual is written to help you understand safe operating procedures and problems that can be encountered by the operator and other personnel when using this equipment. Save these safety guidelines for future reference.

As owner or operator, you are responsible for understanding the requirements, hazards, and precautions that exist and to inform others as required. Unqualified persons must stay out of the work area at all times.

Alterations must not be made to the equipment. Alterations can produce dangerous situations resulting in SERIOUS INJURY or DEATH.

This equipment must be installed in accordance with the current installation codes and applicable regulations, which must be carefully followed in all cases. Authorities having jurisdiction must be consulted before installations are made.

When necessary, you must consider the installation location relative to electrical, fuel and water utilities.

Personnel operating or working around equipment must read this manual. This manual must be delivered with equipment to its owner. Failure to read this manual and its safety instructions is a misuse of the equipment.

ST-0001-3

Cautionary Symbol Definitions

Cautionary symbols appear in this manual and on product decals. The symbols alert the user of potential safety hazards, prohibited activities and mandatory actions. To help you recognize this information, we use the symbols that are defined below.

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

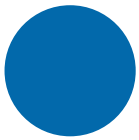
WARNING — This symbol indicates a potentially hazardous situation which, if not avoided, **can result in serious injury or death.**

CAUTION — This symbol indicates a potentially hazardous situation which, if not avoided, **can result in minor or moderate injury.**

NOTICE — This symbol is used to address practices not related to personal injury.

This symbol indicates a general hazard.

This symbol indicates a prohibited activity.



This symbol indicates a mandatory action.

ST-0005-2

Safety Cautions

Use Personal Protective Equipment

- Use appropriate personal protective equipment:

Eye Protection

Respiratory Protection

Foot Protection

Hearing Protection

Head Protection

Fall Protection

Hand Protection

- Wear clothing appropriate to the job.
- Remove all jewelry.
- Tie long hair up and back.

ST-0004-1

Follow Safety Instructions

- Carefully read all safety messages in this manual and safety signs on your machine. Keep signs in good condition. Replace missing or damaged safety signs. Be sure new equipment components and repair parts include the current safety signs. Replacement safety signs are available from the manufacturer.
- Learn how to operate the machine and how to use controls properly. Do not let anyone operate without instruction.
- If you do not understand any part of this manual or need assistance, contact your dealer.

ST-0002-1

Maintain Equipment and Work Area

- Understand service procedures before doing work. Keep area clean and dry.
- Never service equipment while it is operating. Keep hands, feet, and clothing away from moving parts.
- Keep your equipment in proper working condition. Replace worn or broken parts immediately.

ST-0003-1

Stay Clear of Hoisted Equipment

- Always use proper lifting or hoisting equipment when assembling or disassembling equipment.
- Do not walk or stand under hoisted equipment.
- Always use sturdy and stable supports when needed for installation. Not following these safety precautions creates the risk of falling equipment, which could crush personnel and cause serious injury or death.

ST-0047-1

Sharp Edge Hazard

- This product has sharp edges, which can cause serious injury.
- To avoid injury, handle sharp edges with caution and always use proper protective clothing and equipment.

ST-0036-2

Install and Operate Electrical Equipment Properly

- Electrical controls must be installed by a qualified electrician and must meet the standards set by applicable local codes (National Electrical Code for the US, Canadian Electric Code, or EN60204 along with applicable European Directives for Europe).
- Lock-out power source before making adjustments, cleaning, or maintaining equipment.
- Make sure all equipment and bins are properly grounded.

ST-0075-1

Stay Clear of Moving Parts

- Stay clear - machine can start without warning.
- Entanglement in gate will cause serious injury.
- Keep all shields and covers in place at all times.
- Lock-out power source before making adjustments, cleaning, or maintaining equipment.

ST-0070-1

Flying Material and High Pressure Air Hazard

- Flying material and/or high pressure air can cause severe eye injury or blindness.
- Wear safety glasses around operating equipment.

ST-0071-1

Stay Clear of Rotating Parts

- Do not service equipment while it is in operation.
- Entanglement in rotating parts or exposed belts will cause serious injury or death.
- Keep all shields and covers in place at all times.
- Lock-out power source before making adjustments, cleaning, or maintaining equipment.

ST-0072-1

Toxic Fume and Dust Hazard

- Do all work outside or in a well-ventilated area. Dispose of paint and solvent properly.
- Remove paint before welding or heating:
  - — Avoid potentially toxic fumes and dust. Hazardous fumes can be generated when paint is heated by welding, soldering, or using a torch.
  - — If you sand or grind paint, avoid breathing the dust. Wear an approved respirator.
  - — If you use solvent or paint-stripper, remove stripper with soap and water before welding.
  - — Remove solvent or stripper containers and other flammable material from area. Allow fumes to disperse at least 15 minutes before welding or heating.

ST-0043-2

Safety Sign-Off Sheet

Below is a sign-off sheet that can be used to verify that all personnel have read and understood the safety instructions. This sign-off sheet is provided for your convenience and personal record keeping.

Date	*Employee Name*	*Supervisor Name*

ST-0007

3. Decals

The safety decals on your equipment are safety indicators which must be carefully read and understood by all personnel involved in the installation, operation, service and maintenance of the equipment.
To replace a damaged of missing decal, contact us to receive a free replacement.

InterSystems
13330 “I” Street
Omaha, Nebraska 68137
Phone: (402) 330-1500
FAX: (402) 330-3350

