

SERIES 32-055
SCR-CONTROLLED
VOLUMETRIC FEEDER

BOOK NO. IM 320.055AA UA ISSUE D

32-055 VOLUMETRIC FEEDER

EQUIPMENT SERIAL NO. _____

DATE OF START-UP _____

START-UP BY _____

Prompt service available from nationwide authorized service contractors.

ORDERING INFORMATION

In order for us to fill your order immediately and correctly, please order material by description and part number, as shown in this book. Also, please specify the serial number of the equipment on which the parts will be installed.

WARRANTY

Seller warrants for a period of one year after shipment that the equipment or material of its manufacture is free from defects in workmanship and materials. Corrosion or other decomposition by chemical action is specifically excluded as a defect covered hereunder, except this exclusion shall not apply to chlorination equipment. Seller does not warrant (a) damage caused by use of the items for purposes other than those for which they were designed, (b) damage caused by unauthorized attachments or modifications, (c) products subject to any abuse, misuse, negligence or accident, (d) products where parts not made, supplied, or approved by Seller are used and in the sole judgement of the Seller such use affects the products' performance, stability or reliability, and (e) products that have been altered or repaired in a manner in which, in the sole judgement of Seller, affects the products' performance, stability or reliability. **SELLER MAKES NO OTHER WARRANTY OF ANY KIND, AND THE FOREGOING WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR OF FITNESS OF THE MATERIAL OR EQUIPMENT FOR ANY PARTICULAR PURPOSE EVEN IF THAT PURPOSE IS KNOWN TO SELLER.** If Buyer discovers a defect in material or workmanship, it must promptly notify Seller in writing; Seller reserves the right to require the return of such defective parts to Seller, transportation charges prepaid, to verify such defect before this warranty is applicable. In no event shall such notification be received by Seller later than 13 months after the date of shipment. No action for breach of warranty shall be brought more than 15 months after the date of shipment of the equipment or material.

LIMITATION OF BUYER'S REMEDIES. The **EXCLUSIVE REMEDY** for any breach of warranty is the replacement f.o.b. shipping point of the defective part or parts of the material or equipment. Any equipment or material repaired or replaced under warranty shall carry the balance of the original warranty period, or a minimum of three months. Seller shall not be liable for any liquidated, special, incidental or consequential damages, including without limitation, loss of profits, loss of savings or revenue, loss of use of the material or equipment or any associated material or equipment, the cost of substitute material or equipment, claims of third parties, damage to property, or goodwill, whether based upon breach of warranty, breach of contract, negligence, strict tort, or any other legal theory; provided, however, that such limitation shall not apply to claims for personal injury.

Statements and instructions set forth herein are based upon the best information and practices known to U.S. Filter/Wallace & Tiernan, Inc., but it should not be assumed that every acceptable safety procedure is contained herein. Of necessity this company cannot guarantee that actions in accordance with such statements and instructions will result in the complete elimination of hazards and it assumes no liability for accidents that may occur.

USFilter
WALLACE & TIERNAN PRODUCTS
1901 West Garden Road, Vineland, NJ 08360

INTRODUCTION

The USFilter's Wallace & Tiernan Products (USF/W&T) Series 32-055 SCR Controlled Volumetric Feeder described in this instruction book is designed for feeding dry hopperable materials. Depending on the control arrangement selected, the feed rate may be adjusted manually or by remote signals.

This instruction book covers basic arrangements of feeders designed for general purpose locations and for hazardous locations.

For conditions where the hopperable materials must be kept sanitary while moving through the volumetric feeder, optional sanitary troughs are available.

The sanitary troughs feature interior seams that are filleted to effect concave junctions where two surfaces meet, thereby discouraging the collection of particles in the seams.

This instruction book consists of Technical Data, Installation, Operation, Service, and Parts information for the Series 32-055 SCR Controlled Feeder and its control equipment. Although it is as specific as possible, there may be some details that do not apply to the equipment supplied. Instructions for optional accessories are provided in a separate accessories instruction book (provided with the optional equipment).



WARNING: TO AVOID POSSIBLE SEVERE PERSONAL INJURY OR DAMAGE TO THE EQUIPMENT, THIS EQUIPMENT SHOULD BE INSTALLED, OPERATED, AND SERVICED ONLY BY TRAINED, QUALIFIED PERSONNEL WHO ARE THOROUGHLY FAMILIAR WITH THE ENTIRE CONTENTS OF THIS INSTRUCTION BOOK.



CAUTION: Before loading the chemical hopper or operating this feeder, ensure that the screw diameter and pulley ratio (as furnished on the feeder) meet your volumetric capacity requirements. Refer to the pulley/ratio table in Section 1 - Technical Data and plot a calibration curve as described in paragraph 3.2.6, Feed Rate Setting.

NOTE: When ordering material always specify model and serial number of apparatus.

32-055 VOLUMETRIC FEEDER

Table Of Contents

Very Important Safety Precautions	SP-1,-2
Regional Offices.....	1.010-1
Technical Data	Section 1
Installation.....	Section 2
Operation.....	Section 3
Service.....	Section 4
Illustrations	Section 5
Spare Parts List	Section 6

VERY IMPORTANT SAFETY PRECAUTIONS

This page provides very important safety information related to safety in installation, operation, and maintenance of this equipment.

WARNING

TO AVOID POSSIBLE SEVERE PERSONAL INJURY, OBSERVE THE FOLLOWING PRECAUTIONS:

THE CONTROL PANEL AND MOTOR MUST BE GROUNDED TO AVOID POSSIBLE ELECTRICAL SHOCK OR DAMAGE TO EQUIPMENT.

THE FEEDER HOPPER LOADING—including the external hopper and contents—is not to exceed 1000 pounds.

WHEN WORKING WITH HAZARDOUS MATERIALS, OBSERVE ALL SAFETY PRECAUTIONS RECOMMENDED BY THE MATERIAL MANUFACTURER/SUPPLIER. EXERCISE EXTREME CARE WHEN HANDLING MATERIALS THAT HAVE COMBUSTIBLE DUST, TEND TO FLOOD, OR ARE INCOMPATIBLE WITH OTHER CHEMICALS. CONSULT THE MATERIAL MANUFACTURER/SUPPLIER FOR HANDLING INSTRUCTIONS.

TO AVOID CONTACT WITH MOVING PARTS AND POSSIBLE ELECTRICAL SHOCK, TURN POWER OFF BEFORE SERVICING.

TO AVOID POSSIBLE EXPLOSION WHILE OPERATING EQUIPMENT IN HAZARDOUS LOCATIONS, SERVICING OF HAZARDOUS LOCATION EQUIPMENT MUST BE PERFORMED BY PERSONNEL TRAINED FOR THIS WORK.

SLIPPING OF THE CLUTCH, PARTICULARLY AT THE HIGH SPEED, WILL CAUSE THE GEAR BOX TO BECOME HOT. TO AVOID CONTACT WITH HOT COMPONENTS, ALLOW GEAR BOX TO COOL BEFORE SERVICING.

AVOID CONTACT WITH PULLEYS, BELT, AND FAN BLADES ON DRIVE PULLEY.

TO AVOID POSSIBLE ELECTRICAL SHOCK, DO NOT TOUCH OTHER CIRCUIT COMPONENTS WHEN MAKING ADJUSTMENTS TO THE SCR CONTROLLER BOARD POTENTIOMETERS OR THE ISOLATOR BOARD POTENTIOMETERS.

WHEN ADJUSTING PERCENT OF SPEED METER, DO NOT TOUCH METER TERMINALS OR OTHER CIRCUIT COMPONENTS WHEN ADJUSTING POTENTIOMETER ON CIRCUIT BOARD IN BACK OF METER.

DISCONNECT EXTERNAL POWER FROM FEEDER CONTROL PANEL BEFORE REMOVING FUSE.

VERY IMPORTANT SAFETY PRECAUTIONS (CONT'D)

AVOID CONTACT WITH MOVING PARTS BY REPLACING GUARD AFTER SERVICING EQUIPMENT.

TO ENSURE PROPER AND SAFE OPERATION OF THIS EQUIPMENT, USE ONLY USF/W&T LISTED PARTS EXCEPT COMMERCIALY AVAILABLE PARTS AS IDENTIFIED BY COMPLETE DESCRIPTION ON PARTS LIST. THE USE OF UNLISTED PARTS CAN RESULT IN EQUIPMENT MALFUNCTIONS CAUSING POSSIBLE SEVERE PERSONAL INJURY.

DO NOT DISCARD THIS INSTRUCTION BOOK UPON COMPLETION OF INSTALLATION. INFORMATION PROVIDED IS ESSENTIAL TO PROPER AND SAFE OPERATION AND MAINTENANCE.

ADDITIONAL OR REPLACEMENT COPIES OF THIS INSTRUCTION BOOK ARE AVAILABLE FROM:

USFILTER'S WALLACE & TIERNAN PRODUCTS
1901 WEST GARDEN ROAD
VINELAND, NEW JERSEY 08360
PHONE: (856) 507-9000
FAX: (856) 507-4125

NOTE

Minor part number changes may be incorporated into USF/W&T products from time to time that are not immediately reflected in the instruction book. If such a change apparently has been made in your equipment and does not appear to be reflected in your instruction book, contact your local USF/W&T sales office for information.

Please include the equipment serial number in all correspondence. It is essential for effective communication and proper equipment identification.

32-055 VOLUMETRIC FEEDER

REGIONAL OFFICES

INSTALLATION, OPERATION, MAINTENANCE, AND SERVICE INFORMATION

Direct any questions concerning this equipment that are not answered in the instruction book to the Reseller from whom the equipment was purchased. If the equipment was purchased directly from USFilter's Wallace & Tiernan Products (USF/W&T), contact the office indicated below.

UNITED STATES

1901 West Garden Road
Vineland, NJ 08360
TEL: (856) 507-9000
FAX: (856) 507-4125

CANADA

If the equipment was purchased directly from USF/W&T Canada, contact the nearest office indicated below.

ONTARIO

250 Royal Crest Court
Markham, Ontario
L3R3S1
(905) 944-2800

QUEBEC

243 Blvd. Brien
Bureau 210
Repentigny, Quebec
(450) 582-4266

MEXICO

If the equipment was purchased directly from USF/W&T de Mexico, contact the office indicated below.

Via Jose López Portillo No. 321
Col. Sta. Ma. Cuauhtepac, Tultitlan
Edo. México 54900
TEL: +52 55 2159 2976 / +52 55 2159 2989
FAX: +52 55 2159 2985

32-055 VOLUMETRIC FEEDER

SECTION 1 - TECHNICAL DATA

Accuracy	1 to 2% of full scale with uniform free flowing materials. Since material delivery is controlled on basis of volume, mass feed rate is affected by material flowability, bulk density variations, etc., and accuracy is limited by variables such as rate setting ability and care in collecting, timing, and weighing test samples. (Actual accuracy can be determined only by running material through the equipment.)
Operating Range	20:1 (extendable to 60:1 by belt position on 3:1 ratio 4-step pulley)
Feed Rate	0.06 to 50 cubic feet per hour
Control Enclosure	NEMA 12
Power Requirements	120V + 10%-5%, 50/60Hz. single-phase, 4 amperes
Ambient Operating Temp.	32 to 122°F (0 to 50°C)
mA Control Input Impedance (maximum)	4-20 mA - 250 ohms
mA Motor Speed Retransmission Impedance	4-20 mA - 500 ohms (maximum)
Feeder Hopper Capacity	1.6 cubic feet
Load Carrying Ability	External feeder supported hopping and contents must not exceed 1000 lb.
Materials of Construction (in contact with fed material)	
Upper Hopper	Polyester fiber glass (std.) Stainless Steel (opt.)
Hopper Liner	Black Buna-N (std.) White vinyl nitrile (opt.)
Hopper Switch (Opt.)	15 Amp. 125, 250, 480 Vac 1/4 HP, 250 Vac 1/8 HP, 125 Vac 0.5Amp. 125 Vdc, 0.25Amp. 250 Vdc
Feed Screw and Trough	Stainless Steel

TECHNICAL DATA (CONT'D)

Materials of Construction (in contact with fed material) (cont'd)

Discharge Spout Stainless Steel

Face Seal Teflon

Feeder Motors (1800 rpm max.)

General Purpose 1/6 hp, permanent magnet, 90 Vdc. TENV

50 Cubic Ft/Hr 1/4 hp, permanent magnet, 90 Vdc. TENV

Hazardous Locations* 1/4 hp, permanent magnet, 90 Vdc. TENV

Control Arrangements

Manual Variable speed control of feed rate by potentiometer. Dial calibrated 0 to 100% of feeder capacity.

Start-Stop Start-Stop control of feeder delivery by switch closure, actuated by pulse duration flow-proportional input, high-low points of level sensor or similar controls. Feed rate control is manual (see above).

Automatic mA/manual Control modes: 1. Automatic in proportion to a 4-20 mA input signal. 2. Provision for manual dosage of chemical feed rate in the automatic mA mode. 3. Local manual variable speed control. 4. Start-Stop control of feeder delivery from a user-supplied switch. 5. Motor speed retransmission 4-20 mA (optional accessory).

Hazardous Locations* Control panels AAB5876, AAB5912, AAB5924, or AAB5984 must be mounted in a non-hazardous area, and feeder must use the explosion proof motor U24633. (Factory Mutual Research Approved for Hazardous Locations Class II Div. 1 Group E, F & G.)

Feeder Shipping Weight 210 lbs.

*As defined in Article 500 of NEC.

32-055 VOLUMETRIC FEEDER

TECHNICAL DATA (CONT'D)

Maximum Volumetric Capacities (cu. ft./hr)

LOW SPEED GEAR BOX (30:1)						
4-Step Drive Pulley			Capacity (cu.ft./hr.)			
STEP	RATIO	MAX. SCREW SPEED RPM	$\frac{3}{4}$ " SCREW	1½" SCREW	2½" SCREW	4" SCREW
1	12:1	5	0.03	0.2	1.0	2.5
2	8:1	7.5	0.04	0.3	1.4	3.7
3	5.3:1	11.3	0.06	0.45	2.2	5.7
4	4:1	15	0.08	0.6	3.0	7.5

HIGH SPEED GEAR BOX (7.5:1)						
4-Step Drive Pulley			Capacity (cu.ft./hr.)			
STEP	RATIO	MAX. SCREW SPEED RPM	$\frac{3}{4}$ " SCREW	1½" SCREW	2½" SCREW	4" SCREW
1	12:1	20	0.10	0.8	4	10
2	8:1	30	0.16	1.2	6	15
3	5.3:1	45.3	0.24	1.8	9	22
4	4:1	60	0.32	2.4	12	30

NOTE: Typical volumetric capacities shown can be achieved by indicated pulley step, screw size, and gear box for combinations, and are based on maximum screw speed for each arrangement. Actual rates may vary depending on characteristics of the material being fed, the chemical handling system, size and shape of hoppers, and other conditions that affect density and flowability.

32-055 VOLUMETRIC FEEDER

SECTION 2 - INSTALLATION

List of Contents

	PARA./DWG. NO.
Unpacking	2.1
Location	2.2
Mounting	2.3
Electrical Connections	2.4
Hoppering	2.5
Illustrations	
Dimensions	320.055.100.010
Typical Installation.....	320.055.110.021
Installation Wiring	320.055.130.010
Installation Wiring	320.055.130.020
Installation Wiring	320.055.130.030

2.1 Unpacking

After the feeder is unpacked, check all items against the packing list to make sure that no parts are discarded with the packing material. Whenever possible, unpack the equipment at the installation site.

2.2 Location

The installation location should be clean and dry.

NOTE: In a damp location, the chemical may absorb moisture that can affect the chemical feed rate.

The feeder location should be free of strong drafts that could blow the chemical around. Keep dry chemical feeders separate from other equipment so that dust from feeder will not affect operation of the other equipment.

2.3 Mounting

- **FEEDER**

Unless the feeder is mounted as part of a USF/W&T prepackaged tank system or an accessory stand, a mounting structure must be provided. The support structure must be rigid, flat, and with a surface equal to or larger than the feeder base. Four ½-inch bolt clearance holes are located in the corners of the feeder base for bolting down the feeder. Base dimensions, base, and bolt hole locations are shown on Dwg. 320.055.100.010.

NOTE: Allow adequate clearance (approximately three feet) around the feeder for inspection and servicing access.

- **CONTROL PANEL (Remotely Mounted)**

When the control panel is mounted remote from the feeder, a wall bracket is supplied to mount the control panel. The mounting method, hole locations, and dimensions of the wall bracket are shown on Dwg. 320.055.110.021.

2.4 Electrical Connection

Electrical wiring to the feeder and control panel varies depending on the feeder control panel arrangement and its mounting location. Consult the appropriate installation wiring drawings for wiring details.

NOTE: Field wiring must conform to local electrical codes.



WARNING: TO AVOID POSSIBLE SEVERE PERSONAL INJURY FROM ELECTRICAL SHOCK DUE TO EQUIPMENT MALFUNCTION, GROUND THE CONTROL PANEL AND MOTOR.

2.5 Hoppering

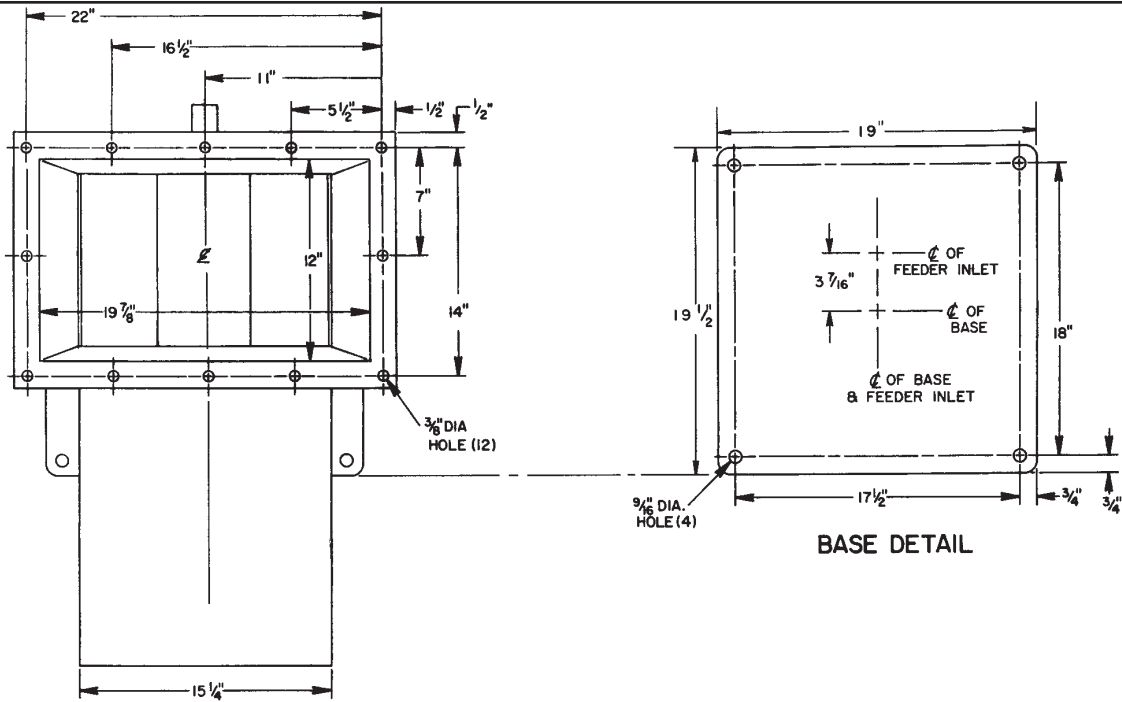
Due to stability and load capacity considerations, feeder mounted hoppering should be limited to the optional bag loading hopper or extension hopper. Only these accessory items may be mounted directly to the feeder hopper (see Accessories book).



WARNING: TO AVOID POSSIBLE SEVERE PERSONAL INJURY AND DAMAGE TO EQUIPMENT, THE FEEDER HOPPER LOADING—INCLUDING THE EXTERNAL HOPPER AND CONTENTS—IS NOT TO EXCEED 1000 POUNDS.