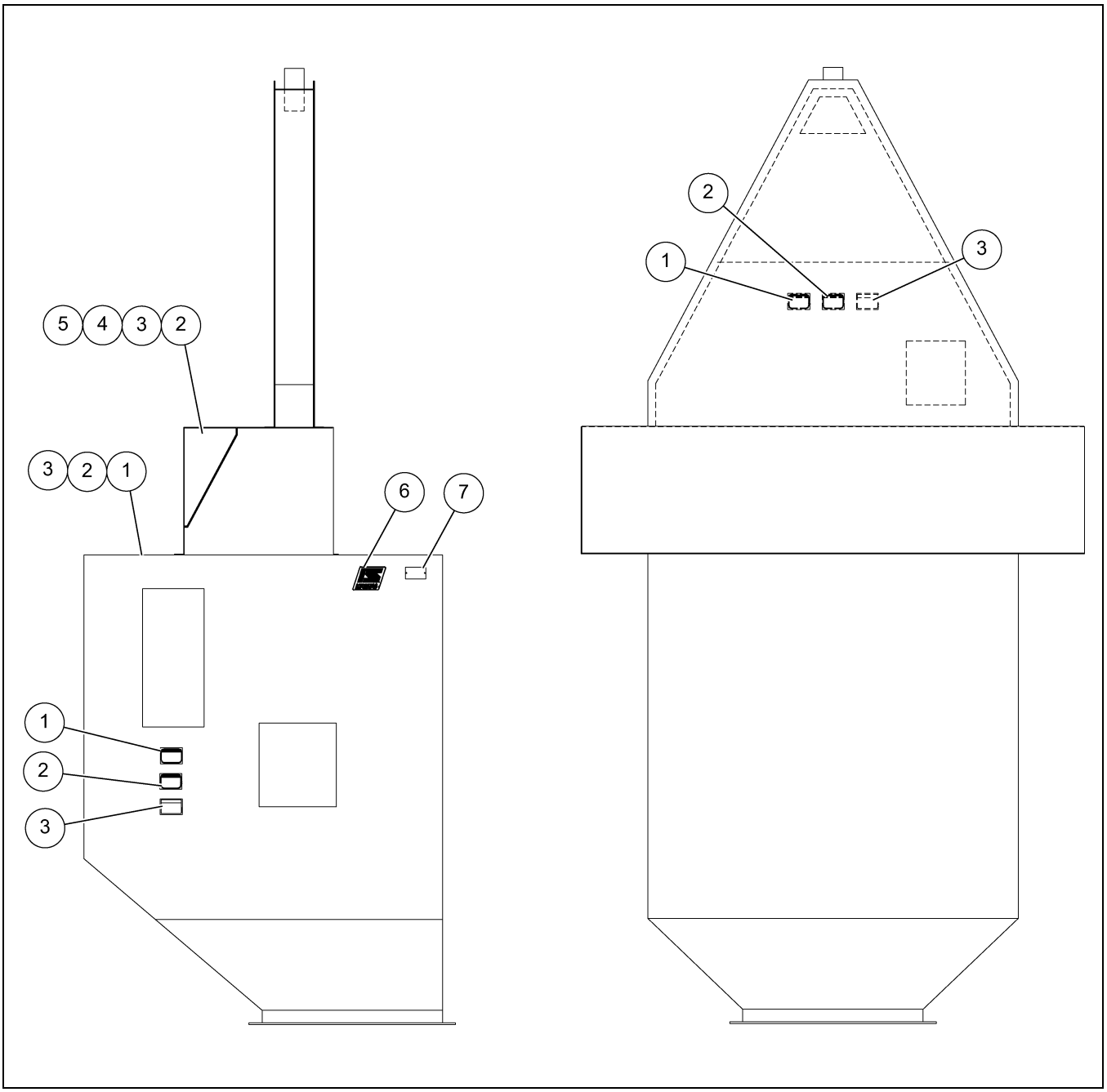
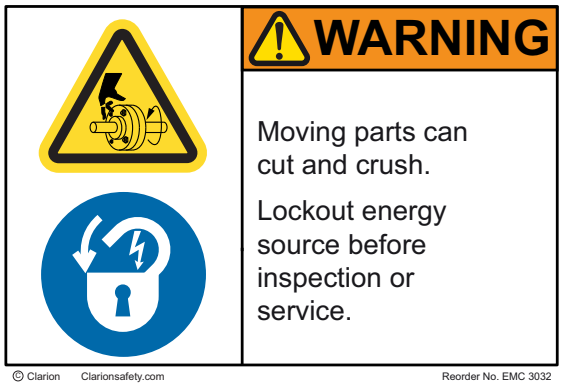
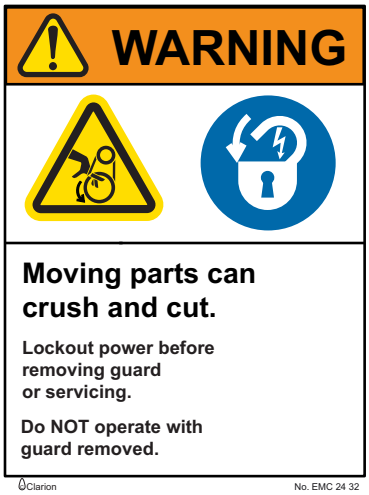


Figure 3A *Model TD Sampler Safety Label Locations*

NOTE: *These signs must never be removed, tampered with, painted over or obscured in anyway. If labels are damaged or become unreadable, replacement labels are available from InterSystems.*

Ref #	Decal #	Decals	Description
1	EMC 30 32		Moving Part
2	EMC 28 32		Eye Protection
3	EMC 403 32		Starts without Warning

3. Decals

Ref #	Decal #	Decals	Description
4	EMC 402 32		Lock Out Machine
5	EMC 24 32		Exposed Belt
6	IS526X4		IS Logo
7	IS Tag		Serial Number Tag

System Description

The TD Sampler is designed to collect a representative sample of granular, pellet or other materials from the end of a belt conveyor. *Figure 4A* illustrates a typical TD Sampler application.

Sample collection is initiated in response to either an operator's manual command or a signal automatically generated by controller logic, usually time-based but which could also be volume or quantity based. A sample cycle begins when an electric motor drives the slotted sample cutter through the product flow to collect a sample of the material. The sample is pnuematically withdrawn from the sample pelican via a SD sample delivery system. The sample cutter, when at rest, is situated under one of two dust seals that seal the sample cutter. The sample, flowing via gravity from the SD system, will then be routed to a sample divider or directly to the desired sample collection point.

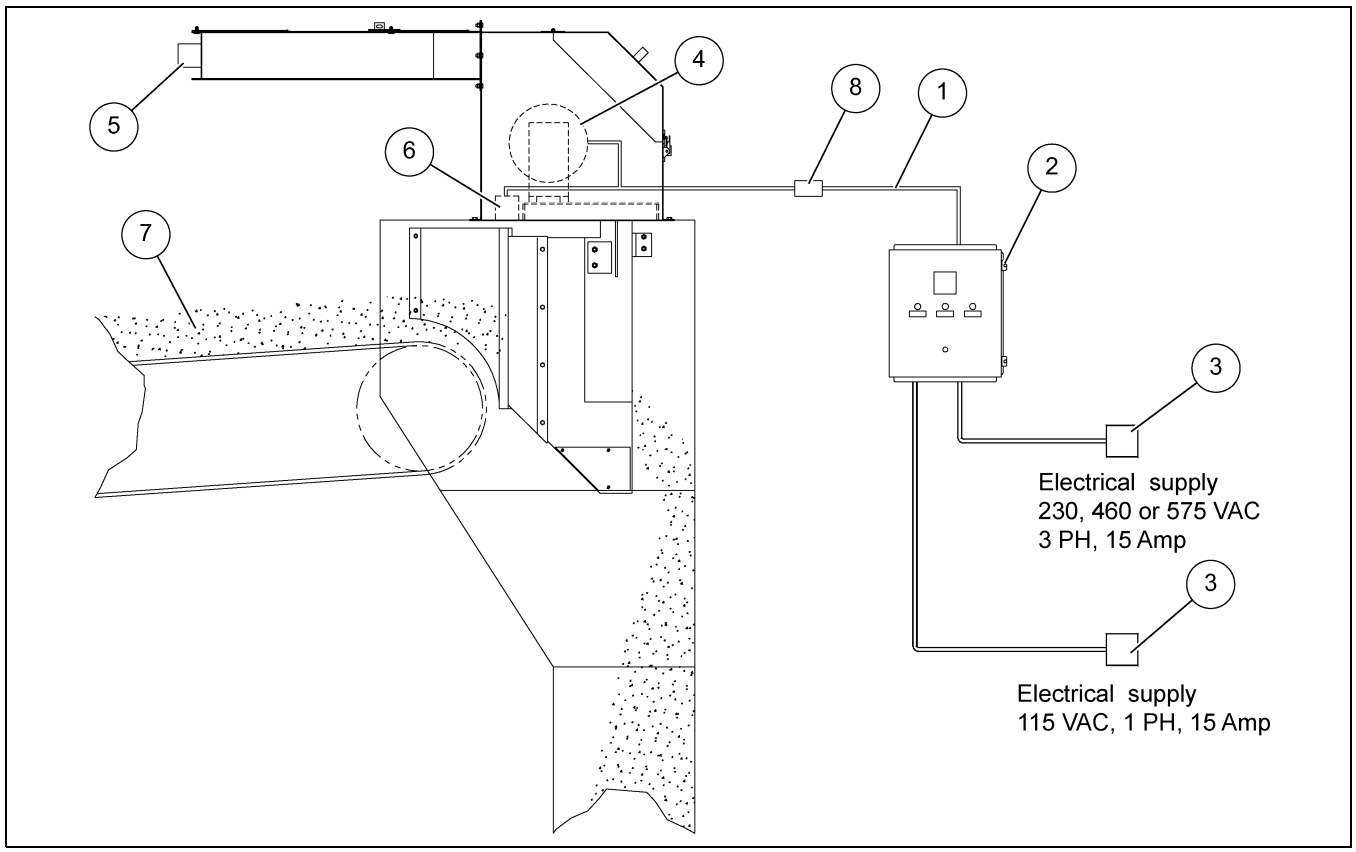


Figure 4A *Typical Installation, Model TD Sampling System*

Ref #	Description
1	Electrical Conduits
2	Sampler Control Panel
3	Circuit Breaker
4	Motor
5	Sample Discharge (Extend to Desired Collection Point)
6	Limit Switch (2)
7	Material to be sampled
8	Emergency Stop Lock-Out Switch

Optional Features

The certified drawings indicate which, if any, optional features are included with a sampling system. Some of the more frequently specified optional features are briefly described in the following list.

1. Controller arranged to initiate a sampling cycle based on quantity or volume of material passing through conveying line rather than upon elapsed time periods.
2. An explosion-proof sampler control is available in two enclosure classifications.
    a. The NEMA 9 control with the rating of:

    Class 2, Groups E, F and G, Division 1 and 2

    b. The NEMA 7 control with the rating of:

    Class 1, Groups C and D, Division 1 and 2

    Class 2, Groups E, F and G, Division 1 and 2
3. Components of special materials, such as stainless steel or nedox coatings.
4. Programmable controls to sequence the sampler and the sample collection equipment.
5. Abrasion resistant linings of urethane, AR carbon steel plate, 304 stainless steel or ceramic tile.

Material Sampled

Most materials from light to heavy density granules, pellets.

Sampler Construction

Standard sampler construction is of painted carbon steel.

1. Explosion-proof limit switches with the rating of:
    a. Class 1, Groups C and D, Division 1 and 2
    b. Class 2, Groups E, F and G, Division 1 and 2
2. An explosion-proof motor with the rating of:
    a. Class 1, Groups D, Division 1 and 2
    b. Class 2, Groups E, F and G, Division 1 and 2

Other materials and/or finishes appropriate to the operating environment and the material or product being sampled may be used. Refer to the certified drawing(s) for any optional or special components installed on the sampler.

Receiving Inspection

Carefully inspect the sampling system for damage as soon as it is received. Also, verify that the quantity of parts or packages actually received corresponds to the quantity shown on the packing slip. Report any damage or shortage to the delivering carrier as soon as possible. InterSystems responsibility for the equipment ended with acceptance by the delivering carrier. Refer to the bill of lading.

Pre-Installation Preparation

NOTE: *Before starting sampling system installation, study this manual, the certified drawing(s) furnished with the system and other applicable documents (including, but not limited to OSHA Regulations, the National Electrical Code and all other applicable federal, state and local codes and regulations).*

Location

The TD sampler is typically mounted on the end of a belt conveyor carrying the product to be sampled as shown in *Figure 4A on Page 15*. Install the sampler as it is shown and noted on the certified drawings. The sampler may or may not be supplied with a partial or a whole conveyor discharge hood. Provide necessary access and maintenance platforms for ease of maintenance.

The sampler is to be installed only as shown on the certified drawing(s). If an alternate mounting arrangement is desired contact InterSystems prior to installation for proper guidance. The sampler is of a general design with modifications specifically for your application. It may be necessary to rework the sampler in order for it to function properly if you alter the application.

General Mounting Guidelines

Sampler cannot support any other equipment or conveying line. Collapse of the whole system can cause death, serious injury and extensive damage to equipment. Properly support all spouts, containers and conveying lines.

The sampler needs to be installed, as shown and noted on the certified drawings.

1. Locate and mark the desired mounting location of the sampler.
2. Position the sampler. Weld and/or fasten in place.

Material Sample Transport Lines

The tubing used to transport material samples must be compatible with the operating environment and the material sampled. Typically a 3" O.D. rigid tubing is directly connected to the sample outlet using a compression type coupling. The tubing is then routed to the SD sample delivery system using the most direct route with the fewest number of bends.

Make all connections airtight and make sure all interior surfaces of joints are smooth and flush. Any ragged or raised tube ends will collect dust and debris as well as retard material flow. Air leaks can interfere with the vacuum conveying system. Escaping sample material can contaminate surrounding atmosphere and equipment.

Controller Location

1. Use vibration isolation pads when mounting the control enclosure or mount the controller in a vibrationfree location.
2. Unless ordered for severe duty, locate controller so it is protected from water and dust.
3. Unless an explosion-proof rated controller was specifically ordered, DO NOT locate the controller in a hazardous area.
4. Most applications require that the sampler be in easy view of the controller.

System Wiring

Refer to the certified electrical drawing(s) for specific wiring requirements.

The controller was completely assembled and tested with the sampler before it left the factory. The electrical installation must comply with OSHA Regulations, the National Electrical Code and all other applicable federal, state and local codes and regulations.

If wiring between the controller and the sampler unit is run through rigid conduit, use a short length of flexible conduit to connect wiring to the sampler. This will isolate the rigid conduit from any vibration originating in the product conveying line and sampler.

Electrical Power Requirements, System

Refer to the certified electrical drawing(s) to determine if other voltages or a larger service is required.

Controller

110/120 VAC, 50/60 Hz, Single Phase, 10 Amp Max. (does not include motor power requirements). Optional - 220/240 VAC, 50/60 Hz, Single Phase, 5 Amp Max. (does not include motor power requirements).

Drive Motor

Refer to the certified drawing(s) of the TD sampler for motor size, horsepower, voltage and current rating.

Failure to observe all safety rules, written and implied and those suggested by common sense, can result in death, serious injury and/or equipment damage. Lock out power before performing any maintenance.