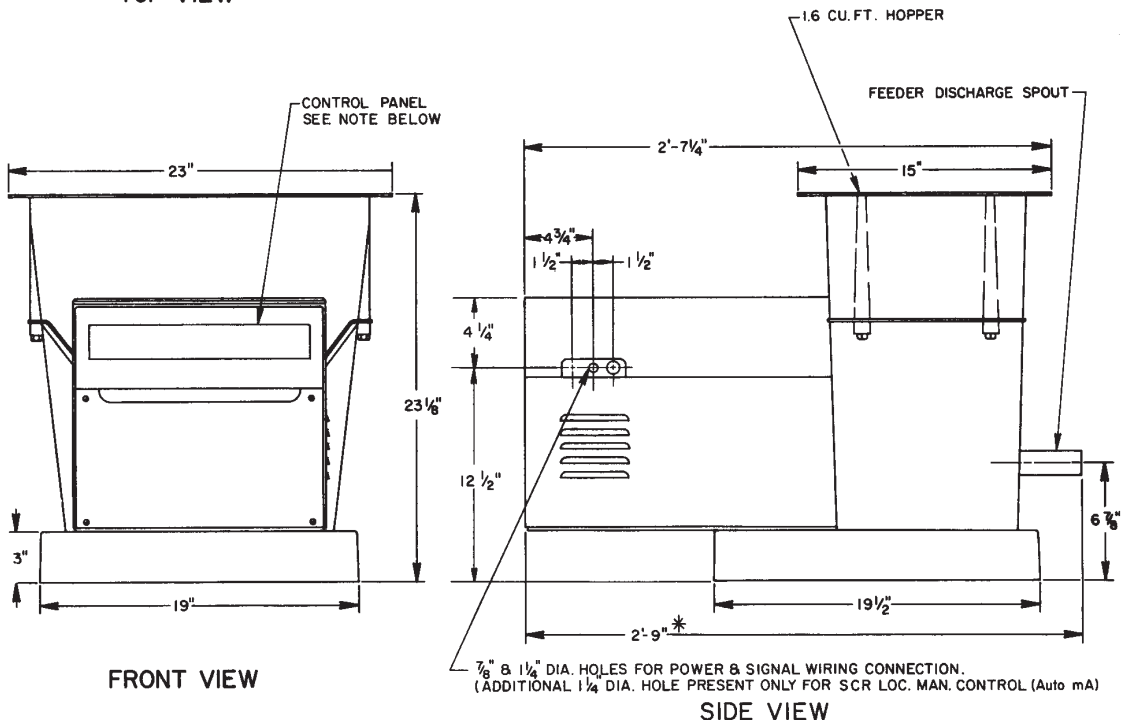
When hoppering that is not feeder supported is used, the feeder must be connected to the hoppering using an accessory flexible connection and slide gate.

32-055 VOLUMETRIC FEEDER



TOP VIEW

BASE DETAIL



FRONT VIEW

SIDE VIEW

NOTE: CONTROL PANEL CAN BE REMOTELY LOCATED. FM APPROVED FOR CLASS II, DIV.1, GROUPS E, F, & G HAZARDOUS LOCATIONS (AS DEFINED BY ARTICLE 500 OF NEC). REMOTE MOUNTING ARRANGEMENT IS REQUIRED FOR THESE LOCATIONS.

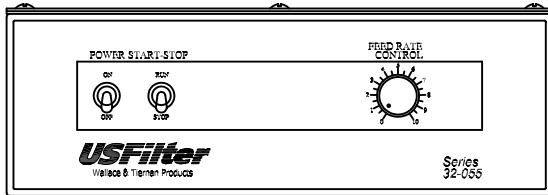
* 2'-11 1/2" FOR 4" FEED SCREW.

SERIES 32-055 SCR CONTROLLED VOLUMETRIC FEEDER - DIMENSIONS

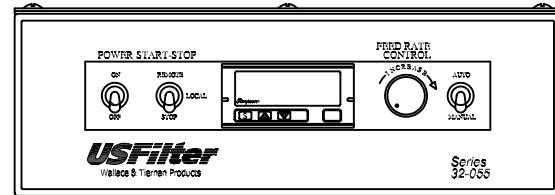
320.055.100.010

ISSUE 3 9-99

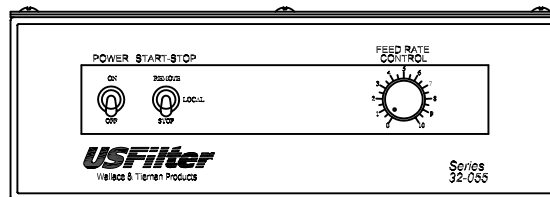
32-055 VOLUMETRIC FEEDER



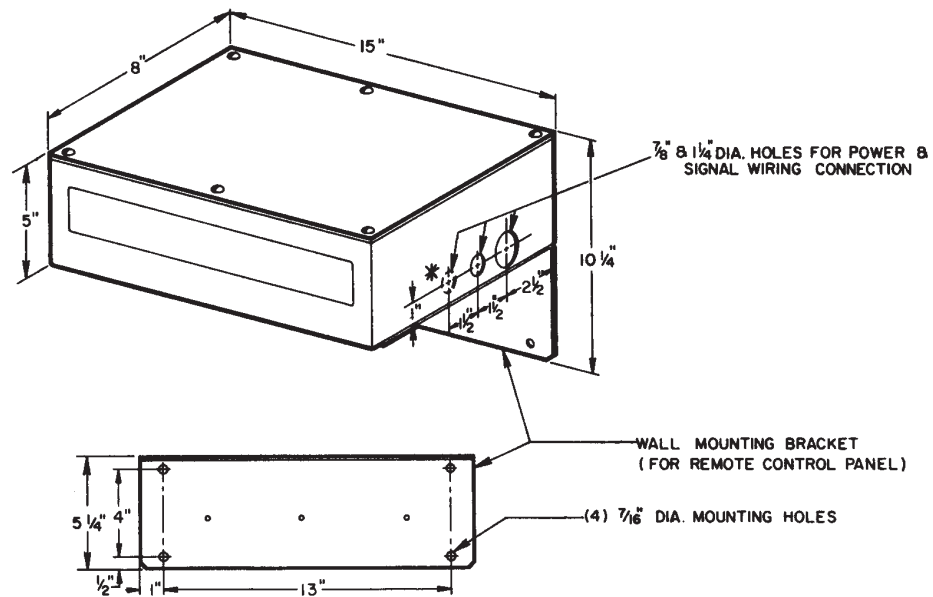
MANUAL CONTROL



AUTO-mA CONTROL



REMOTE START/STOP

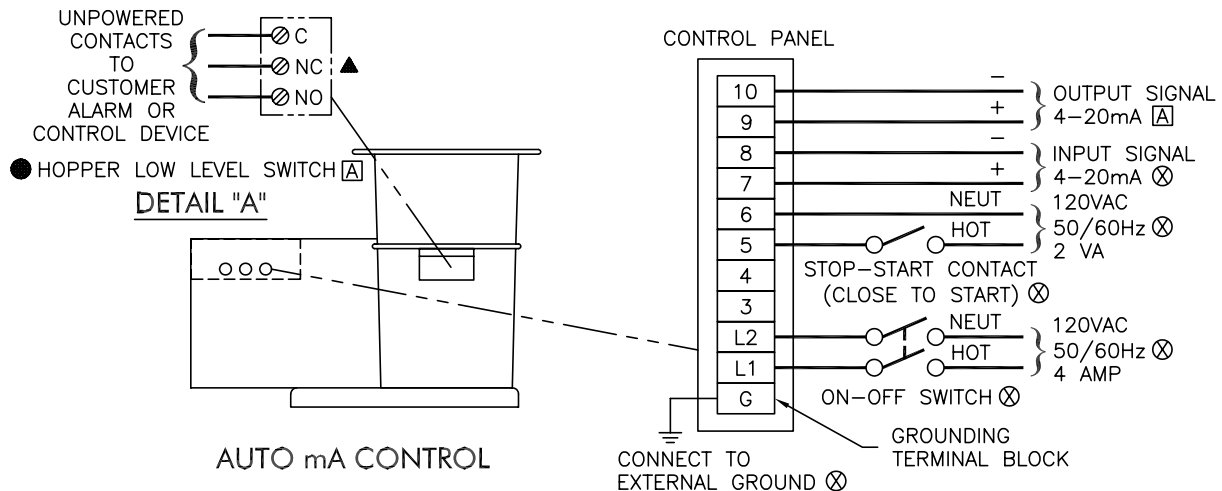
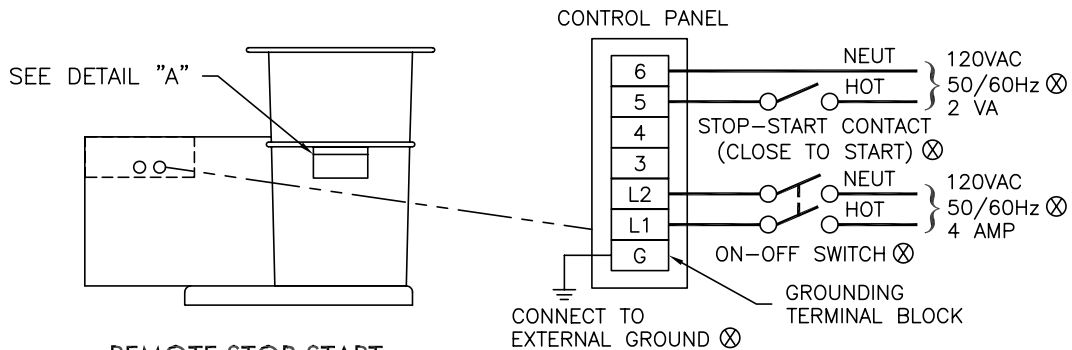
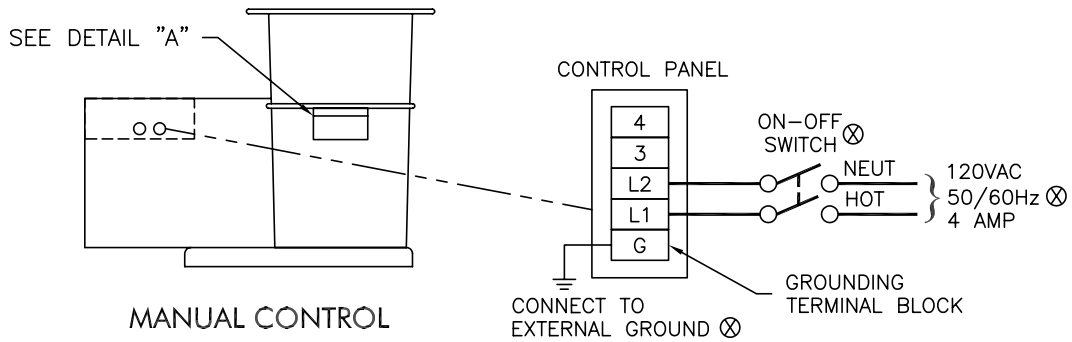


NOTE: ♦ AS DEFINED BY ARTICLE 500 OF NEC.
* THIS HOLE IS PRESENT ONLY ON THE AUTO-mA CONTROL CONFIGURATION.

SERIES 32-055 SCR CONTROLLED VOLUMETRIC FEEDER
- TYPICAL INSTALLATION
Control Panel Arrangement

320.055.110.021
ISSUE 1 9-00

32-055 VOLUMETRIC FEEDER



NOTES: — FIELD WIRING NOT BY USFILTER/W&T.

⊗ NOT FURNISHED BY USFILTER/W&T.

⌈ ACCESSORY ITEM FURNISHED ONLY IF SPECIFICALLY LISTED IN QUOTATION & AS CHECKED ON THIS DRAWING.

▲ SWITCH CONTACTS ARE SHOWN IN NORMAL STATE WHEN HOPPER IS EMPTY.

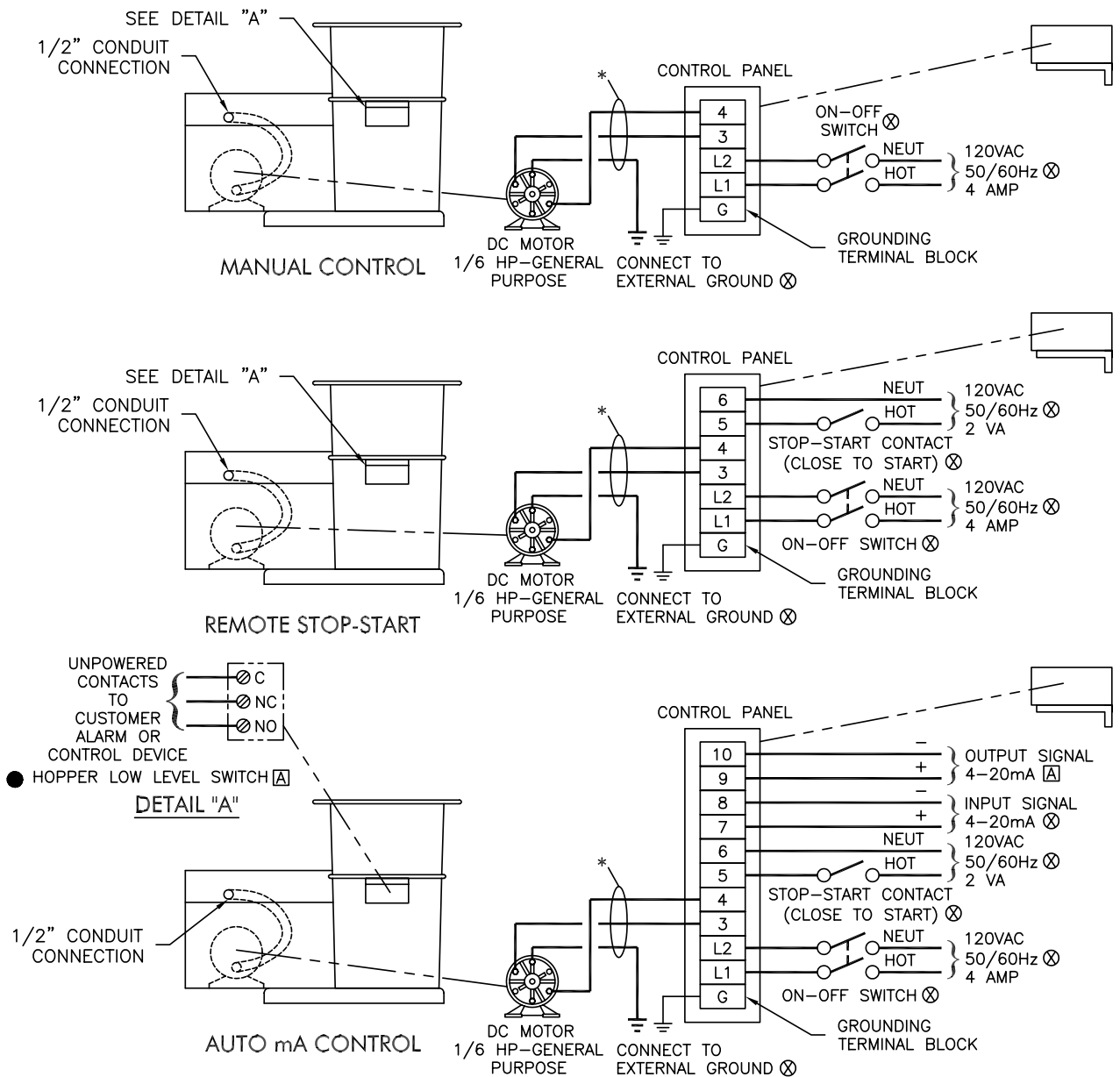
● HOPPER SWITCH CONTACT RATING: 15AMP @ 125/250/480VAC,(SPDT)
1/8HP @ 125VAC, 1/4HP @ 250VAC,
ALL WIRING SHOULD BE IN ACCORDANCE WITH LOCAL ELECTRICAL CODES.

SERIES 32-055 SCR CONTROLLED VOLUMETRIC FEEDER - INSTALLATION WIRING Control Arrangements

320.055.130.010

ISSUE 5 12-01

32-055 VOLUMETRIC FEEDER



NOTES: — FIELD WIRING NOT BY USFILTER/W&T.

⊗ NOT FURNISHED BY USFILTER/W&T.

* FOR DISTANCES UP TO 100FT. USE 14AWG WIRE.

[A] ACCESSORY ITEM FURNISHED ONLY IF SPECIFICALLY LISTED IN QUOTATION & AS CHECKED ON THIS DRAWING. EXTENDED RANGE FEED ARRANGEMENT INCLUDES TWO ADDITIONAL BLOCKS FOR 1/4HP MOTOR OVERLOAD RELAY.

● HOPPER SWITCH CONTACT RATING: 15AMP @ 125/250/480VAC,(SPDT)
1/8HP @ 125VAC, 1/4HP @ 250VAC,
ALL WIRING SHOULD BE IN ACCORDANCE WITH LOCAL ELECTRICAL CODES.

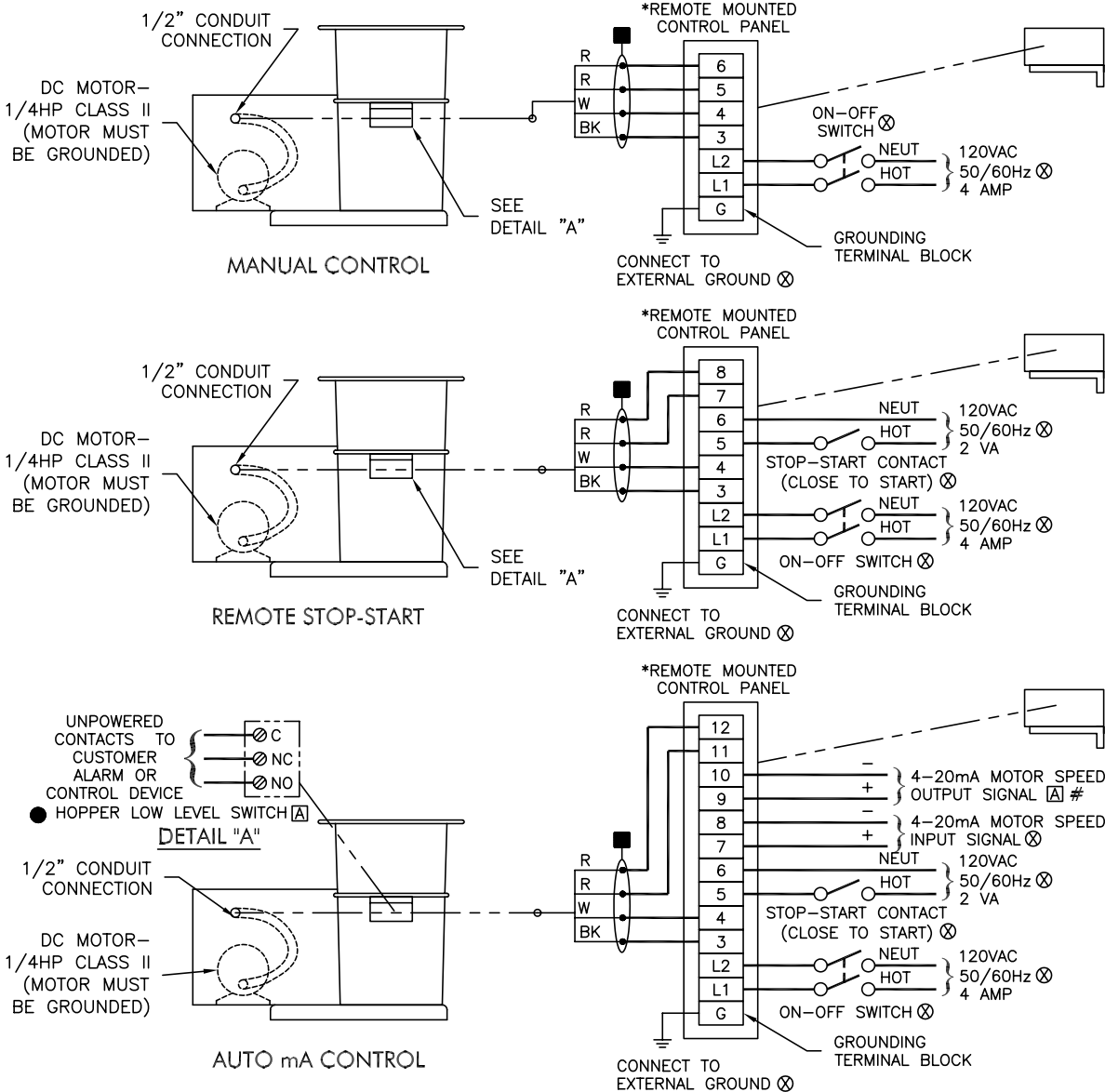
SERIES 32-055 SCR CONTROLLED VOLUMETRIC FEEDER - INSTALLATION WIRING

Control Arrangements With Remote Mounted Control Panel

320.055.130.020

ISSUE 5 12-01

32-055 VOLUMETRIC FEEDER



NOTES: — FIELD WIRING NOT BY USFILTER/W&T.

⊗ NOT FURNISHED BY USFILTER/W&T.

◆ AS DEFINED BY ARTICLE 500 OF NEC.

■ RUN IN CONDUIT TO A NON-HAZARDOUS LOCATION. ELECTRICAL CONDUIT AND CONNECTIONS SHOULD COMPLY WITH THE LOCAL ELECTRICAL CODES AND BE SUITABLE FOR THE NEC DEFINED HAZARDOUS LOCATIONS AS LISTED ON THIS DRAWING. FOR DISTANCES UP TO 100FT USE 14AWG WIRE. RED WIRES ARE FOR THE MOTOR THERMAL SWITCH.

Ⓐ ACCESSORY ITEM FURNISHED ONLY IF SPECIFICALLY LISTED IN QUOTATION & AS CHECKED ON THIS DRAWING.

● HOPPER SWITCH CONTACT RATING: 15AMP @ 125/250/480VAC,(SPDT)
1/8HP @ 125VAC, 1/4HP @ 250VAC,

* CONTROL BOX MUST BE LOCATED IN NON-HAZARDOUS AREA.

IF mA MOTOR SPEED OUTPUT IS NOT FURNISHED, TERMINALS 9 AND 10 BECOME THERMAL SWITCH CONNECTIONS.

SERIES 32-055 SCR CONTROLLED VOLUMETRIC FEEDER -INSTALLATION WIRING
FM Approved For Class II Division 1 Group E,F&G Hazardous Locations
Control Arrangements With Remote Mounted Control Panel

320.055.130.030

ISSUE 5 3-04

SECTION 3 - OPERATION**List of Contents**

	PARA. NO.
Preparation for Initial Operation.....	3.1
Gear Reducer	3.1.1
Drive Motor.....	3.1.2
Operation	3.2
Filling the Hopper	3.2.1
Manual Control	3.2.2
Remote Start/Stop Control	3.2.3
Auto-mA Control	3.2.4
Hazardous Location Feeder Motor.....	3.2.5
Feed Rate Setting	3.2.6
Theory of Operation.....	3.3
Hopper Switch.....	3.3.1

3.1 Preparation for Initial Operation

3.1.1 Gear Reducer

The gear reducer, part of the power train of the volumetric feeder, is shipped with a full level of gear lubricant. For shipment, pipe plugs are installed in the unit and a vent plug is packed separately. After mounting the unit in position, remove the appropriate pipe plug and install vent plug in the location shown in Figure 3.1.



CAUTION: Before operating the equipment, check the level of lubricant.

To check the lubricant level, proceed as follows:

- Remove the hood over the control section of the feeder to gain access to the gear reducer.
- Remove oil level pipe plug.
- Remove air vent fitting.
- Slowly pour a slight amount of gear lubricant into the vent fitting hole until lubricant flows out of oil level pipe plug hole. (Oil capacity is one-half pint.)
- Replace pipe plug in the oil level plug hole.
- Replace the air vent fitting.

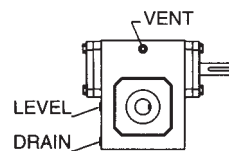


Figure 3.1

NOTE: Standard compounded lubricants should be changed every six months or 2500 hours of operation, whichever comes first. Factory installed synthetic lubricants should be changed every two years or 6000 hours of operation, whichever comes first. Refer to Table 3.1 - Lubricants.

Table 3.1 - Lubricants

Manufacturer	30° to 100° F Ambient Temperature AGMA Compounded No. 7	50° to 125° F Ambient Temperature AGMA Compounded No. 8
Amoco Oil Co.	Worm Gear Oil	Cylinder Oil #680
Chevron USA, Inc.	Cylinder Oil #460X	Cylinder Oil #680X
Exxon Co. USA	Cyclesstic TK-460	Cyclesstic TK-680
Gulf Oil Co.	Senate 460	Senate 680D
Mobile Oil Corp.	600 W Super Cylinder	Extra Hecla Super
Shell Oil Co.	Valvata Oil J460	Valvata Oil J680
Sun Oil Co.	Gear Oil 7C	Gear Oil 8C
Texaco	Honor Cylinder Oil	650T Cylinder Oil
Union Oil Co. of CA	Steaval A	Worm Gear Lube 140
<p>Some gear lubricants contain EP. additives that can be corrosive to gear bronze. Avoid lubricants that are compounded with sulfur and/or chlorine.</p> <p>For temperature ranges not shown, contact factory.</p> <p>Synthetic Lubricants: For temperatures from -10° to 105° F, the use of Mobil SHC 634 (supplied with the reducer) is recommended. For other temperature ranges, contact factory for recommendation.</p>		

3.1.2 Drive Motor

- Before placing the feeder in service for the first time, check that the drive motor turns in the proper direction (CCW facing the motor drive shaft).
- Regardless of the control arrangement, set the switches and controls as follows:

POWER	- OFF
START STOP	- STOP
CONTROL	- MANUAL (if furnished)
SPEED RATE CONTROL	- 10%
DOSAGE CONTROL	- 10 (if furnished)

- Connect 120V power to the control panel. Set POWER switch to ON and START-STOP switch to RUN. The motor should turn the feed screw in a counterclockwise direction as viewed facing the discharge spout.



WARNING: TO AVOID POSSIBLE SEVERE PERSONAL INJURY, AVOID CONTACT WITH PULLEYS, BELT, AND FAN BLADES ON DRIVE PULLEY.

- d. If the feed screw direction is incorrect, set the START-STOP switch to STOP, the POWER switch to OFF, and remove all power to the control panel. To change the motor direction, interchange the motor leads connected to terminals 3 and 4 on the terminal board in the control panel.
- e. Recheck the motor direction as before.



CAUTION: Never turn the 120V POWER switch in the control panel to ON unless the START-STOP switch is in the STOP position. Failure to observe this procedure may result in damage to the SCR control components.



WARNING: TO AVOID POSSIBLE SEVERE PERSONAL INJURY FROM CONTACT WITH THE PULLEYS, BELT, AND FAN BLADES ON THE DRIVE PULLEY, REPLACE HOOD AFTER SERVICE.

3.2 Operation

3.2.1 Filling the Hopper



WARNING: TO AVOID POSSIBLE SEVERE PERSONAL INJURY WHEN WORKING WITH HAZARDOUS MATERIALS, OBSERVE ALL SAFETY PRECAUTIONS RECOMMENDED BY THE MATERIAL MANUFACTURER/SUPPLIER. EXERCISE EXTREME CARE WHEN HANDLING MATERIALS THAT HAVE COMBUSTIBLE DUST, TEND TO FLOOD, OR ARE INCOMPATIBLE WITH OTHER CHEMICALS. CONSULT THE MATERIAL MANUFACTURER/SUPPLIER FOR HANDLING INSTRUCTIONS.

When the feeder hopper is filled for the first time, plug or cover the feeder discharge spout to prevent the materials passing out of the spout. This precaution is necessary only on the initial filling, provided the material level is not allowed to fall below the level of the spout.

3.2.2 Manual Control (See Dwg. 320.055.110.021)

- **STARTING**

- a. Set the POWER switch to ON.
- b. Set the FEED RATE CONTROL potentiometer to the desired feed rate.
- c. Set the START-STOP switch to RUN.

- **STOPPING**

Set the START-STOP switch to STOP.

NOTE: The POWER switch should remain ON unless the feeder is stopped for an extended period or service work is to be performed.

- **RESTARTING**

Set the START-STOP switch to RUN. The feeder will run at the setting of the FEED RATE CONTROL potentiometer.

3.2.3 Remote Start/Stop Control (See Dwg. 320.055.110.021)

- **STARTING**

- a. Set the POWER switch to ON.
- b. Set the FEED RATE CONTROL potentiometer for the desired motor speed.
- c. Set the START-STOP switch to LOCAL (run) or REMOTE (start-stop control of the feeder by remotely mounted user supplied switch).

- **STOPPING**

Set the START-STOP switch to STOP.

NOTE: The POWER switch should remain ON unless the feeder is stopped for an extended period or service work is to be performed.

- **RESTARTING**

Set the START-STOP switch to LOCAL (run) or REMOTE. The feeder will run at the setting on the FEED RATE CONTROL potentiometer.

3.2.4 Auto-mA Control (See Dwg. 320.055.110.021)

- **STARTING**

- a. Set the CONTROL switch to AUTO (milliampere control from a user supplied source) or MANUAL (potentiometer control at the control panel).

- b. Set the POWER switch to ON.
- c. Set the START-STOP switch to LOCAL (run) or REMOTE (start-stop control of the feeder by remotely mounted user supplied switch).
- d. With the CONTROL switch in MANUAL, set the desired feed rate (indicated by the meter) with the FEED RATE CONTROL potentiometer. In AUTO, the feed rate is controlled by the user-supplied milliamperere signal.

In AUTO mode, the FEED RATE CONTROL potentiometer is functional. The potentiometer spans the input signal to the SCR control. With the potentiometer set to 10, the motor speed will exactly pace the mA input signal.

A 100% signal will give 100% motor speed, a 50% signal will give 50% motor speed, etc. A potentiometer setting of 50% will result in a motor speed of approximately 50% of the mA signal.

Therefore, at this setting, a 100% mA signal will give only a 50% motor speed. If the mA signal represents water flow, the potentiometer may be used to change the feed rate to correspond with the chemical demand (which may fluctuate due to varying water quality conditions).

- **STOPPING**

Set the START-STOP switch to STOP. The POWER switch should remain in the ON position unless the feeder is stopped for an extended period or service work is to be performed.

- **RESTARTING**

Set the START-STOP switch to LOCAL (run) or REMOTE. The motor will run at the speed previously set in LOCAL or at speed proportional to mA signal in REMOTE.



CAUTION: To avoid possible damage to the SCR control components, never turn the 120V POWER switch in the control panel to ON unless the START-STOP switch is in the STOP position.

3.2.5 Hazardous Location Feeder Motor

When the hazardous location feeder motor is used, the control panel contains a motor stopping relay. The relay is controlled by a thermal switch built into the motor. If the motor becomes too hot, the thermal switch will open, deenergizing the relay, which in turn removes 120V power from the SCR motor control.

The relay is then latched out so that motor cannot restart automatically when it cools and the thermal switch again closes. To restart the feeder when the motor has cooled, move the START-STOP switch to STOP and then back to the previous RUN (REMOTE or LOCAL) position.

NOTE: If, during normal operation, an attempt is made to stop and then restart the feeder using only the POWER switch, the thermal relay will be latched out and the motor will not run. The feeder can be restarted as above only.

3.2.6 Feed Rate Setting

Feed rate is determined volumetrically by the speed and size of the feed screw. Because of the volumetric control, the rate of feed in pounds per hour of any material is a function of several factors (bulk density, flowability, etc.). A calibration curve must be plotted for each type of material fed, as follows:

- a. Operate the feeder in manual control as described in paragraph 3.2.2, Manual Control, setting the FEED RATE CONTROL at 100%.
- b. At five-minute operating intervals, collect several samples in a previously weighed container.

NOTE: Technique of sampling and accuracy of timing determine reliability of feed curve.

- c. To determine the net weight of each sample, weigh the container and sample and subtract the weight of the container.
- d. Obtain the average weight of the samples by adding the weight of all samples and dividing by the number of samples taken.
- e. Multiply the average weight of the samples in pounds by 12 to obtain the feed rate in pounds per hour.

- f. On the rectangular coordinate paper, plot the feed rate in pounds per hour at the 100% potentiometer setting.
- g. Draw a line from zero to the point just plotted.
- h. The feed rate at any setting may now be determined from the graph.

NOTE: For increased accuracy, several points should be checked particularly at frequently used settings.

3.3 Theory of Operation

The material in the hopper is brought to the discharge spout by means of a helical feed screw driven by a permanent magnet dc motor through a pulley reduction and a gear box. Overall feeder capacity is provided by four feed screws, which range in size from $\frac{3}{4}$ - to 4-inch nominal outside diameter. The gear box, which contains a worm and worm gear reduction (30:1 and 7.5:1), has a built-in factory adjusted clutch that slips if the feed screw jams. An eccentric on the gear box output shaft drives the optional hopper agitating plates to prevent caking and arching of the chemical.

Motor speed is controlled by an open loop SCR control in the control panel, which may be feeder or wall mounted. Three control arrangements are available:

- manual potentiometer control
- an arrangement that also allows control by a milliampere process control signal
- remote start-stop

An optional accessory in the Auto-mA control arrangement allows the motor speed input signal to be retransmitted as a 4-20 mA signal.

3.3.1 Hopper Switch (See Dwg. 320.050.150.020)

The optional hopper switch is used to indicate the level of material in the hopper. The switch has two adjustments. The first adjustment determines the switch's distance from the hopper and puts the switch within operating range. The second adjustment determines switch sensitivity. This is accomplished by varying the location of the adjustment nut (P53684) on the adjuster guide. This adjustment nut is set at the midpoint, but can be adjusted by the customer to change switch sensitivity.

32-055 VOLUMETRIC FEEDER

The sensitivity may be varied according to the density of the material. Moving the nut toward the hopper decreases sensitivity. Moving the nut toward the switch increases sensitivity. For material with a given density, the sensitivity control has the following effect: With the nut moved toward the hopper, the switch will activate with material at a higher level above the feed screw. With the nut moved toward the switch, the switch will activate with the same material at a lower level above the feed screw. This switch is not designed to be an accurate level control, but to indicate when the hopper needs to be refilled. Operating experience with the product being fed will determine the best adjustment nut setting for each application.



32-055 VOLUMETRIC FEEDER



SECTION 4 - SERVICE

List of Contents

	PARA./DWG. NO.
General	4.1
Lubrication	4.2
Gear Box	4.2.1
Agitator	4.2.2
Screw Shaft Bearing	4.2.3
Cleaning	4.3
Parts Replacement.....	4.4
Screw Shaft Face Seal.....	4.4.1
Hopper Liner	4.4.2
Agitator	4.4.3
Motor.....	4.4.4
Feed Screws	4.4.5
Gear Box Alignment and Adjustments	4.5
Gear Box Alignment.....	4.5.1
Pulley Alignment and Belt Tensioning	4.5.2
Clutch Adjustment	4.5.3
SCR Controller Calibration.....	4.6
Manual and Remote Start-Stop Control	
Calibration.....	4.6.1
Auto-MA Control Calibration.....	4.6.2
Feeder Sizing.....	4.7
Fuse Replacement	4.8
Troubleshooting.....	4.9
Warning Summary Page	1 Page
Illustrations	
Wiring	
AAB5876 Control Panel	320.055.145.011
AAB5924 Control Panel	320.055.145.021
AAB5912 Control Panel.....	320.055.145.031
AAB5984 Control Panel	320.055.145.041
U26498 Hopper Switch - Service.....	320.050.150.020

4.1 General

Repair is limited to the replacement of defective parts. Disassemble only as required for cleaning or for replacement of defective parts. Remove the hood to provide access for servicing.

4.2 Location



WARNING: TO AVOID POSSIBLE SEVERE PERSONAL INJURY FROM CONTACT WITH MOVING PARTS, TURN POWER OFF BEFORE SERVICING.

4.2.1 Gear Box

After the initial three to four months of operation, the gear box should be drained and refilled to the level indicated with clean oil. Thereafter, the oil should be changed as per paragraph 3.1.1, Gear Reducer. Use oil specified in Table 3.1 (in Section 3).

NOTE: Use synthetic oil as indicated on warning label affixed to gear box.

4.2.2 Agitator

The agitator drive mechanism located on the gear box output shaft is made up of three parts: the eccentric, the slide block, and the rocker arm. The rocker arm is equipped with two grease lines that terminate on grease fittings. These grease fittings are attached to the outside of the panel hood opposite the drive pulleys. To prevent wear to the parts, use a good quality molybdenum disulfide grease (Chevron Heavy Duty Grease 2 or equivalent) each month.

4.2.3 Screw Shaft Bearings

The sealed ball bearings are lubricated for life and require no additional lubricant.

4.3 Cleaning

For proper operation, the area around the pulleys and agitator parts must be kept free of material accumulation. Keeping the hood fastened securely over the drive portion of the feeder will minimize this accumulation.

4.4 Parts Replacement

4.4.1 Screw Shaft Face Seal (See Dwg. 320.055.005.010)

The screw shaft face seal (13) keeps the chemical in the hopper from contaminating the bearings (15). The seal that is indexed in the bearing seal hub (6) is forced against the rotating wear washer (11) by the spring (9). A weep hole in the bottom of the hub allows any chemical that may get past a worn seal to drop out. A small, cone-shaped pile of chemical underneath the bearing hub indicates the seal is no longer effective and must be replaced.

To inspect or replace the seal (13) or the bearings (15), proceed as follows:

- a. Operate the feeder to run the chemical out of the feeder hopper.
- b. Turn off power to the feeder as described in Section 3 - Operation.
- c. Remove the flanged discharge spout (3, Dwg. 320.055.002.010).
- d. Remove the feed screw by unscrewing (CCW) from the drive shaft (7).
- e. To remove the optional seal shield, turn the shield clockwise and pull free of the pins (see Figure 4.1). Reinstall in reverse order.

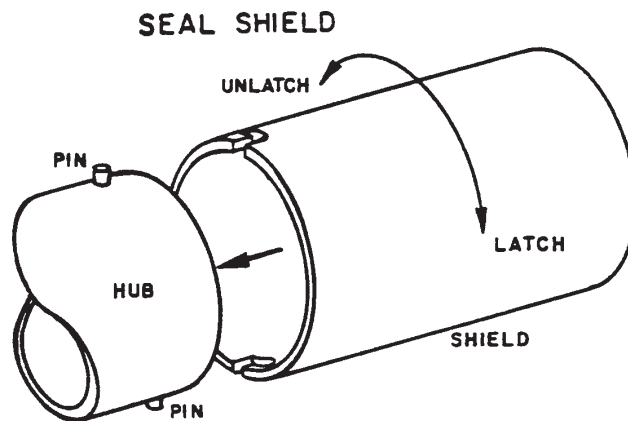


Figure 4.1

- f. Remove the wear washer (11) in a similar manner as the feed screw.
- g. Slide out the seal (13) and the spring (9).
- h. Remove the O-ring (10) from the hub.

- i. Remove the machine screw (1) on the top of the hub (6) to remove and inspect the bearing (15) and the shaft (7).

NOTE: There is an interference fit between the bearings and shaft. If a bearing is replaced, there must be approximately 0.005 inch total clearance between the bearing retainer ring (16) and the bearings (15).

- j. Clean reusable parts. Replace the seal (13), if defective. If the seals on the bearings (15) are damaged, replace the bearings. Reassemble feed screw, bearings, discharge spout, and seal assembly in the reverse order of disassembly.

NOTE: When reassembling the wear washer (11), tighten with pliers so that it seats firmly on the shoulder of the shaft (7). Apply silicone grease to the O-ring before reinstalling.

- k. Inspect the hopper liner (9, Dwg. 320.050.001.010) and replace if damaged by removing upper hopper, disengaging hub from coupling (5), and removing trough.

NOTE: If hopper is removed, reassemble so the pins in the trough must engage the holes in the lower feeder hopper. The dowel pin (18) must engage the slot in the coupling (5) when reconnecting the hub.

- l. Ensure that the hopper liner is clean so that bottom of the trough will fit tightly against the liner.
- m. Align the upper feeder hopper studs with the holes in the lower feeder hopper and the top of the trough with the grooves in the feeder hopper.
- n. Replace the four flat washers and hopper clamping nuts. Alternately tighten the nuts until the tab of the liner begins to be compressed.



CAUTION: Overtightening the hopper clamping nuts may damage the fiber glass reinforced hoppers.

NOTE: Removal and installation of the trough, feed screw, bearings, and seal assembly will usually not disturb the coupling and hub alignment. Before restarting the feeder, check the alignment and correct if necessary.

4.4.2 Hopper Liner

Under normal circumstances, the black hopper liner (Buna-N) and white liner (vinyl nitrile) will be serviceable for several years. It should be replaced by following the instructions outlined in paragraph 4.4.1, Screw Shaft Face Seal.

4.4.3 Agitator (See Dwg. 320.050.001.010)

Servicing the agitation parts (except greasing the rocker arm or replacing the eccentric or slide block) can be accomplished only by having access to the under side of the feeder base. Specifically, access is required for installing new dynaflex joints (34) and the rocker arm (4).

Unless the feeder is mounted on a USF/W&T supplied stand, the feeder must be removed from its mounting position so it can be turned on its side for access to its underside.

NOTE: If the feeder is turned on its side, the gear box oil will run out of the vent. Remove the vent and install a pipe plug.

- **ECCENTRIC AND SLIDE BLOCK**

- To remove the eccentric (1) or slide block (3) remove the gear box (refer to paragraph 4.5.3, Clutch Adjustment). The slide block slips on the eccentric that is pinned to gear box shaft.
- Remove the eccentric by driving out the 3/16-inch diameter dowel pin (2).
- When installing a new eccentric, be sure to align the cross hole in the eccentric with that in the shaft before attempting to drive in the pin.

NOTE: To prevent damage to the bearing, support the shaft when removing or installing the eccentric dowel pin.

- **ROCKER ARM**

NOTE: The rocker arm (4) is clamped to the agitation shaft unit (33) by bolts (32) above and below the shaft. To remove and replace the rocker arm, access must be provided to the under side of the feeder for removal of the lower bolt.

- a. Remove the gear box as described earlier.
- b. Remove the grease lines (41) and the fitting (38) from the rocker arm.
- c. Remove the lower clamping bolt (32), loosen the upper bolt (32), and pull out the rocker arm.
- d. Reinstall the new arm with the smooth side toward the gear box and tighten the clamping bolts.
- e. Reinstall and align the gear box per the instructions on gear box alignment.
- f. Reconnect the grease fittings and lines to the rocker arm.