Control Components and their Functions

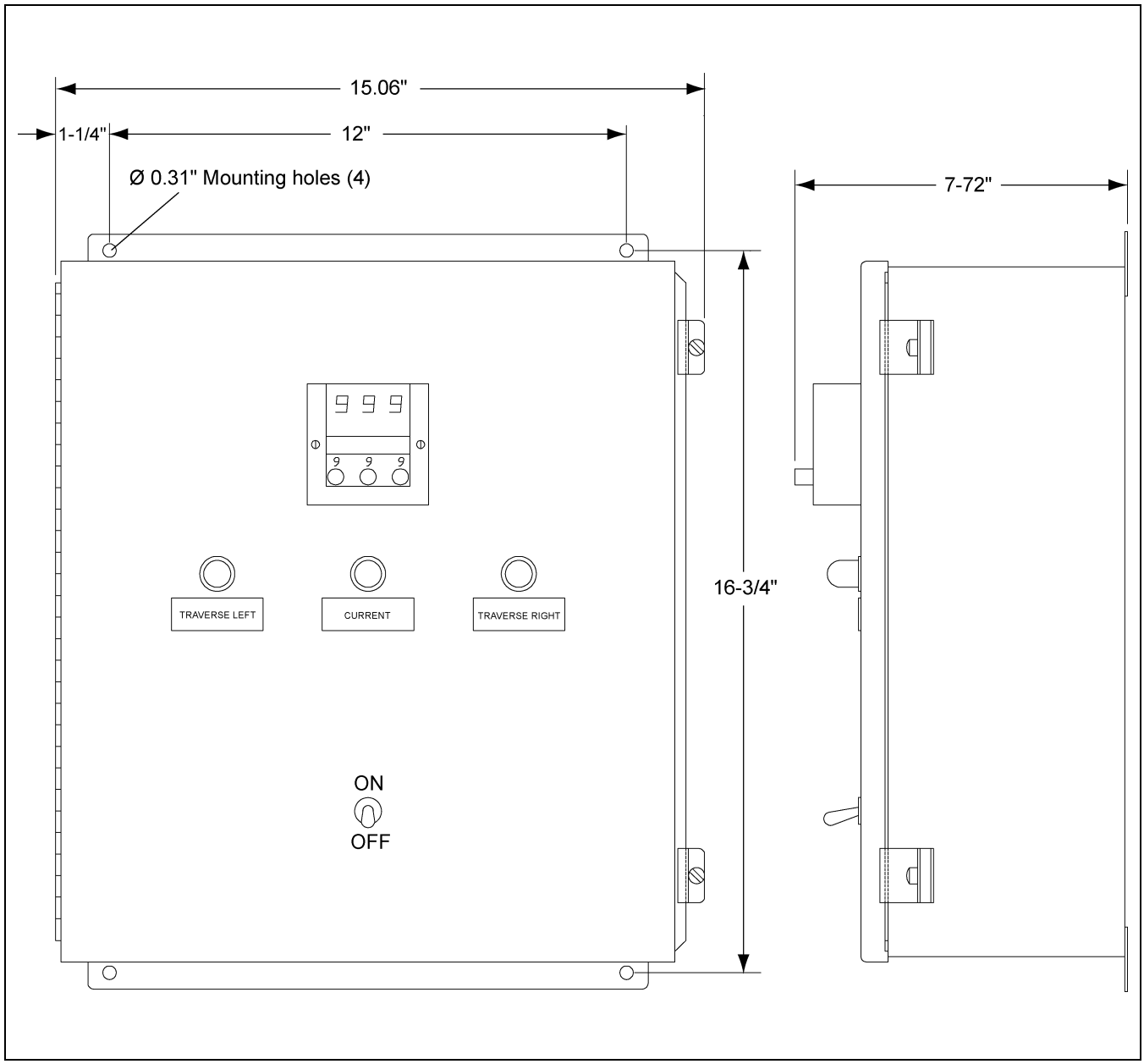


Figure 6A *Standard Nema 12 Control Panel Detail*

Refer to the certified electrical drawing(s) for dimensions on control panels with optional features.

Power OFF/ON Switch S-1

This toggle switch controls all electrical power to the controller and the sampler unit.

This machine starts without warning. Moving parts can cause severe injury. Clear area prior to controller start-up.

Power Pilot Light

This light is illuminated as long as power is available to the controller and the POWER switch (S-1) is set to ON.

Traverse Left Pilot Light

This light will illuminate when the sample pelican is traversing left through the product flow and will stay lit until the sample pelican trips the limit switch on the left side.

Traverse Right Pilot Light

This light will illuminate when the sample pelican is traversing right through the product flow and will stay lit until the sample pelican trips the limit switch on the right side.

Digital Display Timer T-1 (Standard)

As arranged for use in this system, the timer operates in the DOWN and STOP mode. When the power is turned ON, the illuminated display resets to the value dialed in to the Three Digit Preset and immediately the timer begins timing down. When the illuminated display reads all zeroes (000), the timer has "timed out" and initiates a sampling cycle. The sample pelican traverses through the product flow to collect a sample. The timer display resets to the preset value and another timing interval is initiated. If the controller is shut off or the power is interrupted, the timing cycle is terminated. When power is restored, the display is reset to the preset value and another cycle begins. **NOTE:** *The timer resets immediately upon timing out and initiating a sample cycle thus providing a true time interval between samples.*

1. **External Settings**

   a. **The Display**

   The high intensity blue fluorescent display consists of three digits and decimal point (if decimal is set in tenths or hundredths position). Also, there is a blinking Timing Bar and a special Time-Out symbol. The Timing Bar appears to the right of the digits and blinks once every second during timing. The Timing Bar shows quickly that the timer is actively timing especially when the digits do not change rapidly as in the "hours" ranges. When the delay relay is energized at time-out, a triangular Time-Out symbol appears to the left of the digits. The Timing Bar blinks noticeably faster at time-out.

   b. **Setting Switches**

   The three digits are set with the rotary switch knobs located beneath each digit. These knobs can be rotated in either direction (CW or CCW) and they are "pull" removable if digit set security is desired. Changing one or more digits, during timing, will instantly be reflected by an equivalent change in the timer's display. Setting all three digits to zero will cause instant time-out of the timer.

2. **Internal Settings**

The 365 digital display timer must be removed from its housing to alter any of the following settings.

a. **Time Range**

Decimal Point Location can be changed with the white plastic lever mounted behind the front face of the timer. This lever moves into three positions. With finger force you can change its position and at the same time observe the front of the timer. **NOTE:** *This procedure sets the decimal point electronically as well as visually.*

Time Units (Sec./Min./Hr.) are set by moving a small width metal arm in a slotted arc on the side plate nearest to the units (Sec./Min./Hr.) window. By depressing this arm slightly with a pencil or pen point, it can be moved to a new position. The time units physically change in the timer's face and the timer is electronically switched to the new units as well.

b. **Line Frequency**

To set the proper line frequency, connect the jumper wire to either the 50 Hz or 60 Hz pin. These pins are clearly marked on the side of the timer.