- **DYNAFLEX JOINTS**

NOTE: To replace the dynaflex joints (34) that pivot the agitation shaft (33), there must be access to the under side of the feeder. The upper feeder hopper, liner, and trough assembly must be removed. Follow the procedure outlined in paragraph 4.4.1, Screw Shaft Face Seal, to remove these parts.

- a. Remove the gear box and agitation plates (28). The plates contain polyethane sockets that fit over the posts.
- b. Remove the grease lines from the rocker arm fittings.
- c. With the feeder turned on its side or working from underneath, remove the four 3/8-inch bolts (30) that hold the dynaflex joint clamps (31). The agitation shaft unit (33) and the rocker arm assembly will drop down.
- d. Remove the dynaflex joints from the agitation shaft by removing the bolt (35) and install new dynaflex joints.
- e. While reinstalling the agitation shaft assembly, position the shaft so the rocker arm is spaced 1/4-inch from the edge of the opening in the plastic base. (See Dwg. 320.050.001.010).
- f. Before completely tightening the dynaflex joint clamps (31), turn the shaft (33) so that the rocker arm (4) is perpendicular to the base. In this position, the twist of the dynaflex joint will be equalized as the rocker arm is moved back and forth.

- g. Tighten the dynaflex joint clamp screws (30) alternately, until the clamps (31) are flush with the base.

NOTE: The clamps are to be centralized as much as possible over the dynaflex joint.

- h. Reinstall and align the gear box, liner, trough assembly, and upper hopper per the procedures in paragraph 4.4.1, Screw Shaft Face Seal.

4.4.4 Motor

- **GENERAL PURPOSE**

NOTE: The general purpose 1/6-hp dc motor supplied with the feeder contains ball bearings lubricated for life. Because of the Class H insulation, the maximum safe operating temperature of the totally enclosed motor is considerably higher than other motors with Class A or B insulation. Therefore, under the maximum load and speed conditions, the motor case may be quite hot.

- a. Inspect the brushes periodically (every six months) to ensure uninterrupted service and to determine wear rate. Brush access covers are located on the motor case.



WARNING: TO AVOID POSSIBLE SEVERE PERSONAL INJURY FROM ELECTRICAL SHOCK, TURN OFF POWER BEFORE SERVICING.

- b. Check the length of the brush (new brush is 1.03 inches). The minimum operating length is 37/64 inch.
- c. To replace brushes, remove the access covers.
- d. Lift the insulator guard and the brush spring from the end of the brush.
- e. Remove the push-on connector and withdraw the brush.
- f. When replacing brushes, inspect the commutator. If the commutator is worn down more than 1/32 inch on the diameter, the commutator must be turned and undercut. Three sets of brushes can be usually used before commutator turning is required.

- **HAZARDOUS LOCATIONS**

Inspection or replacement of brushes requires disassembly of the motor.



WARNING: TO AVOID POSSIBLE SEVERE PERSONAL INJURY FROM EXPLOSION WHILE OPERATING EQUIPMENT IN HAZARDOUS LOCATIONS, SERVICING OF HAZARDOUS LOCATION EQUIPMENT MUST BE PERFORMED BY PERSONNEL TRAINED FOR THIS WORK.

4.4.5 Feed Screws

The $\frac{3}{4}$ -, $1\frac{1}{2}$ -, $2\frac{1}{2}$ -, and 4-inch diameter feed screws may be used with this feeder. Only the $\frac{3}{4}$ -inch and $1\frac{1}{2}$ -inch feed screws may be inter-changed by changing merely the discharge spouts (Dwg. 320.055.002.010).

The trough remains the same for both sizes of feed screw. The $2\frac{1}{2}$ - and 4-inch feed screws have troughs that are unique for each size. When a feed screw size is changed (which also requires a trough change), the gearbox must be realigned. Refer to paragraph 4.5.1, Gear Box Alignment, for the gear box alignment procedure.

4.5 Gear Box Alignment and Adjustments



CAUTION: Correct pulley and gear box alignment is essential for proper operation of the feeder and reasonable belt life. If the gear box is removed or the pulley position is changed, the alignment and tension checks in paragraphs 4.5.1 and 4.5.2 must be performed.

4.5.1 Gear Box Alignment

Align the gear box so the following conditions exist. (Refer to Figure 4.2.) Changes to the gear box alignment are made by loosening the four bolts that hold the gear box to the frame (gear box bracket). Slotted holes in the frame allow movement of the gear box.

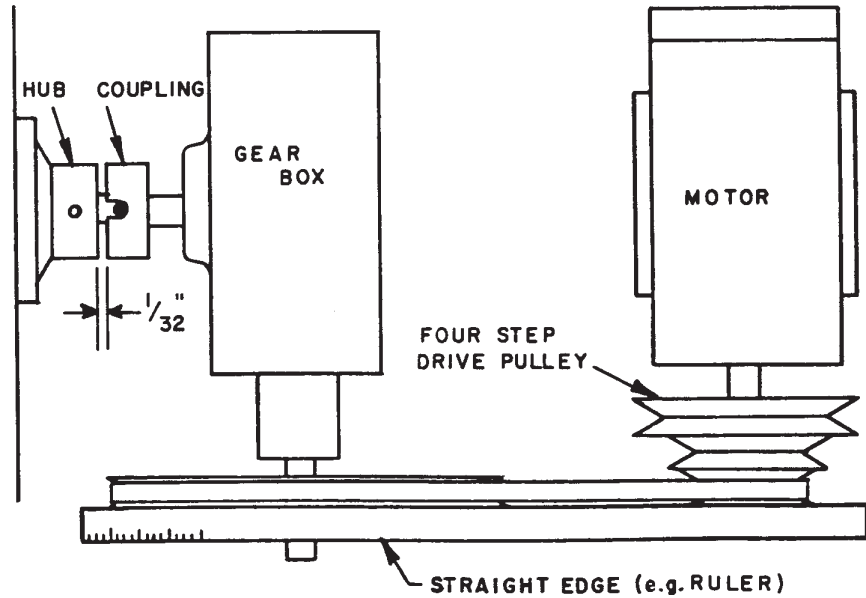


Figure 4.2

- The coupling and hub (which have the same diameter) must be concentric within .010 inch.
- The face of the coupling and hub must be parallel and with an approximate 1/32-inch gap.
- The gear box pulley must be perpendicular to the base plate. Due to some wobble in the pulley, it may be necessary to average this setting.

NOTE: Before any attempt is made to align or tension the belt, the gear box alignment must be checked and, if necessary, corrected.

4.5.2 Pulley Alignment and Belt Tensioning

The tension for the belt is the lowest tension at which the belts will not slip under the highest load condition. As a general rule, for the feeder, the belt is properly tensioned when a one-pound force at the mid span yields approximately 1/10-inch deflection at mid-span.

- After the belt is tensioned and the motor is tightened, lay a straight edge on the pulley to check the alignment. (See Figure 4.2.) The edge of the motor pulley groove must line up with and be parallel to the edge of the gear box pulley. If it is necessary to move the pulley or motor to achieve this, recheck the belt tension.

- b. After 24 hours of operation, check the belt for proper operation. An improperly aligned belt may invert in the pulley groove or come off the pulley.

4.5.3 Clutch Adjustment

The clutch is factory set to require a running torque of 8-9 poundfeet to slip the gear. This corresponds to a breakaway torque of approximately 11 to 12 pound-feet.

The clutch may be checked and reset as follows (refer to Figure 4.3):



WARNING: SLIPPING OF THE CLUTCH, PARTICULARLY AT THE HIGH SPEED, WILL CAUSE GEAR BOX TO BECOME HOT. TO AVOID POSSIBLE PERSONAL INJURY FROM CONTACT WITH HOT COMPONENTS, ALLOW GEAR BOX TO COOL BEFORE SERVICING.

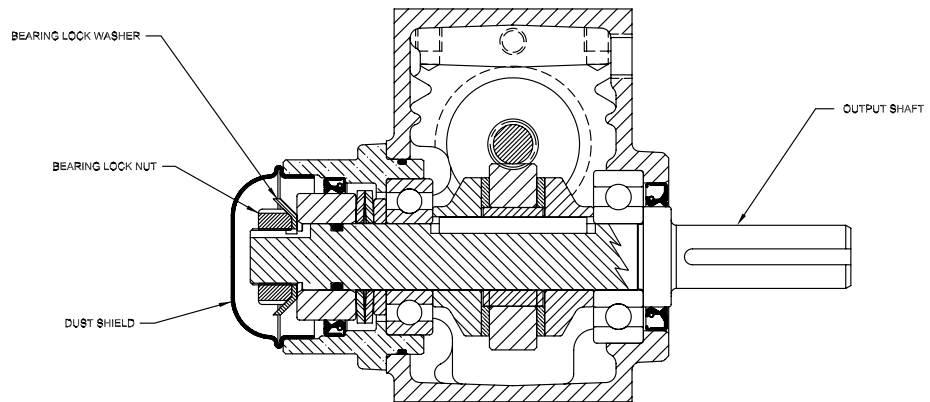


Figure 4.3

- a. Check unit for ratio and size.
- b. Refer to specifications for the output torque rating in inch-pounds corresponding to the unit size and ratio (ex - model 13-30:1 ratio).
- c. Mount unit in a vice or other secure method for holding reducer.
- d. Remove dust shield.
- e. Push locking tab on locking washer away from locknut.
- f. Use spanner wrench to rotate locknut. Check output unit torque settings with torque wrench by turning output shaft. Tighten or loosen nut until desired torque is set.

- g. Bend a aligned tab on locking washer over into slot on locknut to keep it from turning.
- h. Replace dust shield.

Tools required:

- Torque wrench
- Screwdriver or pry bar
- Hammer
- Output shaft adapter
- Spanner wrench: Grainger; McMaster-Carr Catalog No. 5471A11

4.6 SCR Controller Calibration

To achieve the optimum feeding results over the widest operating range, the SCR controller must be properly calibrated. With the two simple types of control (Manual and Remote Start-Stop), this merely requires adjustment of the maximum and minimum speed potentiometers on the SCR controller chassis. The potentiometers are factory adjusted so the FEED RATE CONTROL potentiometer dial corresponds to the motor speeds. To simplify speed measurements and eliminate errors due to pulley differences, all speed measurements will be made at the gear box input shaft. A hand-held tachometer is required to measure the speed.

Calibration of the SCR controller on the Auto-mA control arrangement requires setting the maximum and minimum speed potentiometer on the SCR control chassis so that full travel of the FEED RATE CONTROL potentiometer drives the motor from stop to full speed. The percent of speed meter is calibrated to correspond with the motor speed.

4.6.1 Manual and Remote Start-Stop Control Calibration (See Dwgs. 320.055.003.011 and 320.055.003.021)

- a. Set the POWER switch to ON and the START-STOP switches to RUN or LOCAL. Set the FEED RATE CONTROL potentiometer to 100%.



WARNING: TO AVOID POSSIBLE SEVERE PERSONAL INJURY, AVOID CONTACT WITH PULLEYS, BELT, AND FAN BLADES ON DRIVE PULLEY.

- b. Measure the gear box input shaft and consult the following table to determine the correct speed for the pulley ratio being used:

32-055 VOLUMETRIC FEEDER

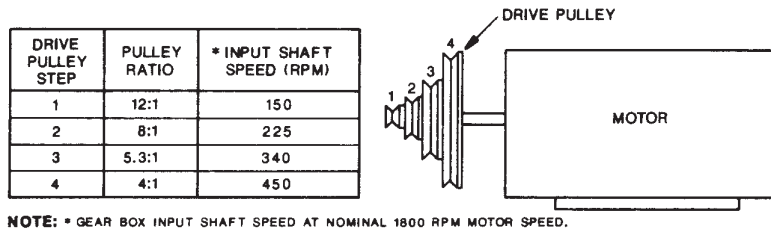


Figure 4.4

- c. If the speed is not within 2% of the value in the table, adjust the maximum speed potentiometer on the SCR controller chassis in the control panel until the speed is correct.



WARNING: TO AVOID POSSIBLE SEVERE PERSONAL INJURY FROM ELECTRICAL SHOCK, DO NOT TOUCH OTHER CIRCUIT COMPONENTS WHEN MAKING ADJUSTMENTS TO THE SCR CONTROLLER BOARD POTENTIOMETERS.

- d. Set the FEED RATE CONTROL potentiometer to 10% and again measure the gear box input shaft speed. The speed is to be 10% of the value at the 100% setting within 5%. If not, adjust the minimum speed potentiometer on the SCR controller until the correct speed is reached.
- e. If an adjustment was made to the minimum speed potentiometer, repeat steps c and d until both conditions are satisfied.
- f. Replace the control box cover, gasket, and screws.

4.6.2 Auto-mA Control Calibration (See Dwgs. 320.055.003.031 & 320.055.003.041)

- a. Set the POWER switch to ON, the START-STOP switch to LOCAL, and the CONTROL switch to MANUAL.
- b. With the FEED RATE CONTROL potentiometer fully clockwise, the gear box input shaft speed is to be approximately 105% of the speed in the table for the pulley arrangement being used. If necessary, adjust the maximum speed potentiometer in the SCR controller chassis in the control panel.



WARNING: TO AVOID POSSIBLE SEVERE PERSONAL INJURY, AVOID CONTACT WITH PULLEYS, BELT, AND FAN BLADES ON DRIVE PULLEY. TO AVOID POSSIBLE SEVERE PERSONAL INJURY FROM ELECTRICAL SHOCK, DO NOT TOUCH OTHER CIRCUIT COMPONENTS WHEN MAKING ADJUSTMENTS TO THE SCR CONTROLLER BOARD POTENTIOMETER.

- c. With the FEED RATE CONTROL potentiometer fully counterclockwise, the motor should just come to a stop. If necessary, adjust the minimum speed potentiometer on the SCR controller chassis.
- d. If an adjustment was made to the minimum speed potentiometer, repeat steps b and c until both conditions are satisfied.
- e. Adjust the FEED RATE CONTROL potentiometer until the gear box input shaft speed is within 1% of that in the table for the pulley ratio being used. The PERCENT OF SPEED meter is calibrated to read 100 at 90 VDC SCR output. An error display indicates an SCR output in excess of 90 VDC. Adjustment of the maximum speed potentiometer on the SCR is necessary in this case.



WARNING: TO AVOID POSSIBLE SEVERE PERSONAL INJURY FROM ELECTRICAL SHOCK, DO NOT TOUCH METER TERMINALS OR OTHER CIRCUIT COMPONENTS.

- f. Set the CONTROL switch to AUTO and the CONTROL potentiometer fully clockwise to 100%. With a 100% mA signal applied, the PERCENT OF SPEED meter is to indicate 100. If not, adjust the maximum speed potentiometer (left-hand potentiometer) on the isolator board until the meter reads 100.



WARNING: TO AVOID POSSIBLE SEVERE PERSONAL INJURY FROM ELECTRICAL SHOCK, DO NOT TOUCH OTHER CIRCUIT COMPONENTS WHEN MAKING ADJUSTMENT TO THE ISOLATOR BOARD POTENTIOMETERS.

- g. Apply a 10% mA signal and adjust the minimum speed potentiometer on the isolator board until the PERCENT OF SPEED meter reads 10.
- h. Repeat steps f and g until both calibrations are satisfied.
- i. Replace the control panel cover gasket and screws.

4.7 Feeder Sizing

To operate the feeder at a higher or lower feed rate than can be accomplished by changing the step on the drive pulley, the feeder must be resized. Resizing may also be required if material is changed. To resize the feeder, proceed as follows:

- a. First determine the maximum feed rate and required operating range.
- b. Divide the maximum feed rate in pounds per hour by the maximum material density in pounds per cubic foot to determine the volumetric requirement in cubic foot per hour.
- c. Consult the maximum volumetric capacities table in Section 1 - Technical Data to determine the required feed screw size and gear box ratio.

NOTE: The material density in the feed screw under dynamic conditions may differ from a static density measurement or published density data. Therefore, whenever possible, select the feed screw and gear box ratio that will give the maximum feed rate in the middle or lower screw speeds. This will allow easier field adjustments by merely changing pulley grooves. If in doubt, contact the nearest USF/W&T office for assistance in resizing the feeder.

- d. Consult Dwg. 320.055.002.010 for discharge spout selection.

NOTE: To allow the feeder to handle a wide range of chemicals with many properties and handling characteristics, different discharge spouts are required. Larger clearances between the feed screw and discharge spout are required with granular chemicals, such as alum, ferric sulfate, and ferrous sulfate, that tend to glaze and build up on metallic surfaces than with fine powdery materials, such as carbon and diatomaceous earth. For consistent feed results, a special spout is required, particularly for lime. Some chemicals, such as alum, ferric sulfate, and ferrous sulfate, require the optional seal shield. Consult the nearest USF/W&T office for guidance in selecting the proper discharge spout.

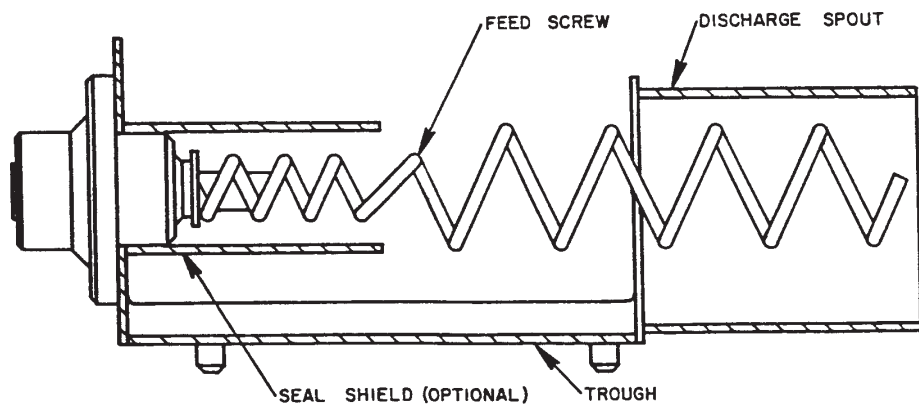


Figure 4.5

4.8 Fuse Replacement



WARNING: TO AVOID POSSIBLE SEVERE PERSONAL INJURY FROM ELECTRICAL SHOCK, DISCONNECT EXTERNAL POWER FROM FEEDER CONTROL PANEL BEFORE REMOVING FUSE.

See Dwg. 320.055.003.021, 320.055.003.031, or 320.055.003.041 for more information.

4.9 Troubleshooting

The following table is provided for diagnosing and correcting feeder problems. Refer to the procedures in other parts of the book for detailed corrective action.

Table 4.1 - Troubleshooting

SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
FALL-OFF OR NO FEEDER OUTPUT.	Motor is running in the wrong direction.	Reverse motor direction. Interchange leads connected to terminals 3 and 4 on terminal board in control panel.
	Feed screw speed has changed.	Correct speed setting.
	Hopper is empty.	Fill hopper.
	Material is arching or bridging in the hopping system.	Check need for feeder agitation and hopper vibration.
	Feed screw is obstructed with foreign material or lumps.	*Remove spout and try to clear screw or empty feeder and remove trough and feed screw assembly.
NO FEEDER OUTPUT (FEED SCREW IS NOT TURNING BUT MOTOR IS ON).	Drive belt has come off pulleys or is loose.	Realign and tension belt.
	Feed screw is jammed with foreign material or lumps (gear box clutch is slipping).	*Remove discharge spout and try to clear screw or empty feeder and remove trough and feed screw assembly.
	Motor or gear box pulleys or coupling is loose.	Retighten set screws.
	Agitator parts are binding (gear box clutch is slipping).	Lubricate agitator parts.
	Gear box clutch setting is too low due to wear.	Reset clutch.

Table 4.1 - Troubleshooting (Cont'd)

SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
NO FEEDER OUTPUT (MOTOR WILL NOT RUN).	No power to feeder.	Restore 120V power.
	Control switch in the wrong position.	Correct switch position.
	Remote control signals are out.	Switch to manual control to check operation of feeder. Restore remote signal.
	Fuse inside control panel is open.	Refer to warning in paragraph 9 and replace fuse.
	Wiring to motor is loose.	Tighten wire connections.
	SCR controller is defective.	Replace circuit board.
	Isolator board is defective.	Replace circuit board (first check for proper operation in MANUAL and the existence of an mA signal).
	Motor brushes are worn or hanging up.	Replace or release brushes.
	Defective FEED RATE CONTROL potentiometer.	Replace potentiometer.
	Thermal relay has stopped motor (used with Class II motor only).	Reset relay per instruction in OPERATION section.
*NOTE: If feeder contains free flowing materials, removing the feed spout may cause the material to freely flow out of the feeder.		

WARNING LABELS AND TAGS

The following warning labels and tags are attached to the equipment.

L2016: TO AVOID POSSIBLE SEVERE PERSONAL INJURY FROM ELECTRICAL SHOCK, TURN POWER OFF BEFORE SERVICING.