NOTE: *The timer chassis and the housing are polarized so that the chassis cannot be inserted into its housing upside-down. If the timer is forced into the housing upside-down damage will result.*

Main Fuse

This fuse, located in a fuse block within the controller enclosure, protects the controller and sampler components against overloads and short circuits.

For 110/120 VAC, 1 PH operation use ONLY a Buss Type FNM, 4 Amp, 250 Volt Slo-Blo fuse or equal.
For 220/240 VAC, 1 PH operation use ONLY a Buss Type FNM, 2 Amp, 250 Volt Slo-Blo fuse or equal.

Optional - For standard sampling systems with excess sample leg or auger.

For 110/120 VAC, 1 PH operation use ONLY a Buss Type FNM, 10 Amp, 250 Volt Slo-Blo fuse or equal.
For 220/240 VAC, 1 PH operation use ONLY a Buss Type FNM, 5 Amp, 250 Volt Slo-Blo fuse or equal.

Index Relay IR-1

This mechanical latching relay signals the sampler motor starter coils. When the relay coil receives a momentary signal from the timer T-1 the maintained switch contacts change to the alternate position. Upon changing position, the opposite motor starter coil receives power, the motor starts and a sample is taken.

Reverse Delay Timer Relays

These timers monitor the amount of time the sample pelican takes to traverse from one side to the other and will force the starter to reverse if the sample cutter takes too long to complete its traverse. If the sample cutter fails to traverse fully accross the material flow and trip the limit switch prior to timing out the starter will reverse the motor direction an return the cutter to the position it was at prior to starting. The sample cutter is designed to travel at fixed speed of 20'' per second. Use the following chart when setting the timer settings. Note an additional half second was added to the theoretical traverse time to allow for acceleration.

Model Size	Stroke	Recommended Delay Timer Setting
18	15	1.3 Seconds
24	21	1.6 Seconds
30	27	1.9 Seconds
36	33	2.2 Seconds
42	39	2.5 Seconds
48	49	3.0 Seconds
54	55	3.3 Seconds
60	61	3.6 Seconds
66	67	3.9 Seconds
72	73	4.2 Seconds

Terminal Strip

This 20-position barrier terminal strip serves as the controller’s interface and connection point for all external circuits and for the components mounted on the enclosure’s front panel. Refer to the certified electrical drawing(s).

Sampler Mounted Electrical Components

Limit Switches, LS-1 and LS-2

One of these switches is actuated when the sample cutter is in a rest position. Upon initiation of a sample cycle the power is routed through the normally closed contacts of the opposite limit sample to the drive motor starter. The drive motor starts and the sample cutter traverses through the material flow towards the other side. Upon reaching the opposite side the limit switch is tripped. The opening of the normally closed contacts removes power to the drive motor starter thus stopping the sample cutter rotation. The sample cutter remains on this side until another signal to sample is given by the controller.

Correct wiring termination is essential to proper sampler operation. Refer to *Figure 6B*, it shows the limit switch utilized on the Exporter sampler and the physical orientation of the proper wiring connections.

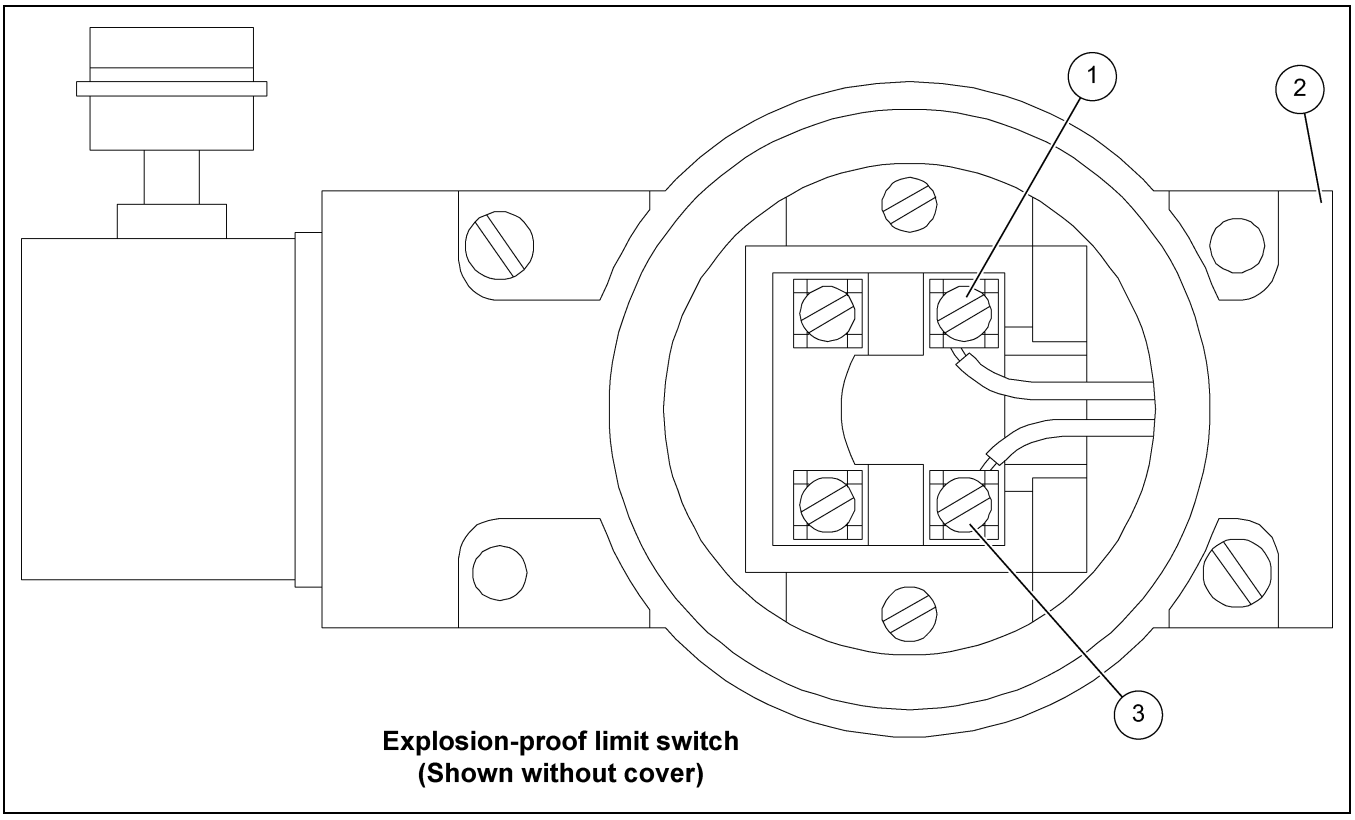


Figure 6B *Limit Switch Connections*

Ref #	Description
1	N.C. Contact Connection
2	1/2" NPT Conduit Connection
3	Common Connection

Drive Motor

This motor drives the sample cutter through a right angle gear reducer and a set of sprockets and chain. Verify that the motor is turning the proper direction of rotation when wiring the system. On initial setup, jog the motor to insure proper rotation.