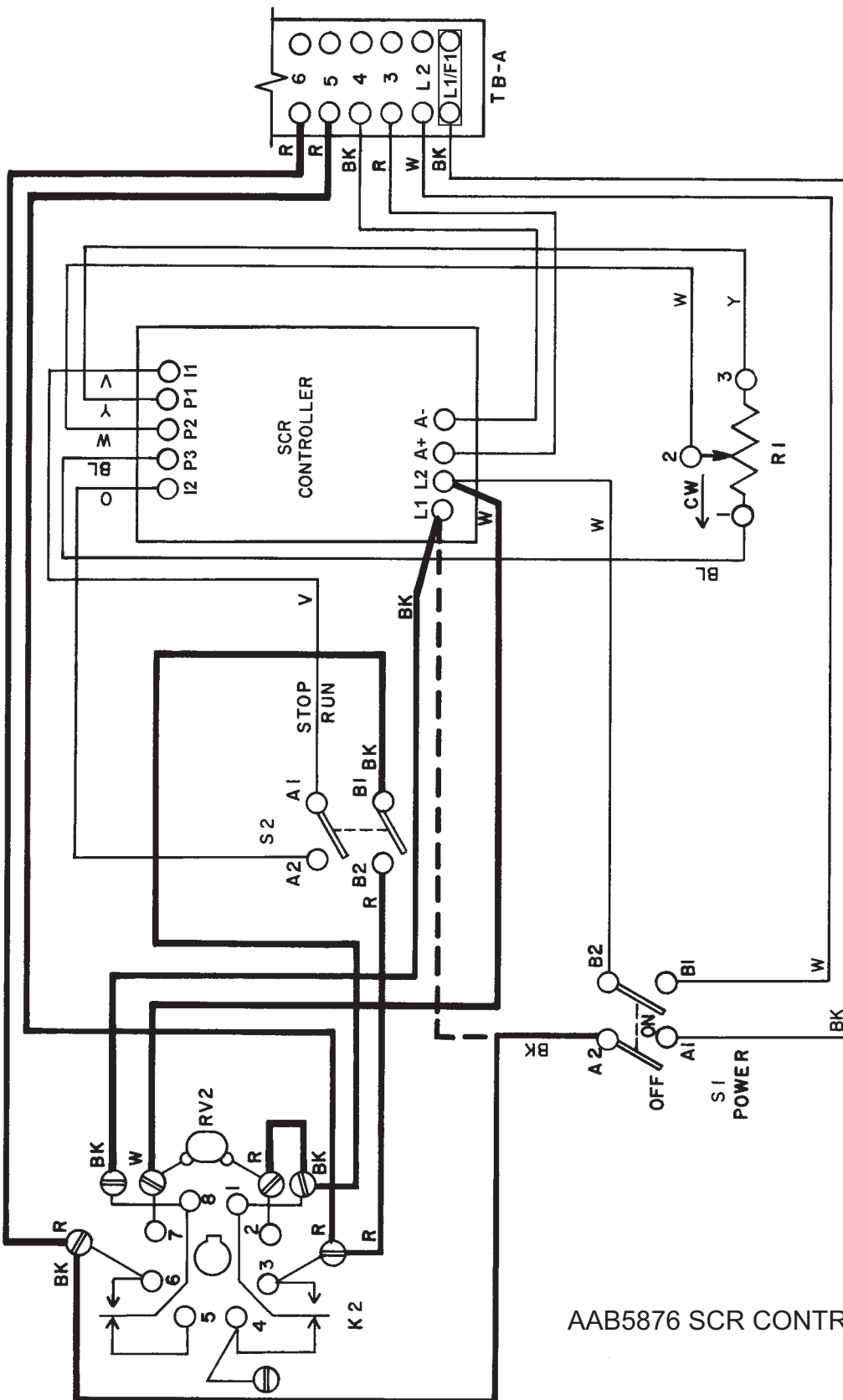
L2024: TO AVOID POSSIBLE SEVERE PERSONAL INJURY FROM CONTACT WITH MOVING PARTS REPLACE GUARD AFTER SERVICING EQUIPMENT.

L2187: TO PREVENT POSSIBLE PERSONAL INJURY, AVOID CONTACT WITH FAN BLADES.

L2023: TO AVOID POSSIBLE SEVERE PERSONAL INJURY OR DAMAGE TO EQUIPMENT, READ INSTRUCTION BOOK BEFORE INSTALLING, OPERATING OR SERVICING THIS EQUIPMENT.

AAB6047: TO AVOID POSSIBLE SEVERE PERSONAL INJURY OR DAMAGE TO EQUIPMENT, DO NOT SERVICE SPOUT DISCHARGE AREA WHILE FEEDER IS IN OPERATION.

32-055 VOLUMETRIC FEEDER

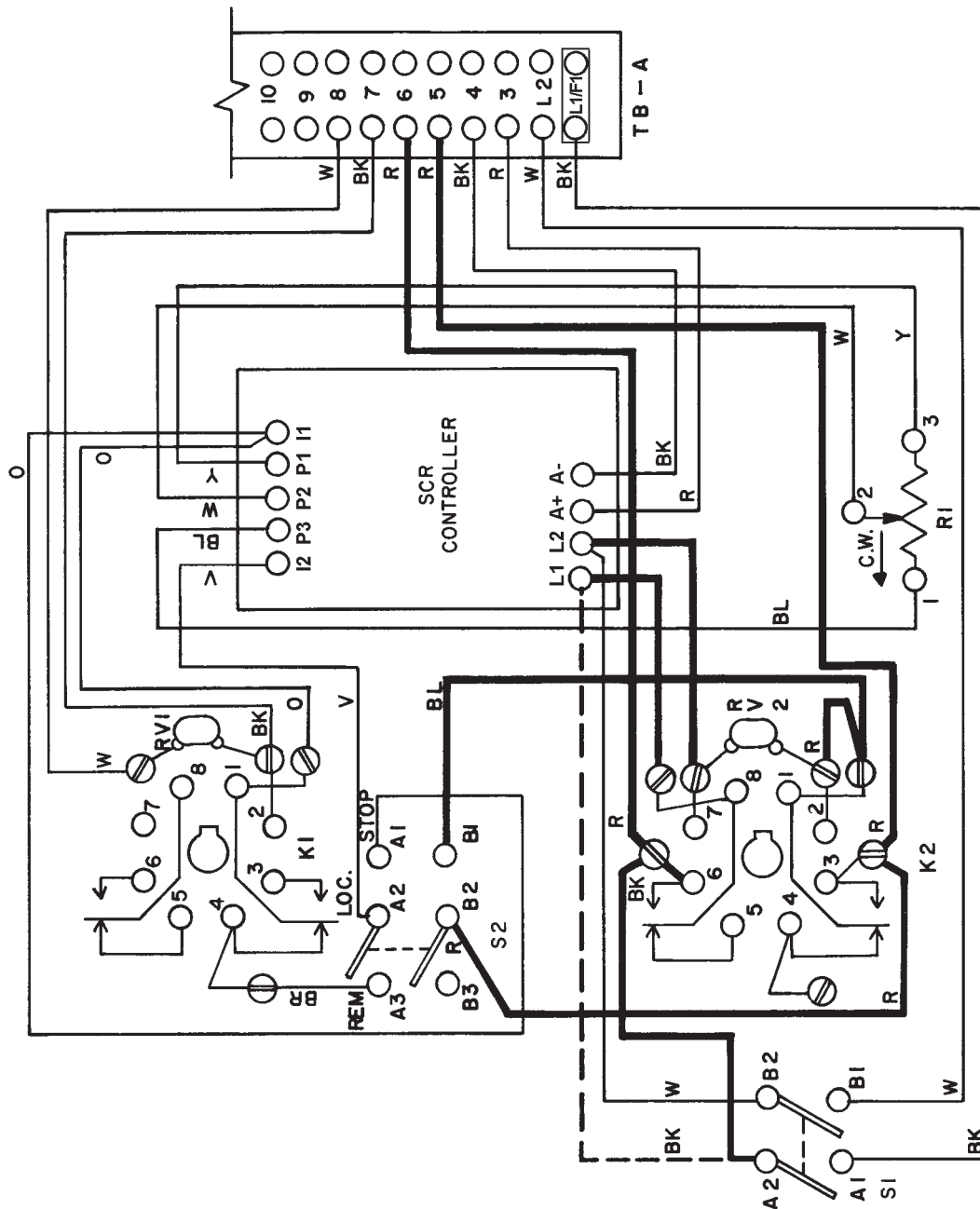


NOTE: THE LIGHT LINES AND DASHED LINE SHOW THE WIRING OF THE CONTROL PANEL FOR THE GENERAL PURPOSE MOTOR (K2 NOT INCLUDED). WHEN THE CLASS II MOTOR IS USED, RELAY K2 IS INCLUDED WITH THE ADDITIONAL WIRING SHOWN IN HEAVY LINES.

AAB5876 SCR CONTROL LOC. MAN.
- WIRING

320.055.145.011
ISSUE 1 12-01

32-055 VOLUMETRIC FEEDER



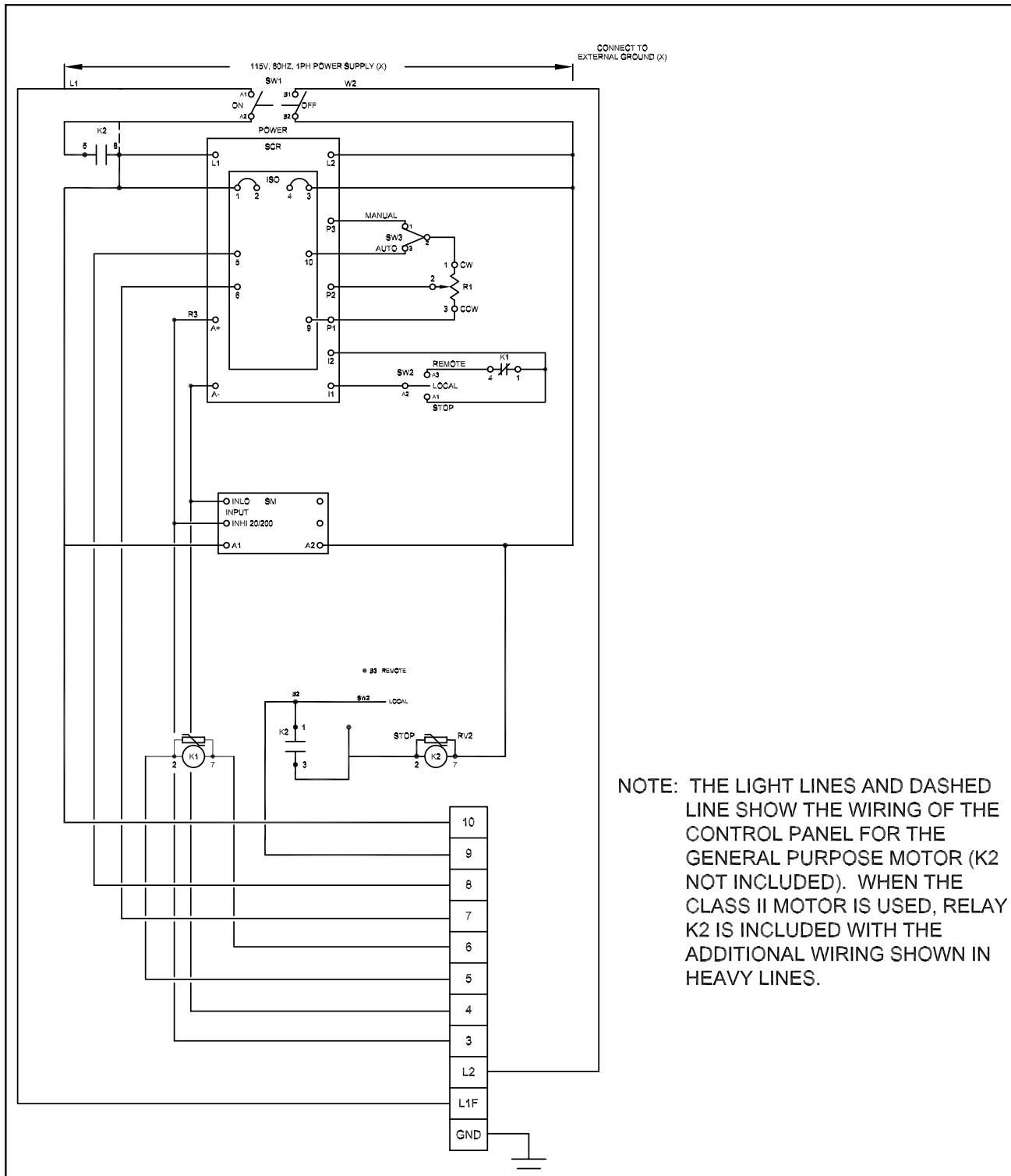
NOTE: THE LIGHT LINES AND DASHED LINE SHOW THE WIRING OF THE CONTROL PANEL FOR THE GENERAL PURPOSE MOTOR (K2 NOT INCLUDED). WHEN THE CLASS II MOTOR IS USED, RELAY K2 IS INCLUDED WITH THE ADDITIONAL WIRING SHOWN IN HEAVY LINES.

AAB5924 CONTROL LOC. REMOTE - WIRING

320.055.145.021

ISSUE 1 12-01

32-055 VOLUMETRIC FEEDER



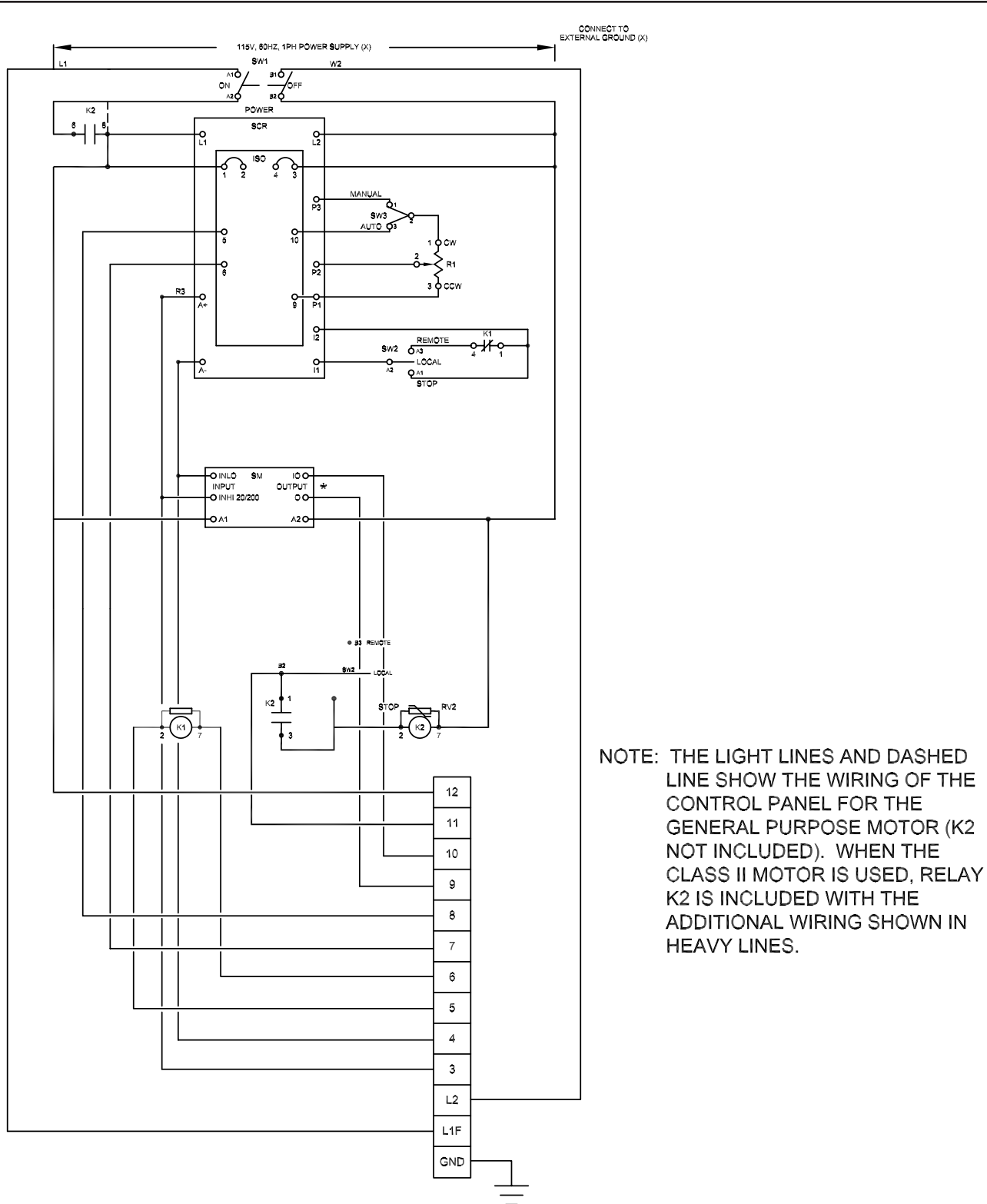
NOTE: THE LIGHT LINES AND DASHED LINE SHOW THE WIRING OF THE CONTROL PANEL FOR THE GENERAL PURPOSE MOTOR (K2 NOT INCLUDED). WHEN THE CLASS II MOTOR IS USED, RELAY K2 IS INCLUDED WITH THE ADDITIONAL WIRING SHOWN IN HEAVY LINES.

AAB5912 CONTROL LOC. MAN. (AUTO-mA) - WIRING

320.055.145.031

ISSUE 2 3-04

32-055 VOLUMETRIC FEEDER



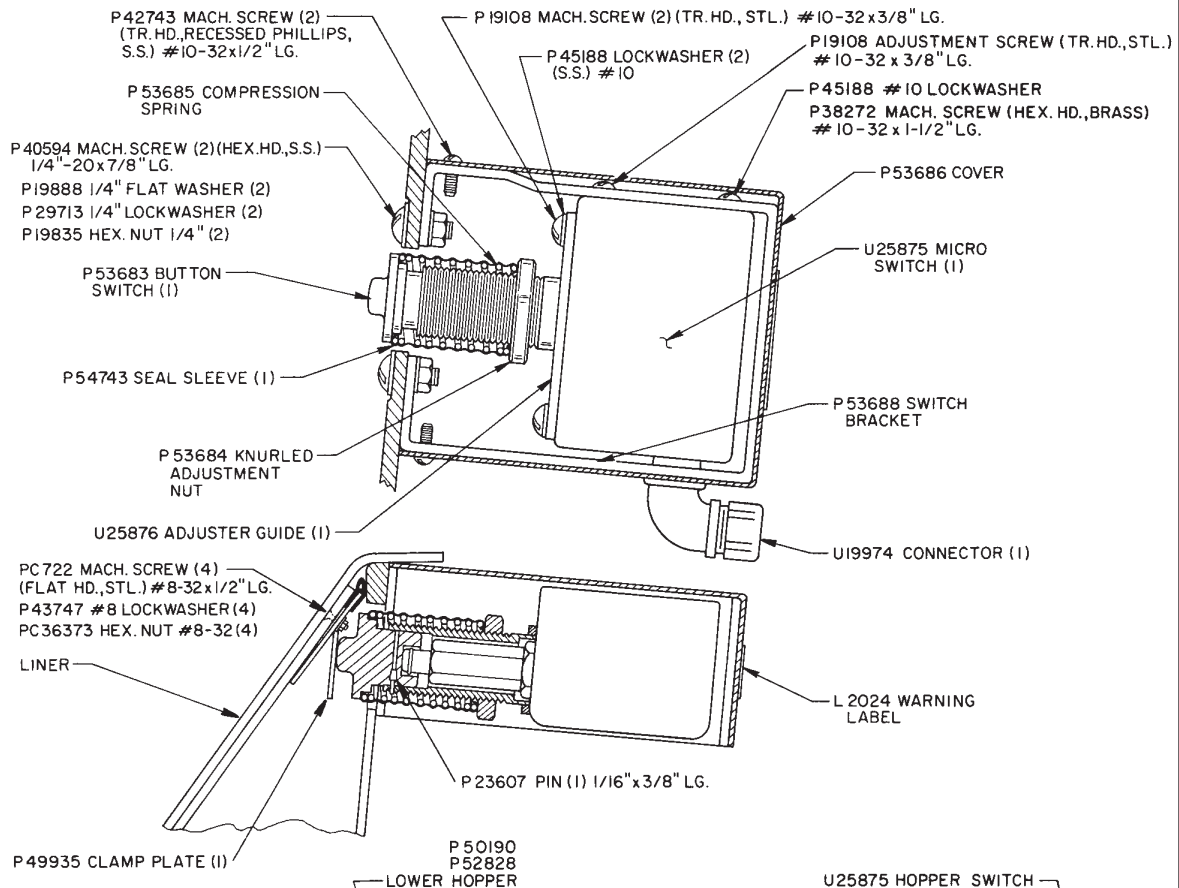
NOTE: THE LIGHT LINES AND DASHED LINE SHOW THE WIRING OF THE CONTROL PANEL FOR THE GENERAL PURPOSE MOTOR (K2 NOT INCLUDED). WHEN THE CLASS II MOTOR IS USED, RELAY K2 IS INCLUDED WITH THE ADDITIONAL WIRING SHOWN IN HEAVY LINES.

AAB5984 CONTROL LOC. MAN. (AUTO-mA) - WIRING

320.055.145.041

ISSUE 0 3-04

32-055 VOLUMETRIC FEEDER



HOPPER SWITCH ADJUSTMENT

1. ADJUST KNURLED NUT ON HOPPER SWITCH SO THAT COMPRESSION SPRING IS HALFWAY COMPRESSED.
2. ATTACH OHMMETER LEADS TO OUTPUT TERMINALS OF SWITCH.
3. LOOSEN ADJUSTMENT SCREWS ON SIDE OF SWITCH BRACKET.
4. MOVE HOPPER SWITCH ALL THE WAY OUT.
5. HAVE SOMEONE APPLY PRESSURE ON THE LINER ADJACENT TO THE SWITCH.
6. MOVE HOPPER SWITCH SLOWLY TOWARD HOPPER WHILE OBSERVING OHMMETER.
7. WHEN THE OHMMETER DEFLECTS AND THE METER NEEDLE REMAINS IN THE NEW STATE, MOVE HOPPER SWITCH AN ADDITIONAL 1/16 - 3/32 INCH TOWARD HOPPER AND LOCK INTO POSITION WITH SIDE SCREWS.
8. REMOVE PRESSURE FROM LINER AND THE OHMMETER SHOULD CHANGE STATE AGAIN.
9. REAPPLY PRESSURE ON THE LINER AND THE METER SHOULD AGAIN CHANGE STATE.

U26498 HOPPER SWITCH - SERVICE

320.050.150.020

ISSUE 7 9-99



32-055 VOLUMETRIC FEEDER



SECTION 5 - ILLUSTRATIONS

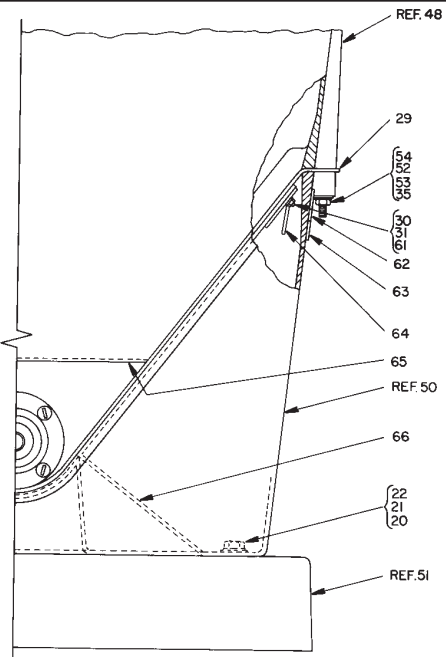
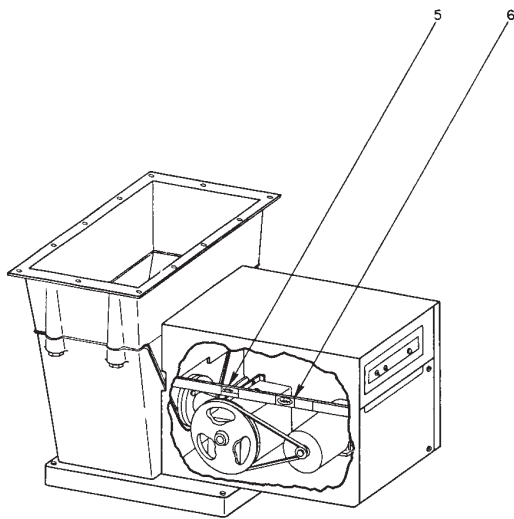
List of Contents

DRAWING NO.

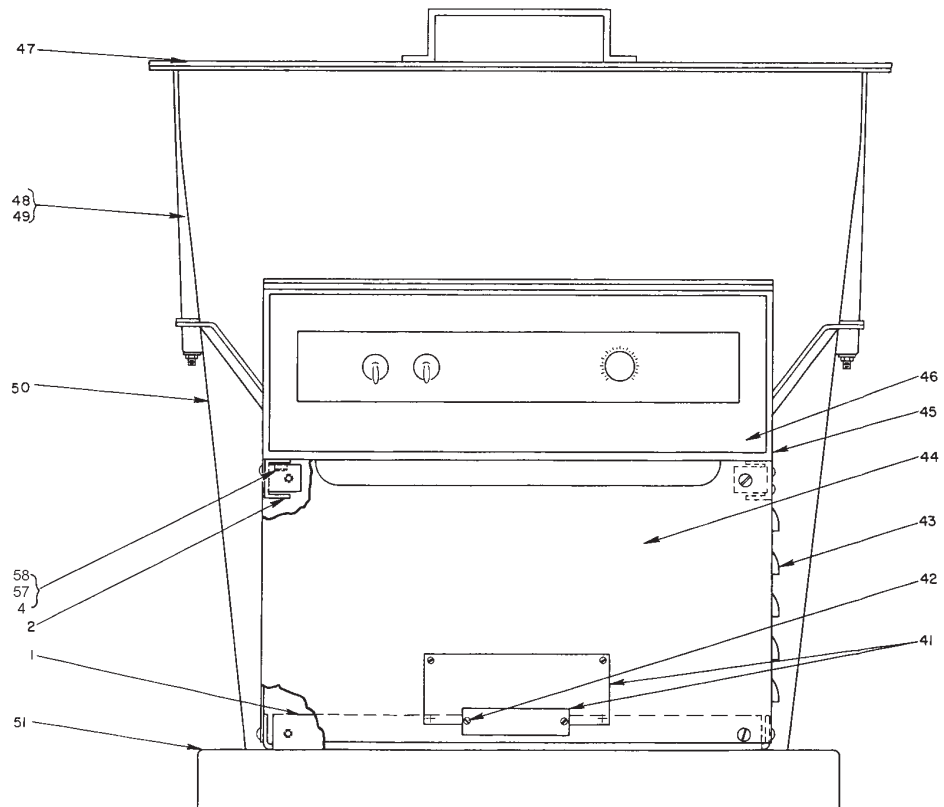
Parts

Series 32-055 SCR-Controlled Volumetric	
Feeder - Without Agitation	320.055.000.011A-E
Series 32-055 SCR-Controlled Volumetric	
Feeder - With Agitation	320.055.000.016A-E
Series 32-055 SCR-Controlled Volumetric	
Feeder - Used With Remote-Mounted	
Control Panel.....	320.055.000.020A&B
Hopper Agitator	320.050.001.010A&B
Feed Screws, Spouts and Troughs.....	320.055.002.010A&B
AAB5876 Control Panel - Manual	320.055.003.011A&B
Schematic Wiring - AAB5876 Control Panel -	
Loc. Man.	320.055.155.141
AAB5924 Control Panel - Loc. Remote	320.055.003.021A&B
Schematic Wiring - AAB5924 Control Panel -	
Loc. Remote	320.055.155.151
AAB5912 Control Panel - Loc. Man.	
(Auto-mA).....	320.055.003.031A&B
Schematic Wiring - AAB5912 Control Panel -	
Loc. Man. (Auto-mA)	320.055.155.161
AAB5984 Control Panel - Auto mA with	
4-20 mA Transmitter.....	320.055.003.041A&B
Schematic Wiring - AAB5984 Control Panel -	
Loc. Man. (Auto-mA)	320.055.155.171
Feed Screw Drive Shaft Assembly.....	320.055.005.010
AAB5843 SCR Controller	320.055.014.010
AAB5828 Isolator	320.055.015.010

32-055 VOLUMETRIC FEEDER



HOPPER DETAIL



U28539: 3/4", 1 1/2", 2 1/2" & 4" FEED SCREW (LOW SPEED); U28541: 3/4", 1 1/2", 2 1/2" & 4" FEED SCREW (HIGH SPEED)

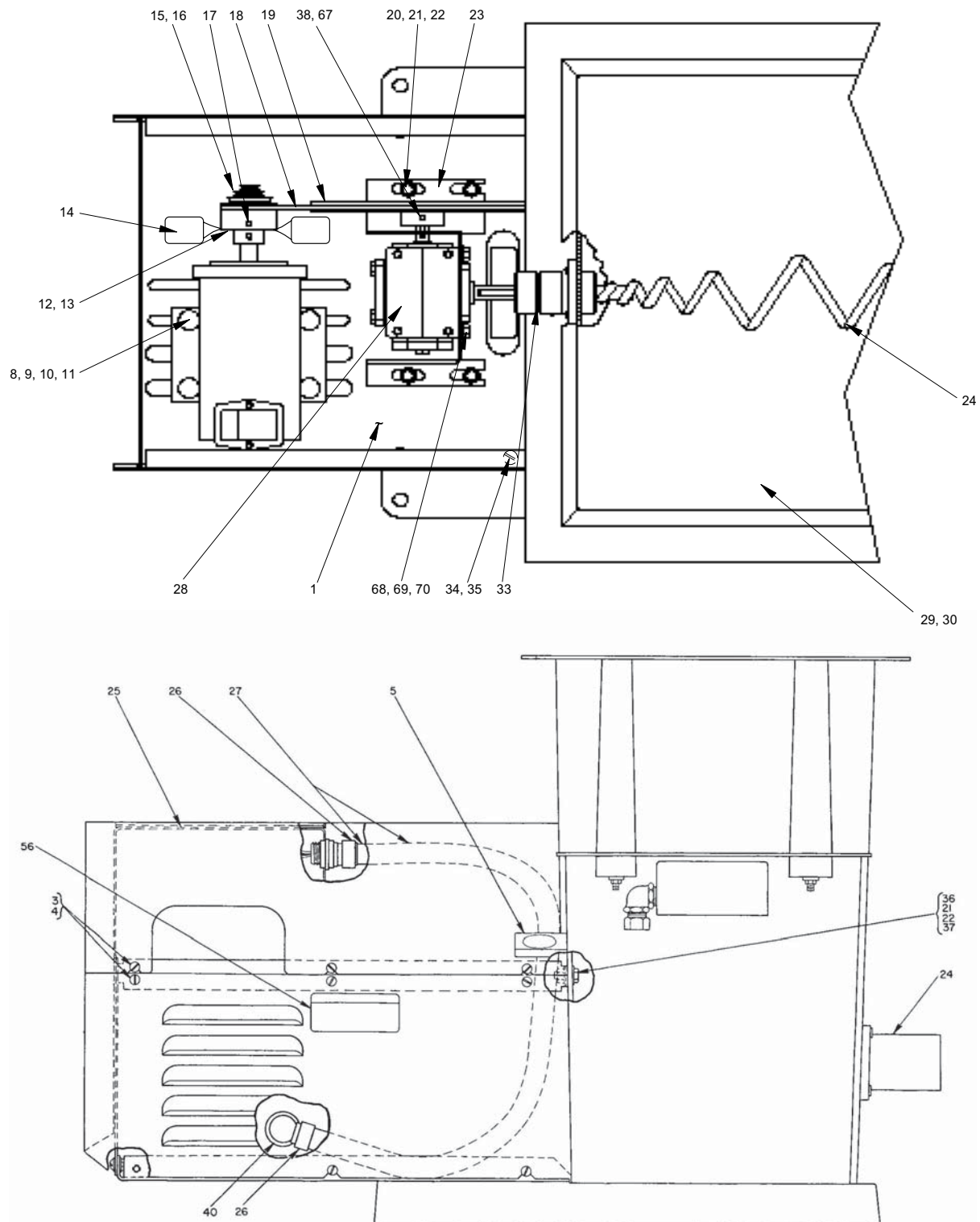
SERIES 32-055 SCR-CONTROLLED VOLUMETRIC FEEDER - PARTS

Without Agitation

320.055.000.011A

ISSUE 0 9-99

32-055 VOLUMETRIC FEEDER



U28539: 3/4", 1 1/2", 2 1/2" & 4" FEED SCREW (LOW SPEED); U28541: 3/4", 1 1/2", 2 1/2" & 4" FEED SCREW (HIGH SPEED)

SERIES 32-055 SCR-CONTROLLED VOLUMETRIC FEEDER - PARTS

Without Agitation

320.055.000.011B

ISSUE 2 4-01

32-055 VOLUMETRIC FEEDER

KEY NO.	PART NO.	QTY.	DESCRIPTION
1	AAB5816	1	DRIVE MOUNTING PLATE
2	P 52226	2	CHANNEL STRAP
3	P 27833	19	MACH.SCREW (TRUSS HD.,S.S.) #10-24 x 3/8" LG.
4	P 45188	19	#10 LOCKWASHER (S.S.)
5	L 2024	2	WARNING LABEL
■ 6	L 2187	1	WARNING LABEL
● 7	U 24448	1	D.C. MOTOR 1/6 H.P.
	OR		
	U 26067	1	D.C. MOTOR 1/4 H.P. (FOR 50 CUBIC FT./HR. FEED RATE REQUIREMENT)
	OR		
	▲ U 24633	1	D.C. MOTOR 1/4 H.P. (SEE DWG. 320.055.000.020)
8	PC 25706	4	CARRIAGE BOLT (RD.HD.,STL.) 5/16"-18 x 1" LG.
9	P 33720	4	WASHER (BRASS) 25/64"ID x 1-1/4"OD
10	P 43049	4	5/16" LOCKWASHER (S.S.)
11	P 887	4	HEX NUT (STL.) 5/16"-18
■ 12	FP 2436	4	MACH.SCREW (PAN.HD.,S.S.) #8-32 x 3/8" LG.
■ 13	P 43747	4	#8 LOCKWASHER (S.S.)
■ 14	P 52183	2	FAN BLADE
● 15	P 52189	1	SHEAVE
	OR		
	P 57379	1	SHEAVE (4 STEP, FOR 50 CUBIC FT./HR. FEED RATE REQUIREMENT)
	OR		
	▲ P 51891	1	SHEAVE (4 STEP)
	OR		
	▲ P 57380	1	SHEAVE (4 STEP, FOR 50 CUBIC FT./HR. FEED RATE REQUIREMENT)
■ 16	P 43740	1	KEY 3/32" x 3/16"
17	P 5804	2	SET SCREW (HEX.SOC.HD.,STL.) 1/4"-20 x 3/8" LG.
● 18	P 51148	1	BELT
	OR		
	P 49872	1	BELT (FOR 50 CUBIC FT./HR. FEED RATE REQUIREMENT)
	OR		
	▲ P 51894	1	BELT
	OR		
	▲ P 57381	1	BELT (FOR 50 CUBIC FT./HR. FEED RATE REQUIREMENT)

NOTE: ■ PART OF G994.
● NOT PART OF U28539 OR U28541.
▲ CLASS II, DIVISION 1, GROUPS E, F & G HAZARDOUS LOCATIONS.

WHEN ORDERING MATERIAL, ALWAYS SPECIFY MODEL AND SERIAL NUMBER OF APPARATUS.

U28539: 3/4", 1 1/2", 2 1/2" & 4" FEED SCREW (LOW SPEED); U28541: 3/4", 1 1/2", 2 1/2" & 4" FEED SCREW (HIGH SPEED)

SERIES 32-055 SCR-CONTROLLED VOLUMETRIC FEEDER - PARTS LIST

Without Agitation

320.055.000.011C

ISSUE 1 9-00

32-055 VOLUMETRIC FEEDER

KEY NO.	PART NO.	QTY.	DESCRIPTION
● 19	AAB5813 OR	1	SHEAVE
	▲ AAB5822	1	SHEAVE
20	P 2998	8	MACH.SCREW (H.H.,STL.) 3/8"-16 x 3/4" LG.
21	P 19806	10	3/8" WASHER (S.S.)
22	P 45195	10	3/8" LOCKWASHER (S.S.)
23	AAB5825	1	FRAME
24	----	1	FEED SCREW, SPOUT, TROUGH (SEE DWG. 320.055.002.010A&B)
■ 25	P 51986	1	VIBRATION PAD
■ 26	U 16116	2	1/2" CONNECTOR
■ 27	RB93 4103	19-1/4"	FLEXIBLE CONDUIT
28	AAB5807 OR	1	HIGH SPEED GEAR REDUCER (7.5 TO 1 RATIO)
	AAB5849	1	LOW SPEED GEAR REDUCER (30 TO 1 RATIO)
29	P 49934 OR	1	FEED HOPPER LINER
	P 51564	1	FEED HOPPER LINER (FOR USE WITH S.S. HOPPER)
30	PC 722	4	FEED HOPPER LINER (FOR USE WITH S.S. HOPPER)
31	P 36373	4	HEX. NUT (STL.) #8-32
32	P16533	4	MACH.SCREW 1/4"-20 x 5/8" LG. GR. 5
33	----	1	SCREW SHAFT ASSY. (SEE DWG. 320.055.005.010)
34	P 34807	4	MACH.SCREW (TRUSS.HD.,S.S.) 1/4"-20 x 1/2" LG.
35	P 29713	8	1/4" LOCKWASHER (S.S.)
36	P 53511	2	BOLT (HEX.HD.,S.S.) 3/8"-16 x 3/4" LG.
37	P 18644	2	HEX NUT (S.S.) 3/8"-16
38	P 8791	1	SET SCREW (HEX.SOC.,STL.) 5/16"-18 x 3/8" LG.
■ 40	U 22760	2	O-RING WITH RETAINER
41	P 12164 OR	1	NAMEPLATE
	● P 53637	1	FM IDENTIFICATION PLATE
42	PC 40986 OR	2	MACH.SCREW (RD.HD.,STL.) #4-40 x 5/16" LG.
	----	4	MACH.SCREW (RD.HD.,STL.) #4-40 x 5/16" LG.

NOTE: ■ PART OF G994.
 ● NOT PART OF U28539 OR U28541.
 ▲ CLASS II, DIVISION 1, GROUPS E, F & G HAZARDOUS LOCATIONS.

WHEN ORDERING MATERIAL, ALWAYS SPECIFY MODEL AND SERIAL NUMBER OF APPARATUS.

U28539: 3/4", 1 1/2", 2 1/2" & 4" FEED SCREW (LOW SPEED); U28541: 3/4", 1 1/2", 2 1/2" & 4" FEED SCREW (HIGH SPEED)

SERIES 32-055 SCR-CONTROLLED VOLUMETRIC FEEDER - PARTS LIST

Without Agitation

320.055.000.011D

ISSUE 2 4-01

32-055 VOLUMETRIC FEEDER

KEY NO.	PART NO.	QTY.	DESCRIPTION
43	P 51992	1	HOOD PANEL
44	P 51993	1	COVER PLATE
	OR		
	● P 54170	1	COVER PLATE (FOR FM IDENTIFICATION PLATE)
45	P 51996	1	HOOD
● 46	AAB5876	1	SCR CONTROL (MANUAL) (SEE DWG. 320.055.003.012)
	OR		
	AAB5924	1	SCR CONTROL (MANUAL) (AUTO-MANUAL) STOP-START (SEE DWG. 320.055.003.022A&B)
	OR		
	AAB5912	1	SCR CONTROL (MANUAL) (AUTO-MANUAL) (SEE DWG. 320.055.003.032A&B)
	OR		
	AAB5984	1	SCR CONTROL (MANUAL) AUTO mA WITH mA OUTPUT (SEE DWG. 320.055.003.042A&B)
● 47	U 28064	1	HOPPER COVER
● 48	P 50191	1	UPPER HOPPER
	OR		
	U 24575	1	UPPER HOPPER (S.S.)
● 49	P 40041	4	HEX CAP NUT (S.S.) 1/4"-20 (FOR USE WITH S.S. HOPPER)
● 50	P 50190	1	LOWER HOPPER (H739)
	OR		
	P 52828	1	LOWER HOPPER (PLASTIC) (FOR USE WITH FEEDER-MOUNTED AGITATOR MOTOR & 35 GAL. TANK - SEE ACCESSORIES BOOK)
51	P 51266	1	BASE
52	P 19888	4	1/4" WASHER (S.S.)
53	P 44568	4	SET SCREW (HEX.SOC.,S.S.) 1/4"-20 x 2" LG.
54	P 19835	4	HEX NUT (S.S.) 1/4"-20
55	P 29713	4	1/4" LOCKWASHER (S.S.)
56	L 2023	1	WARNING LABEL
57	P 50231	4	CAP SCREW (SOCKET HD.,S.S.) #10-24 x 1/2" LG.
58	P 38740	4	#10 WASHER (S.S.)
61	P 43747	4	#8 LOCKWASHER (S.S.)
62	P 43970	2	5/16" HOLE PLUG
63	P 43973	1	1-1/2" HOLE PLUG
64	P 49935	1	PLATE CLAMP
65		18"	1/8" NEOPRENE TUBING (BLACK)
66	P 50256	1	LINER SUPPORT PLATE
67	AAB5867	1	HALF KEY
68	P 16966	4	1/4" WASHER
69	P 6337	4	1/4" LOCKWACHER
70	P 16533	4	1/4-20 SCREW

NOTE: ■ PART OF G994.
 ● NOT PART OF U28539 OR U28541.
 ▲ CLASS II, DIVISION 1, GROUPS E, F & G HAZARDOUS LOCATIONS.