Failure to observe all safety rules, written and implied and those suggested by common sense, can result in death, serious injury and/or equipment damage. Lock out power before performing any maintenance.

General Maintenance

A good maintenance program involves thorough general housekeeping, adequate periodic re-lubrication and replacement of worn or damaged components.

Periodic Inspection

At regularly scheduled intervals, while observing all safety precautions, observe the sampler as it operates. Inspect for:

1. Loose or missing hardware
2. Noisy motor or motor/reducer bearings
3. Overheated motor or reducer
4. Adequate lubricant in gear reducer
5. Loose drive chain
6. Structural damage
7. Rust or corrosion
8. Damaged wiring, including exposed conductors and connections
9. Make sure that all guards are in place and that all warning labels are in place and legible. *See Page 7*, GENERAL SAFETY INFORMATION, explains the purpose and intended location of the warning signs. Warning signs are an important part of any safety program, replace any missing signs IMMEDIATELY.

Lubrication

Drive Chain, Sprockets and Idler Shaft

The drive chain, sprockets and idler shaft have been greased at the factory. The chain should be thoroughly cleaned and re-greased once a year using a multi-purpose grease. The idler shaft should also be greased at the same time.

Gear Reducer

The gear reducer is shipped filled with oil. Check the oil level every six months and add oil if required. Under normal sampler operating conditions the oil should be changed once every two years.

Use a gear lubricant with an AGMA #8 rating for normal operating conditions. Use a synthetic gear lubricant such as “Mobil SHC 634” for extreme operating conditions.

Mechanical Repair Procedures

Drive Chain Adjustment

The drive chain will need adjustment periodically to maintain proper tension. The chain is attached to the sample pelican drive nose by means of two eye bolts. Loosen, adjust and re-tighten the eye bolt nuts to increase or decrease chain tension. The chain only needs to be tight enough to prevent any sag or slack. As the chain wears it will stretch to a point where the adjustment of the eye bolts will no longer permit further tightening. Shorten the chain by removing a link if necessary.

Limit Switch Adjustment

Loosen and adjust the limit switch arm if required. The limit switches trip on the drive nose of the sampler and signal the control to remove power from the motor. They should trip before the sample pelican completes its traverse. When a limit switch trips the sample pelican should gently coast to a stop under the dust seal and up against the bumper.

Sample Cutter Blade Replacement

When following the instructions below, refer to the applicable drawing of the sampler. Reference the drawing of the sampler *on Page 29* and the certified drawing(s).

1. Shut off and lock out all power (electrical, pneumatic and hydraulic).
2. Shut down conveying line.
3. Open the seal door near the sample cutter.
4. Remove the 1/4"-20 UNC hex head bolts fastening the sample cutter to the sample pelican.
5. Using a utility knife, cut the caulking seal around the bottom of the cutter blade and remove.
6. Install the new cutter blade on the sample pelican.
7. Re-install the 1/4"-20 UNC hex head bolts fastening the sample cutter to the sample pelican.
8. Re-caulk the joint between the cutter blade and the sample pelican to ensure a tight seal.
9. Close re-install the inspection cover on the housing.
10. Restore power to the sampler and operate it through several collection cycles.

Sample Cutter Seals Replacement

When following the instructions below, refer to the applicable drawing of the sampler. Reference the drawing of the sampler *on Page 29* and the certified drawing(s).

1. Shut off and lock out all power (electrical, pneumatic and hydraulic).
2. Shut down conveying line.
3. Open the seal doors on the side of the housing.
4. Remove the 5/16"-18 UNC wing nuts fastening the sample cutter seal brackets to the baffle. Avoid dropping the assemblies inside the sampler.
5. Wrap the new seals around the seal brackets and re-install.
6. Check to see that the cutter fits snugly under the pelican seals.
7. Restore power to the sampler and operate it through several collection cycles.

Drive Clutch Adjustment

The drive clutch may need adjustment if it starts to slip. When following the instructions below, refer to the clutch drawing *on Page 27*.

1. Shut off and lock out all power (electrical, pneumatic and hydraulic).
2. Shut down conveying line.
3. Open the drive cover access panel.
4. Fully loosen the three tension screws (6).
5. Loosen the adjusting nut (4) set screw (5) at least nine turns.
6. Turn the adjusting nut (4) clockwise to finger tightness. Tighten an additional 1/8" turn.
7. Turn the adjusting nut (4) to position the adjusting nut (4) set screw (5) in the nearest spline on the clutch hub (1) and tighten the set screw (5). Do not tighten the set screw (5) on the threads of the hub.
8. Tighten the three tension screws (6) firmly against the adjusting nut (4) and close the drive cover access panel.
9. Restore power to the sampler and operate it through several collection cycles.

Drive Clutch, Facings, Bushing and Sprocket Replacement

The drive clutch may need to be replaced if adjustment fails to prevent slippage. When following the instructions below, refer to the clutch detail in *Figure 7A on Page 27*.

1. Shut off and lock out all power (electrical, pneumatic and hydraulic).
2. Shut down conveying line.
3. Open the drive cover access panel.
4. Fully loosen the three tension screws (6).
5. Loosen the adjusting nut (4) set screw (5) at least nine turns.
6. Remove the adjusting nut (4), splined plate (2), friction facing (3), sprocket (8) and bushing (7).
7. Re-assemble the clutch using the new facings (3), sprocket (8) and bushing (7).
8. Turn the adjusting nut (4) clockwise to finger tightness. Tighten an additional 1/8" turn.
9. Turn the adjusting nut (4) to position the adjusting nut (4) set screw (5) in the nearest spline on the clutch hub (1) and tighten the set screw (S). Do not tighten the set screw (5) on the threads of the hub.
10. Tighten the three tension screws (6) firmly against the adjusting nut (4) and close the drive cover access panel.
11. Restore power to the sampler and operate it through several collection cycles.

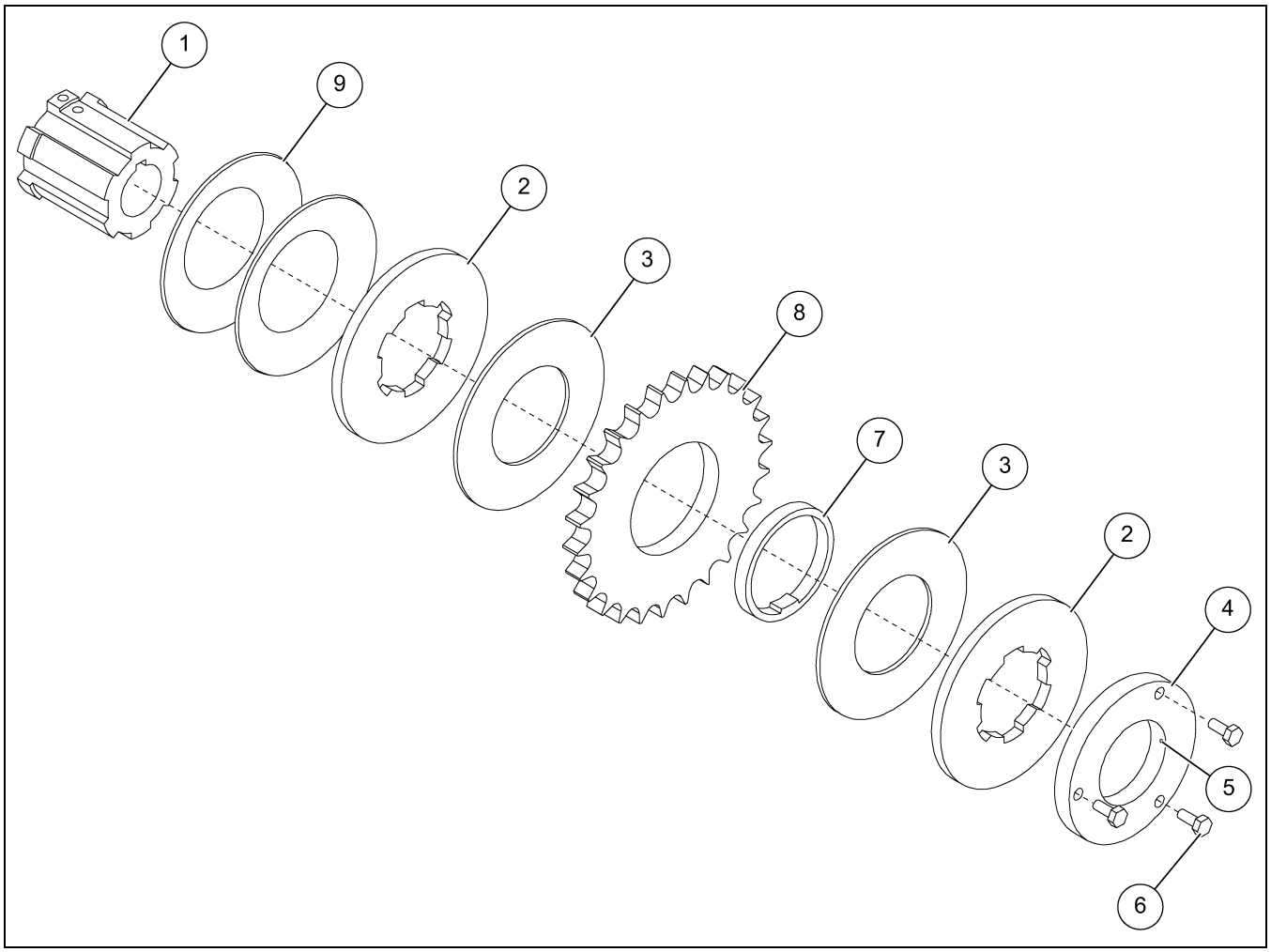


Figure 7A *Drive Clutch Detail*

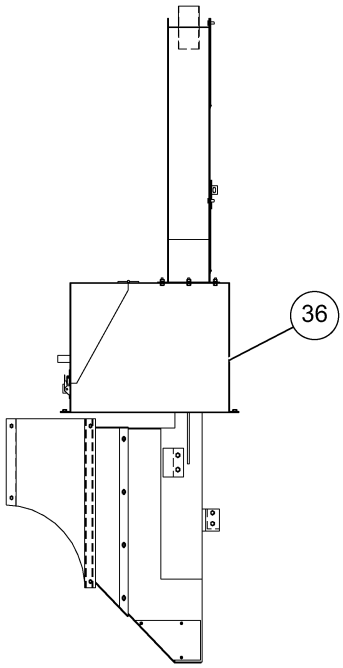
Ref #	Description
1	Clutch Hub
2	Splined Plate
3	Friction Facing
4	Adjusting Nut
5	Set Screw
6	Tension Screws
7	Bushing
8	Sprocket
9	Extra Clutch Spring

General TD Sampler Troubleshooting

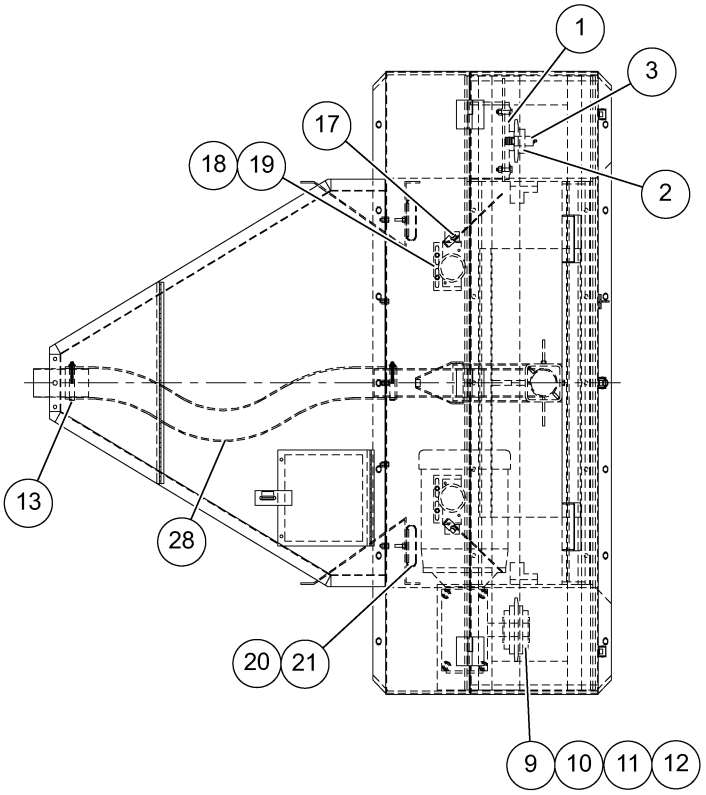
Careless or accidental restoration of power can result in death or serious injury. Make certain area is clear before removing lock outs.