WHEN ORDERING MATERIAL, ALWAYS SPECIFY MODEL AND SERIAL NUMBER OF APPARATUS.

U28539: 3/4", 1 1/2", 2 1/2" & 4" FEED SCREW (LOW SPEED); U28541: 3/4", 1 1/2", 2 1/2" & 4" FEED SCREW (HIGH SPEED)

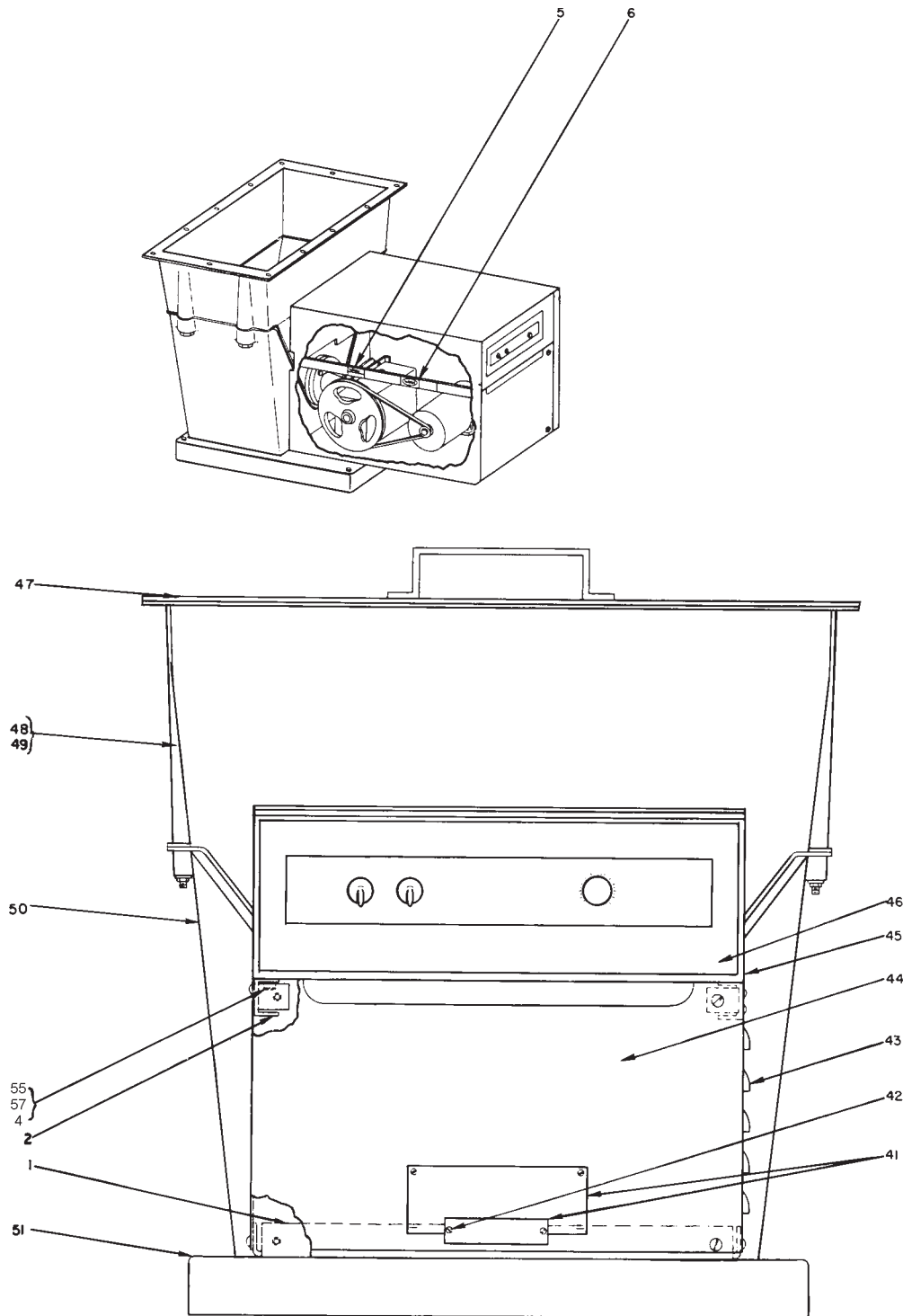
SERIES 32-055 SCR-CONTROLLED VOLUMETRIC FEEDER - PARTS LIST

Without Agitation

320.055.000.011E

ISSUE 1 9-00

32-055 VOLUMETRIC FEEDER



U28535: 3/4", 1 1/2", 2 1/2" & 4" FEED SCREW (LOW SPEED); U28537: 3/4", 1 1/2", 2 1/2" & 4" FEED SCREW (HIGH SPEED)

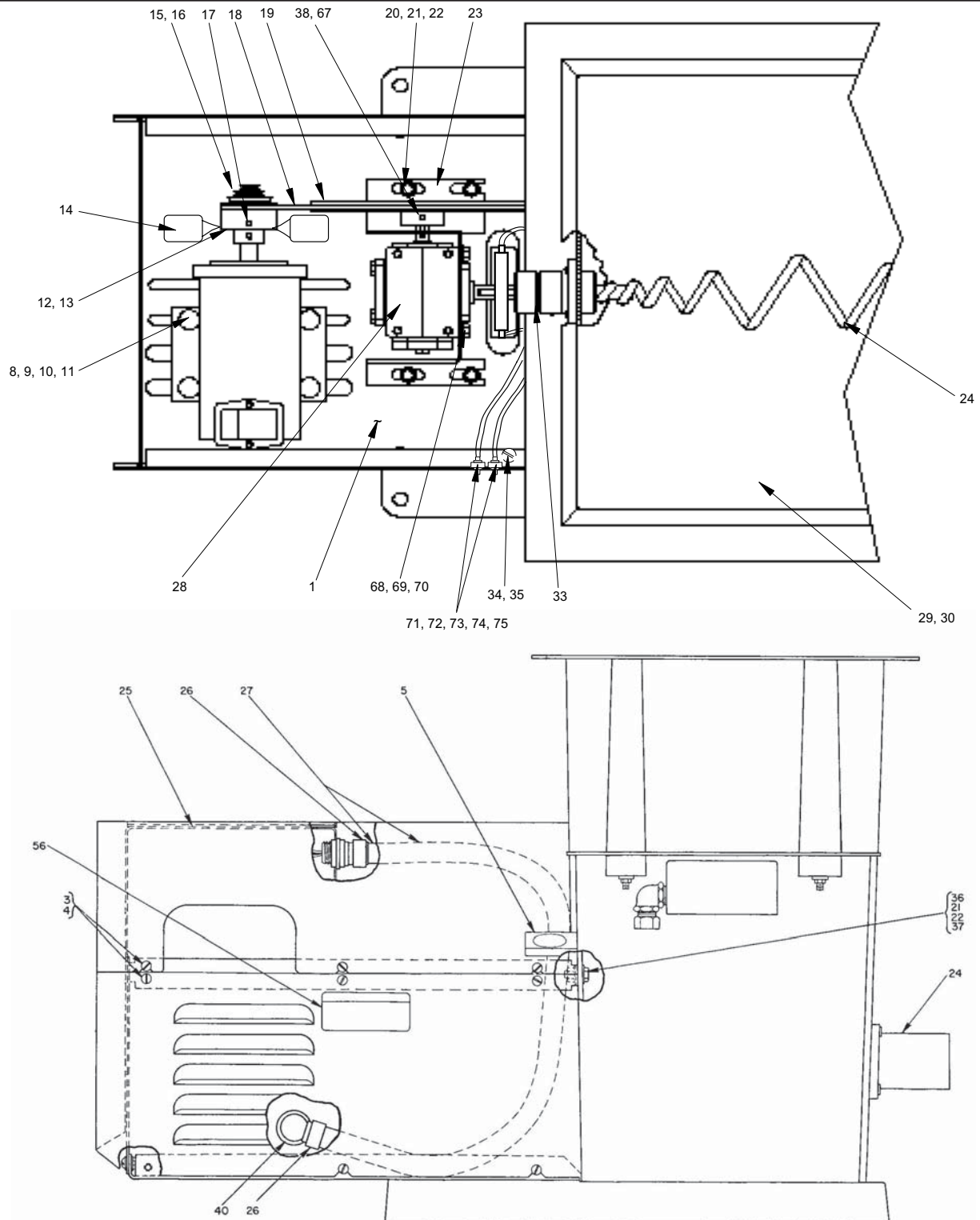
SERIES 32-055 SCR-CONTROLLED VOLUMETRIC FEEDER - PARTS

With Agitation

320.055.000.016A

ISSUE 0 9-99

32-055 VOLUMETRIC FEEDER



U28535: 3/4", 1 1/2", 2 1/2" & 4" FEED SCREW (LOW SPEED); U28537: 3/4", 1 1/2", 2 1/2" & 4" FEED SCREW (HIGH SPEED)

SERIES 32-055 SCR-CONTROLLED VOLUMETRIC FEEDER - PARTS

With Agitation

320.055.000.016B

ISSUE 2 4-01

32-055 VOLUMETRIC FEEDER

KEY NO.	PART NO.	QTY.	DESCRIPTION
1	AAB5816	1	DRIVE MOUNTING PLATE
2	P 52226	2	CHANNEL STRAP
3	P 27833	19	MACH.SCREW (TRUSS HD.,S.S.) #10-24 x 3/8" LG.
4	P 45188	19	#10 LOCKWASHER (S.S.)
5	L 2024	2	WARNING LABEL
■ 6	L 2187	1	WARNING LABEL
● 7	U 24448	1	D.C. MOTOR 1/6 H.P.
	OR		
	U 26067	1	D.C. MOTOR 1/4 H.P. (FOR 50 CUBIC FT./HR. FEED RATE REQUIREMENT)
	OR		
	▲ U 24633	1	D.C. MOTOR 1/4 H.P. (SEE DWG. 320.055.000.020)
8	PC 25706	4	CARRIAGE BOLT (RD.HD.,STL.) 5/16"-18 x 1" LG.
9	P 33720	4	WASHER (BRASS) 25/64"ID x 1-1/4"OD
10	P 43049	4	5/16" LOCKWASHER (S.S.)
11	P 887	4	HEX NUT (STL.) 5/16"-18
■ 12	FP 2436	4	MACH.SCREW (PAN.HD.,S.S.) #8-32 x 3/8" LG.
■ 13	P 43747	4	#8 LOCKWASHER (S.S.)
■ 14	P 52183	2	FAN BLADE
● 15	P 52189	1	SHEAVE
	OR		
	P 57379	1	SHEAVE (4 STEP, FOR 50 CUBIC FT./HR. FEED RATE REQUIREMENT)
	OR		
	▲ P 51891	1	SHEAVE (4 STEP)
	OR		
	▲ P 57380	1	SHEAVE (4 STEP, FOR 50 CUBIC FT./HR. FEED RATE REQUIREMENT)
■ 16	P 43740	1	KEY 3/32" x 3/16"
17	P 5804	2	SET SCREW (HEX.SOC.HD.,STL.) 1/4"-20 x 3/8" LG.
● 18	P 51148	1	BELT
	OR		
	P 49872	1	BELT (FOR 50 CUBIC FT./HR. FEED RATE REQUIREMENT)
	OR		
	▲ AAB6149	1	BELT
	OR		
	▲ P 57381	1	BELT (FOR 50 CUBIC FT./HR. FEED RATE REQUIREMENT)

NOTE: ■ PART OF G994.
● NOT PART OF U28535 OR U28537.
▲ CLASS II, DIVISION 1, GROUPS E, F, AND G HAZARDOUS LOCATIONS.

WHEN ORDERING MATERIAL, ALWAYS SPECIFY MODEL AND SERIAL NUMBER OF APPARATUS.

U28535: 3/4", 1 1/2", 2 1/2" & 4" FEED SCREW (LOW SPEED); U28537: 3/4", 1 1/2", 2 1/2" & 4" FEED SCREW (HIGH SPEED)

SERIES 32-055 SCR-CONTROLLED VOLUMETRIC FEEDER - PARTS LIST

With Agitation

320.055.000.016C

ISSUE 2 3-04

32-055 VOLUMETRIC FEEDER

KEY NO.	PART NO.	QTY.	DESCRIPTION
● 19	AAB5813 OR	1	SHEAVE
	▲ AAB5822	1	SHEAVE
20	P 2998	8	MACH.SCREW (H.H.,STL.) 3/8"-16 x 3/4" LG.
21	P 19806	10	3/8" WASHER (S.S.)
22	P 45195	10	3/8" LOCKWASHER (S.S.)
23	AAB5825	1	FRAME
24	----	1	FEED SCREW, SPOUT, TROUGH (SEE DWG. 320.055.002.010A&B)
■ 25	P 51986	1	VIBRATION PAD
■ 26	U 16116	2	1/2" CONNECTOR
■ 27	RB93 4103	19-1/4"	FLEXIBLE CONDUIT
28	AAB5807 OR	1	HIGH SPEED GEAR REDUCER (7.5 TO 1 RATIO)
	AAB5849	1	LOW SPEED GEAR REDUCER (30 TO 1 RATIO)
29	P 49934 OR	1	FEED HOPPER LINER
	P 51564	1	FEED HOPPER LINER (FOR USE WITH S.S. HOPPER)
30	PC 722	4	FEED HOPPER LINER (FOR USE WITH S.S. HOPPER)
31	P 36373	4	HEX. NUT (STL.) #8-32
32	P16533	4	MACH.SCREW 1/4"-20 x 5/8" LG. GR. 5
33	----	1	SCREW SHAFT ASSY. (SEE DWG. 320.055.005.010)
34	P 34807	4	MACH.SCREW (TRUSS.HD.,S.S.) 1/4"-20 x 1/2" LG.
35	P 29713	8	1/4" LOCKWASHER (S.S.)
36	P 53511	2	BOLT (HEX.HD.,S.S.) 3/8"-16 x 3/4" LG.
37	P 18644	2	HEX NUT (S.S.) 3/8"-16
38	P 8791	1	SET SCREW (HEX.SOC.,STL.) 5/16"-18 x 3/8" LG.
■ 40	U 22760	2	O-RING WITH RETAINER
41	P 12164 OR	1	NAMEPLATE
	● P 53637	1	FM IDENTIFICATION PLATE
42	PC 40986 OR	2	MACH.SCREW (RD.HD.,STL.) #4-40 x 5/16" LG.
	----	4	MACH.SCREW (RD.HD.,STL.) #4-40 x 5/16" LG.
43	P 51992	1	HOOD PANEL
44	P 51993 OR	1	COVER PLATE
	● P 54170	1	COVER PLATE (FOR FM IDENTIFICATION PLATE)

NOTE: ■ PART OF G994.
 ● NOT PART OF U28535 OR U28537.
 ▲ CLASS II, DIVISION 1, GROUPS E, F, AND G HAZARDOUS LOCATIONS.

WHEN ORDERING MATERIAL, ALWAYS SPECIFY MODEL AND SERIAL NUMBER OF APPARATUS.

U28535: 3/4", 1 1/2", 2 1/2" & 4" FEED SCREW (LOW SPEED); U28537: 3/4", 1 1/2", 2 1/2" & 4" FEED SCREW (HIGH SPEED)

SERIES 32-055 SCR-CONTROLLED VOLUMETRIC FEEDER - PARTS LIST

With Agitation

320.055.000.016D

ISSUE 2 4-01

32-055 VOLUMETRIC FEEDER

KEY NO.	PART NO.	QTY.	DESCRIPTION
45	P 51996	1	HOOD
● 46	AAB5876	1	SCR CONTROL (MANUAL) (SEE DWG. 320.055.003.012)
	OR		
	AAB5924	1	SCR CONTROL (MANUAL) (AUTO-MANUAL) STOP-START (SEE DWG. 320.055.003.022A&B)
	OR		
	AAB5912	1	SCR CONTROL (MANUAL) (AUTO-MANUAL) (SEE DWG. 320.055.003.032A&B)
	OR		
	AAB5984	1	SCR CONTROL (MANUAL) AUTO mA WITH mA OUTPUT (SEE DWG. 320.055.003.042A&B)
● 47	U 28064	1	HOPPER COVER
● 48	P 50191	1	UPPER HOPPER
	OR		
	U 24575	1	UPPER HOPPER (S.S.)
● 49	P 40041	4	HEX CAP NUT (S.S.) 1/4"-20 (FOR USE WITH S.S. HOPPER)
● 50	P 50190	1	LOWER HOPPER (H739)
	OR		
	P 52828	1	LOWER HOPPER (PLASTIC) (FOR USE WITH FEEDER-MOUNTED AGITATOR MOTOR & 35 GAL. TANK - SEE ACCESSORIES BOOK)
51	P 51266	1	BASE
52	P 19888	4	1/4" WASHER (S.S.)
53	P 44568	4	SET SCREW (HEX.SOC.,S.S.) 1/4"-20 x 2" LG.
54	P 19835	4	HEX NUT (S.S.) 1/4"-20
55	P 29713	4	1/4" LOCKWASHER (S.S.)
56	L 2023	1	WARNING LABEL
57	P 50231	4	CAP SCREW (SOCKET HD.,S.S.) #10-24 x 1/2" LG.
58	P 38740	4	#10 WASHER (S.S.)
61	P 43747	4	#8 LOCKWASHER (S.S.)
62	P 43970	2	5/16" HOLE PLUG
63	P 43973	1	1-1/2" HOLE PLUG
64	P 49935	1	PLATE CLAMP
65	RK374423	18"	1/8" NEOPRENE TUBING (BLACK)
66	P 50256	1	LINER SUPPORT PLATE
67	AAB5867	1	HALF KEY
68	P 16966	4	1/4" WASHER
69	P 6337	4	1/4" LOCKWACHER
70	P 16533	4	1/4-20 SCREW
71	P 59346	2	LUBE FITTING
72	P 59347	2	BULKHEAD CONNECTOR
73	P 13180	2	JAM HEX. NUT (BRASS) 3/8"-24
74	P 34439	2	POLY-FLO FITTING NUT
75	RP68 4441	20"	1/4" TUBING (BLACK POLYETHYLENE)

NOTE: ■ PART OF G994.
 ● NOT PART OF U28535 OR U28537.
 ▲ CLASS II, DIVISION 1, GROUPS E, F, AND G HAZARDOUS LOCATIONS.

WHEN ORDERING MATERIAL, ALWAYS SPECIFY MODEL AND SERIAL NUMBER OF APPARATUS.