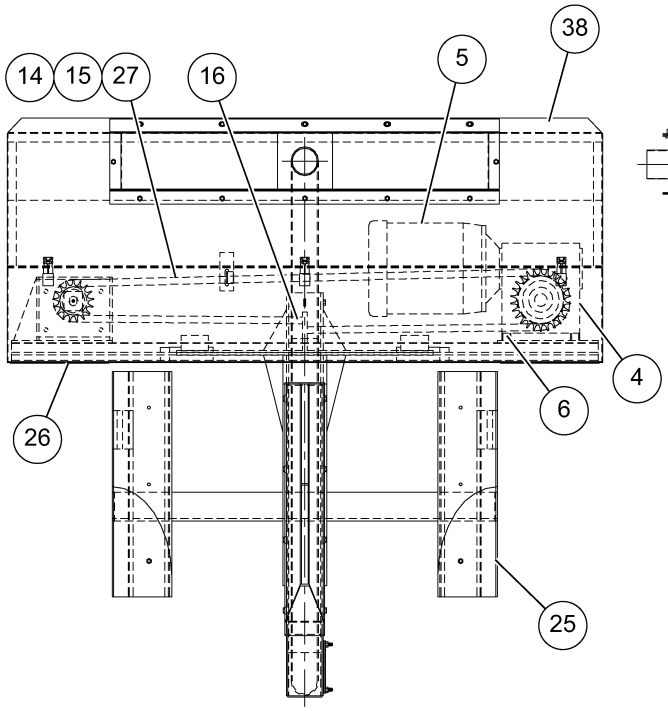
Symptom	Possible Cause	Corrective Action
Sampler does not cycle. (Power light OFF)	Power switch OFF.	Turn power switch ON.
	Circuit breaker is open.	Reset breaker.
	Main fuse is blown.	Replace.
	Faulty supply wiring.	Correct. Refer to certified electrical schematic.
	Defective power switch.	Replace switch.
Sampler does not cycle (Power light ON).	Faulty system wiring.	Correct. Refer to certified electrical schematic.
	Motor power OFF.	Turn ON.
	Motor starter heaters tripped.	Reset.
	Motor burnt out.	Replace.
	Motor thermal overload tripped.	Allow motor to cool and reset.
	Defective timer T-1.	Replace timer if line voltage is present across #1 and #2 on timer T-1.
Sampler leaks air or material continuously out the sample discharge.	Sample cutter not stopping under the seals.	Adjust limit switch. (See Limit Switch Adjustment *on Page 25*.)
	Sampler installed in a pressurized conveying line.	Eliminate pressure or relocate sampler.
	Sample cutter worn.	Inspect and replace. (See Sample Cutter Blade Replacement *on Page 25*.)
	Sample cutter seals deteriorated.	Inspect and replace. (See Sample Cutter Seals Replacement *on Page 25*.)
Sampler makes loud banging noises.	Limit switches not set properly.	Adjust limit switch. (See Limit Switch Adjustment *on Page 25*.)

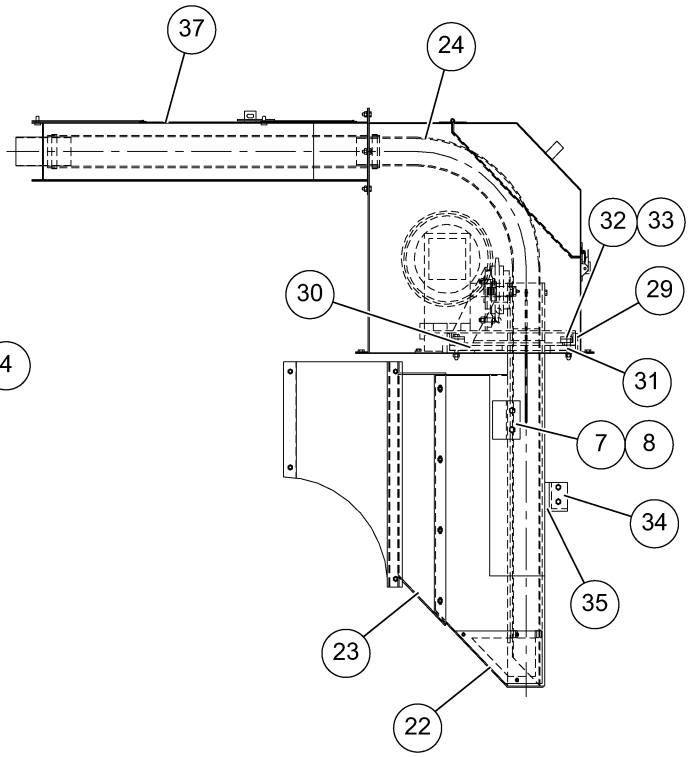
Sampler Model TD Parts



Optional sample withdrawl







NOTE: *The parts pointed out on this page are listed on Pages 30 and 31.*

Sampler Model TD Parts List

Ref #	Part #	Description	Qty
1	34672	Idler Mount Base	1
2	34007	Idler Sprocket	1
3	34008	Idler Shaft	1
4	34376	Gear Reducer	1
5	34379	3 HP Nema 9 Motor	1
6	34661	Gearbox Spacer	4
7	514487	Rubber Bumper	2
8	522580	Spacer (Rubber Bumper)	2
9	34760	Clutch Spring	1
10	34370	Clutch	1
11	34371	Clutch Bushing	1
12	34374	Clutch Sprocket	1
13	34505	Worm Clamp	2
14	34033	#60H Offset Link	2
15	34758	#60H Connector Link	A/R
16	510811	Eye Bolt with Offset Link	2
17	35355	Adjusting Limit Switch Lever Arm	2
18	35352	Limit Switch Bracket	2
19	35354	Limit Switch	2
20	35073	3" I.D. Gum Rubber Tube	A/R
21	*****	Pelican Dust Seal Bracket	2
22	*****	Sample Pelican	1
23	*****	Cutter Blade	1
24	*****	Sample Withdrawl Tube	1
25	*****	Baffle Set (2 Pieces)	1
26	*****	Expanded Metal Rail Guard	2

***** Refer to the certified drawings.

Ref #	Part #	Description	Machine Size (Conveyor Belt Width)									
			18"	24"	30"	36"	42"	48"	54"	60"	66"	72"
			Qty (In Feet)									
27	34029	#60 H Roller Chain	7.00	9.00	9.00	10.00	11.00	13.00	14.00	15.00	16.00	17.00
28	34499	3" I.D. Plastiflex Hose	2.50	3.00	3.50	4.00	4.60	6.00	6.50	3.50	7.50	8.00

Ref #	Machine Size (Conveyor Belt Width)					Description	Qty
	18"	24"	30"	36"	42"		
	Part #						
29	522200	522201	522202	522203	522204	Guide Rail	1
30	522210	522211	522212	522213	522214	Forward Bearing	1
31	522220	522221	522222	522223	522224	Rear Bearing	1
32	522230	522231	522232	522233	522234	Hold-Down Bearing	2
33	522240	522241	522242	522243	522244	Hold-Down Bar	2
34	522250	522251	522252	522253	522254	Stabilizer Bar	1
35	522260	522261	522262	522263	522264	Stabilizer Bearing	1
36	522270	522271	522272	522273	522274	Vertical Drive Guard	1
37	522280	522281	522282	522283	522284	Wedge Guard	1
38	522290	522291	522292	522293	522284	Horizontal Drive Guard	1

Ref #	Machine Size (Conveyor Belt Width)					Description	Qty
	48"	54"	60"	66"	72"		
	Part #						
29	522205	522206	522207	522208	522209	Guide Rail	1
30	522215	522216	522217	522218	522219	Forward Bearing	1
31	522225	522226	522227	522228	522229	Rear Bearing	1
32	522235	522236	522237	522238	522239	Hold-Down Bearing	2
33	522245	522246	522247	522248	522249	Hold-Down Bar	2
34	522255	522256	522257	522258	522259	Stabilizer Bar	1
35	522265	522266	522267	522268	522269	Stabilizer Bearing	1
36	522275	522276	522277	522278	522279	Vertical Drive Guard	1
37	522285	522286	522287	522288	522289	Wedge Guard	1
38	522295	522296	522297	522298	522299	Horizontal Drive Guard	1

NOTES

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