U28535: 3/4", 1 1/2", 2 1/2" & 4" FEED SCREW (LOW SPEED); U28537: 3/4", 1 1/2", 2 1/2" & 4" FEED SCREW (HIGH SPEED)

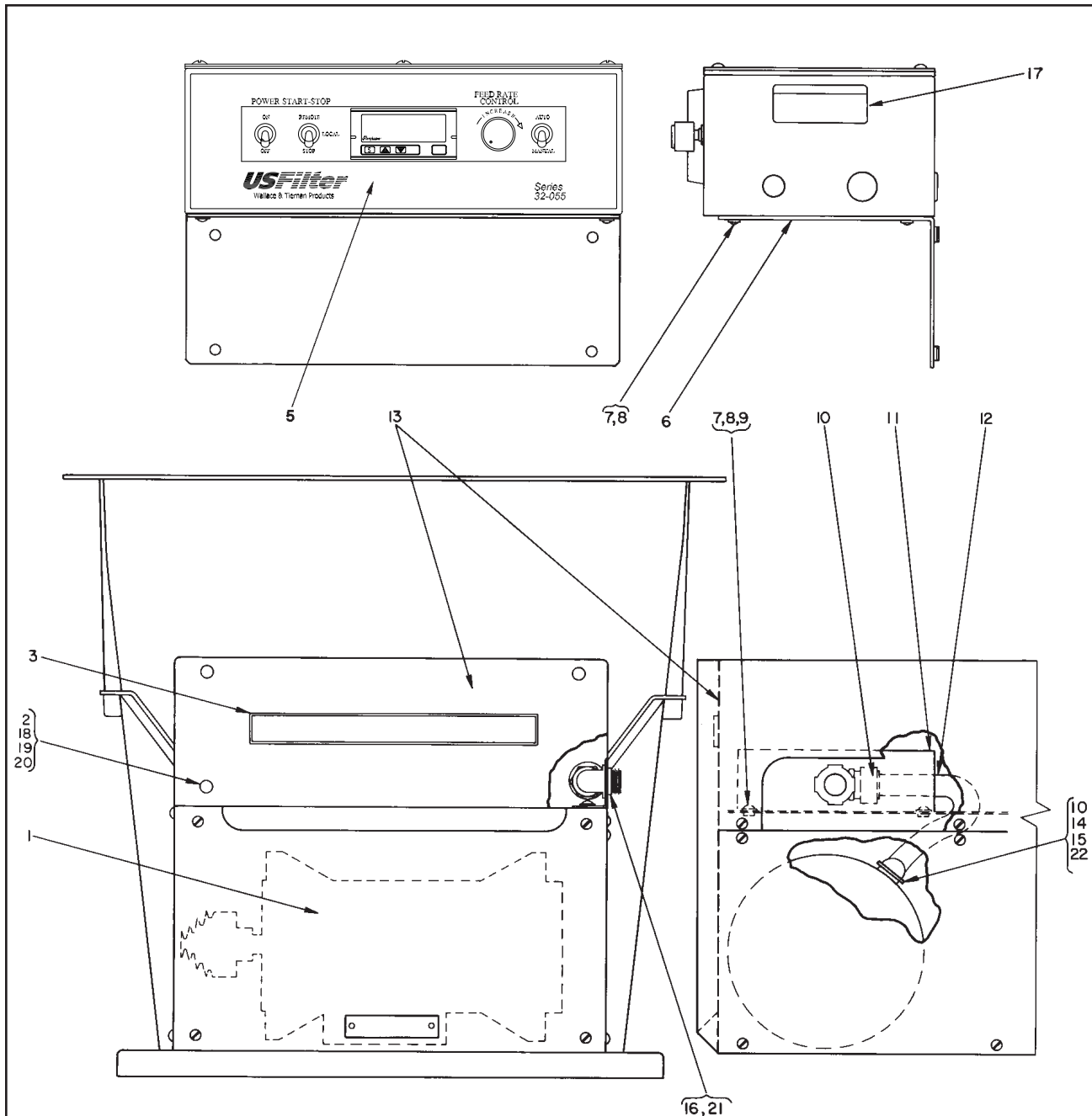
SERIES 32-055 SCR-CONTROLLED VOLUMETRIC FEEDER - PARTS LIST

With Agitation

320.055.000.016E

ISSUE 1 9-00

32-055 VOLUMETRIC FEEDER



NOTE: ILLUSTRATION MAY NOT SHOW EXACT CONFIGURATION.
SEE DWG. 320.055.000.020B FOR PARTS LIST.

SERIES 32-055 SCR-CONTROLLED VOLUMETRIC FEEDER - PARTS
Used With Remote-Mounted Control Panel

320.055.000.020A

ISSUE 9 12-01

32-055 VOLUMETRIC FEEDER

KEY NO.	PART NO.	QTY.	DESCRIPTION
* 1	U24633	1	MOTOR 1/4 H.P. (CLASS II)
▲● 2	PV43853	4	CARRIAGE BOLT (MONEL) 1/4"-20 x 1/2 LG.
▲● 3	AAA7449	1	INSIGNIA
5	AAB5876	1	SCR CONTROL MANUAL (SEE DWG. 320.055.003.012)
	OR		
	AAB5924	1	SCR CONTROL REMOTE START/STOP (SEE DWG. 320.055.003.022)
	OR		
	AAB5912	1	SCR CONTROL AUTO-mA (SEE DWG. 320.055.003.032)
	OR		
	AAB5984	1	SCR CONTROL AUTO-mA (WITH mA OUTPUT) (SEE DWG. 320.055.003.032)
■ 6	P55419	1	PANEL BRACKET (BLACK)
■◆ 7	P27833	13	MACH. SCREW (TRUSS HD., S.S.) #10-24 x 3/8" LG.
■◆ 8	P45188	13	#10 LOCKWASHER (S.S.)
▲● 9	P35110	4	HEX NUT (S.S.) #10-24
● 10	U20633	1	CONNECTOR
	OR		
▲	U19974	2	CONNECTOR
▲● 11	P52182	1	SERVICE BRACKET
▲● 12	RB934103	1'-10"	FLEXIBLE CONDUIT
▲● 13	P51995	1	PANEL BRACKET (LASER WHITE)
● 14	P14852	1	ELBOW
● 15	P48312	1	REDUCER
▲● 16	U16116	1	UNION
● 17	L 2023	1	WARNING LABEL
▲● 18	PC42705	4	3/8" WASHER (STL.)
▲● 19	PC6337	4	1/4" LOCKWASHER (CARB. STL.)
▲● 20	PC886	4	HEX NUT (STL.) 1/4"-20
▲● 21	U22760	1	SEAL O-RING RETAINER
● 22	P17932	2	3/4" CONDUIT LOCKNUT

NOTE: ◆ PART OF G992. ● PART OF G993. ▲ PART OF G995. ■ PART OF G1155.

* MUST BE USED WITH FACTORY MUTUAL RESEARCH APPROVED CLASS II, DIV. 1, GROUPS E,F&G ARRANGEMENT.

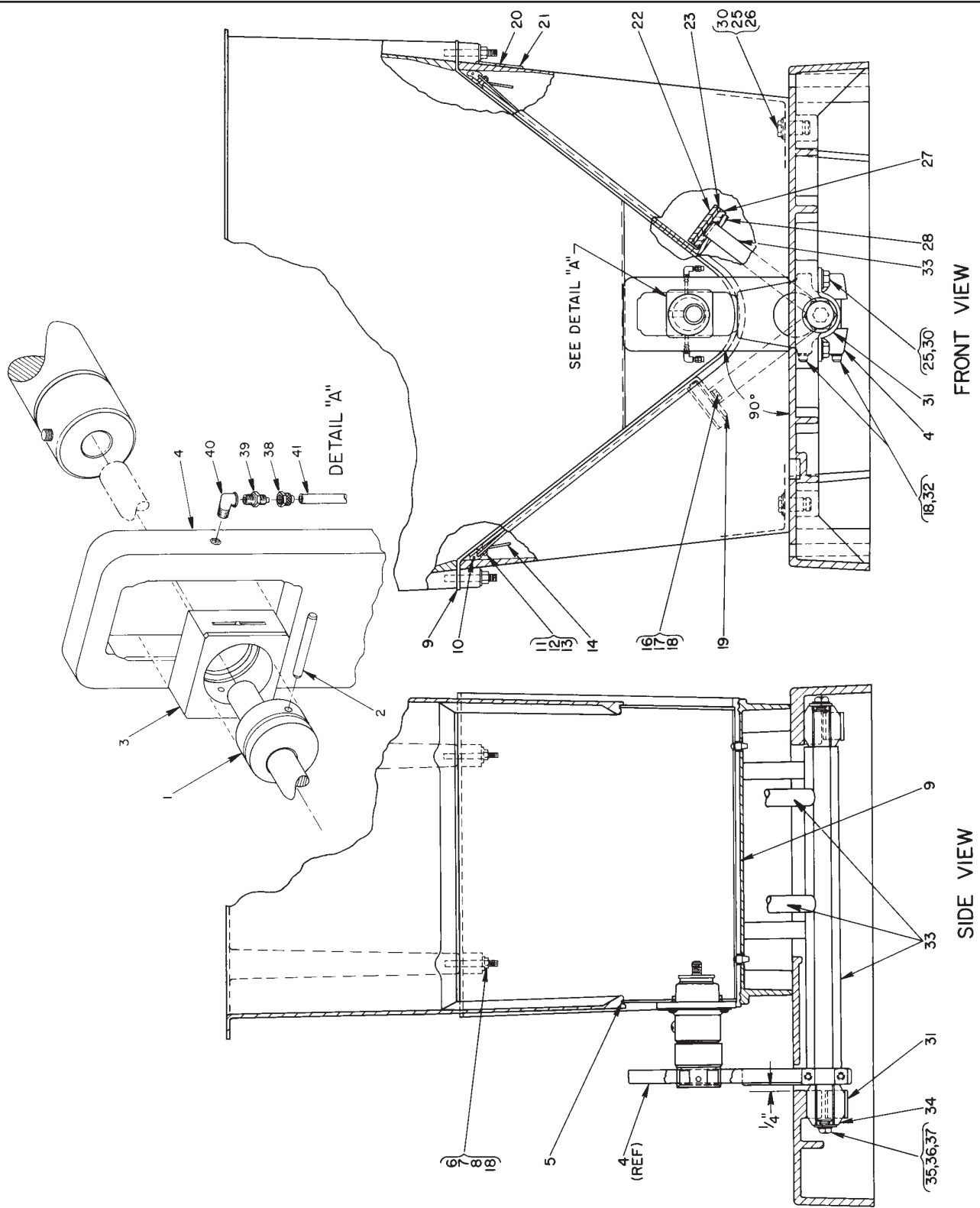
WHEN ORDERING MATERIAL, ALWAYS SPECIFY MODEL AND SERIAL NUMBER OF APPARATUS.

SERIES 32-055 SCR-CONTROLLED VOLUMETRIC FEEDER - PARTS LIST
Used With Remote-Mounted Control Panel

320.055.000.020B

ISSUE 3 3-04

32-055 VOLUMETRIC FEEDER



NOTE: FOR PARTS LIST, SEE DWG. 320.050.001.010B.

HOPPER AGITATOR - PARTS

320.050.001.010A

ISSUE 6 2-89

32-055 VOLUMETRIC FEEDER

KEY NO.	PART NO.	QTY.	DESCRIPTION
1	P 49871	1	ECCENTRIC
2	P 42854	1	DOWEL PIN (STL.) 3/16"DIA. x 1-1/4" LG.
3	P 49938	1	SLIDE BLOCK
4	P 59348	1	ROCKER ARM
5	RK37 4423	17-1/8"	TUBING, BLACK NEOPRENE 1/16"ID x 1/8"OD
6	P 19835	4	HEX NUT (S.S.) 1/4"-20
7	P 19888	4	1/4" WASHER (S.S.)
8	P 44568	4	SET SCREW (HEX.SOC.,S.S.) 1/4"-20 x 2" LG.
▲ 9	P 49934	1	LINER (BLACK, BUNA-N)
	OR		
	P 51564	1	LINER (WHITE, VINYL NITRILE)
10	P 47425	16-1/2"	RUBBER EXTRUSION
11	PC 722	8	MACH.SCREW (FLAT HD.,STL.) #8-32 x 1/2" LG.
12	PC 36373	8	HEX NUT (STL.) #8-32
13	P 43747	8	#8 LOCKWASHER (S.S.)
14	P 49935	2	PLATE
16	P 40594	8	MACH.SCREW (SOC.HD.,S.S.) 1/4"-20 x 7/8" LG.
17	P 19888	8	1/4" WASHER (S.S.)
18	P 29713	14	1/4" LOCKWASHER (S.S.)
19	P 50759	1	AGITATION PLATE (LEFT-HAND)
20	P 43970	2	7/16" HOLE PLUG
21	P 43973	1	1-1/2" HOLE PLUG
22	P 49930	4	RETAINER
23	P 49929	4	PAD CUSHION
25	P 45195	8	3/8" LOCKWASHER (S.S.)
26	P 19806	4	3/8" WASHER (S.S.)
27	P 49927	4	PAD GROMMET
28	P 50760	1	AGITATION PLATE (RIGHT-HAND)
30	PC 2998	8	MACH.SCREW (HEX.HD.,STL.) 1/4"-20 x 3" LG.
31	P 49931	2	CLAMP
32	PC 12787	2	BOLT (HEX.HD.,STL.) 3/8"-16 x 3/4" LG.
33	U 25937	1	AGITATION SHAFT UNIT
34	P 49919	2	DYNAFLEX JOINT
35	P 41340	2	MACH.SCREW (SOC.HD.,S.S.) 5/16"-18 x 3/4" LG.
36	P 43049	2	5/16" LOCKWASHER (S.S.)
37	PC 1062	2	5/16" WASHER (STL.)
38	P 34439	2	POLY-FLO FITTING NUT
39	P 52409	2	POLY-FLO MALE CONNECTOR BODY
40	P 42329	2	1/8" STREET ELBOW (BRASS)
41	RP68 4441	20"	1/4" TUBING (BLACK POLYETHYLENE)

NOTE: ▲ NOT PART OF U28535, U28536, U28537, OR U28538.

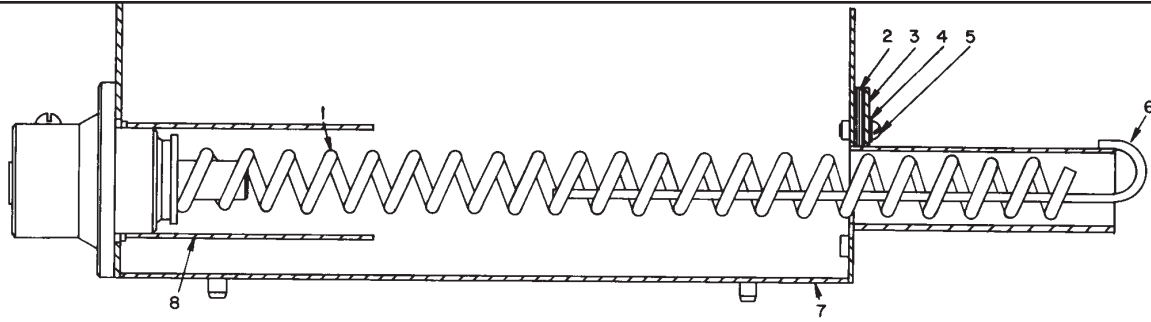
WHEN ORDERING MATERIAL, ALWAYS SPECIFY MODEL AND SERIAL NUMBER OF APPARATUS.

HOPPER AGITATOR - PARTS LIST

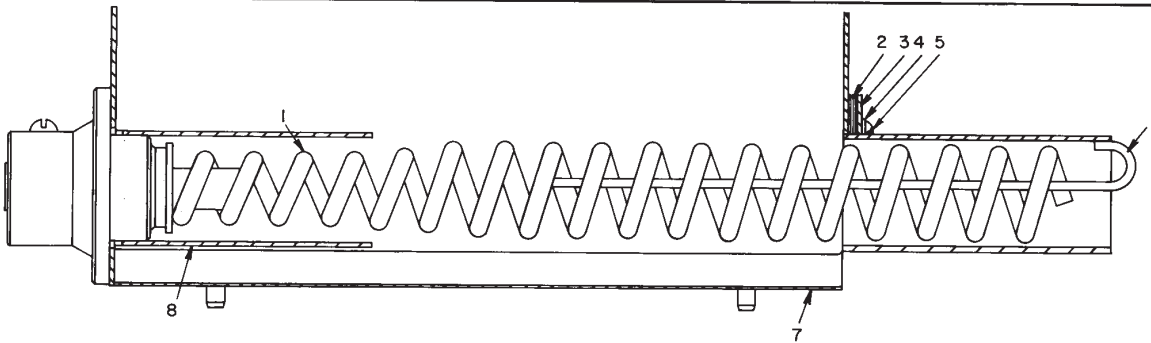
320.050.001.010B

ISSUE 9 6-98

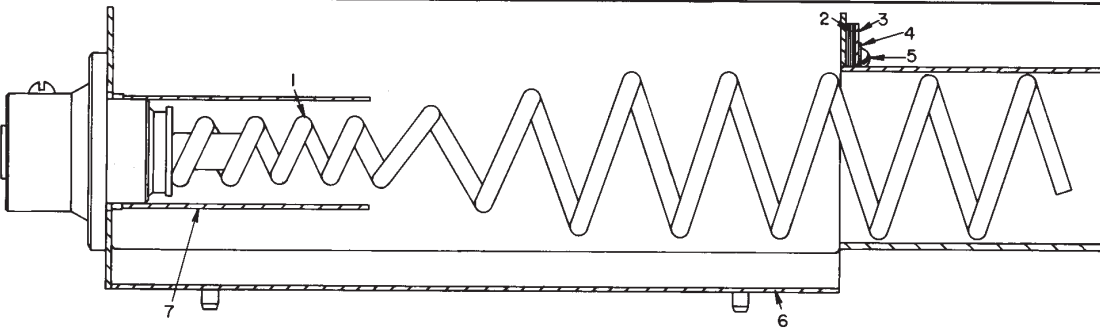
32-055 VOLUMETRIC FEEDER



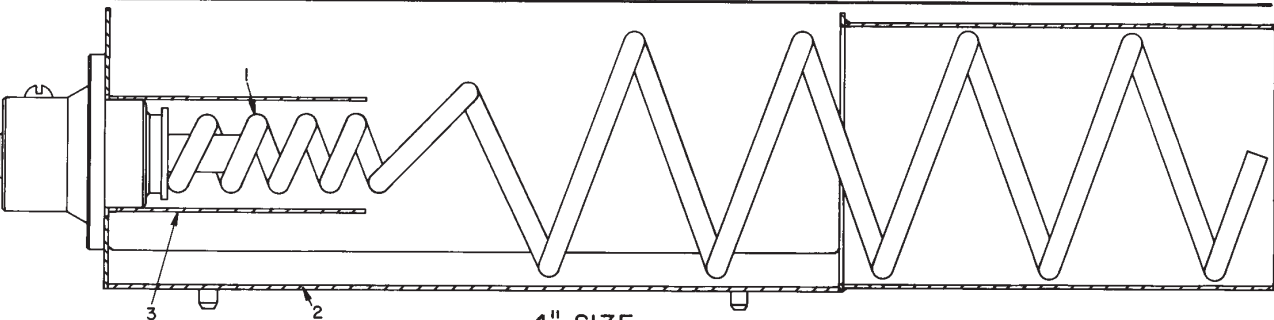
3/4" SIZE



1-1/2" SIZE



2-1/2" SIZE



4" SIZE

NOTE: FOR PARTS LIST, SEE DWG. 320.050.002.010B.

FEED SCREWS, SPOUTS & TROUGHS - PARTS

320.055.002.010A

ISSUE 1 7-80

32-055 VOLUMETRIC FEEDER

3/4" FEED SCREW			
KEY NO.	PART NO.	QTY.	DESCRIPTION
1	U 26054 OR	1	3/4" FEED SCREW
	U 26055	1	3/4" FEED SCREW (FLOUR SERVICE)
2	▲● P 53084	1	GASKET
3	■ U 25500 OR	1	FLANGED SPOUT (GRANULAR MATERIALS) 1-1/4" OD
	● U 26056 OR	1	FLANGED SPOUT (POWDERED MATERIALS) 1" OD
	▲ U 26057	1	FLANGED SPOUT (LIME APPLICATIONS) 1" OD
4	▲● P 45188	4	#10 LOCKWASHER (S.S.)
5	▲● P 40039	4	MACH. SCREW (FIL.HD.,S.S.) #10-24 x 1/2" LG.
6	-----	1	ROD - PART OF U26057 - ONLY
7	U 25407 OR	1	3/4" & 1-1/2" TROUGH
	U 28661	1	3/4" & 1-1/2" SANITARY TROUGH
8	P 52900	1	SEAL SHIELD
1-1/2" FEED SCREW			
KEY NO.	PART NO.	QTY.	DESCRIPTION
1	U 25497 OR	1	1-1/2" FEED SCREW
	U 25502	1	1-1/2" FEED SCREW (FLOUR SERVICE)
2	▼◆ P 53084	1	GASKET
3	○ U 25559 OR	1	FLANGED SPOUT (GRANULAR MATERIALS) 2" OD
	▼ U 24237 OR	1	FLANGED SPOUT (POWDERED MATERIALS) 1-3/4" OD
	◆ U 25557 OR	1	FLANGED SPOUT (LIME APPLICATIONS)
	AAB9596	1	TEFLON-COATED SPOUT (STICKY POWDERS) 1-3/4" OD
4	○▼◆ P 45188	4	#10 LOCKWASHER (S.S.)
5	○▼◆ P 40039	4	MACH. SCREW (FIL.HD.,S.S.) #10-24 x 1/2" LG.
6	-----	1	ROD - PART OF U25557 - ONLY
7	U 25407 OR	1	3/4" & 1-1/2" TROUGH
	U 28661	1	3/4" & 1-1/2" SANITARY TROUGH
8	P 52900	1	SEAL SHIELD
2-1/2" FEED SCREW			
KEY NO.	PART NO.	QTY.	DESCRIPTION
1	U 25498	1	2-1/2" FEED SCREW
2	❖ P 53085	1	GASKET
3	❖ U 25560 OR	1	FLANGED SPOUT (GRANULAR MATERIALS) 3" OD
	* U 24240	1	FLANGED SPOUT (POWDERED MATERIALS & LIME) 2-3/4" OD
4	*❖ P 45188	4	#10 LOCKWASHER (S.S.)
5	*❖ P 40039	4	MACH. SCREW (FIL.HD.,S.S.) #10-24 x 1/2" LG.
6	U 25408	1	2-1/2" TROUGH
7	P 52900	1	SEAL SHIELD
4" FEED SCREW			
KEY NO.	PART NO.	QTY.	DESCRIPTION
1	U 25499	1	4" FEED SCREW
2	U 25409	1	4" TROUGH
3	P 52900	1	SEAL SHIELD

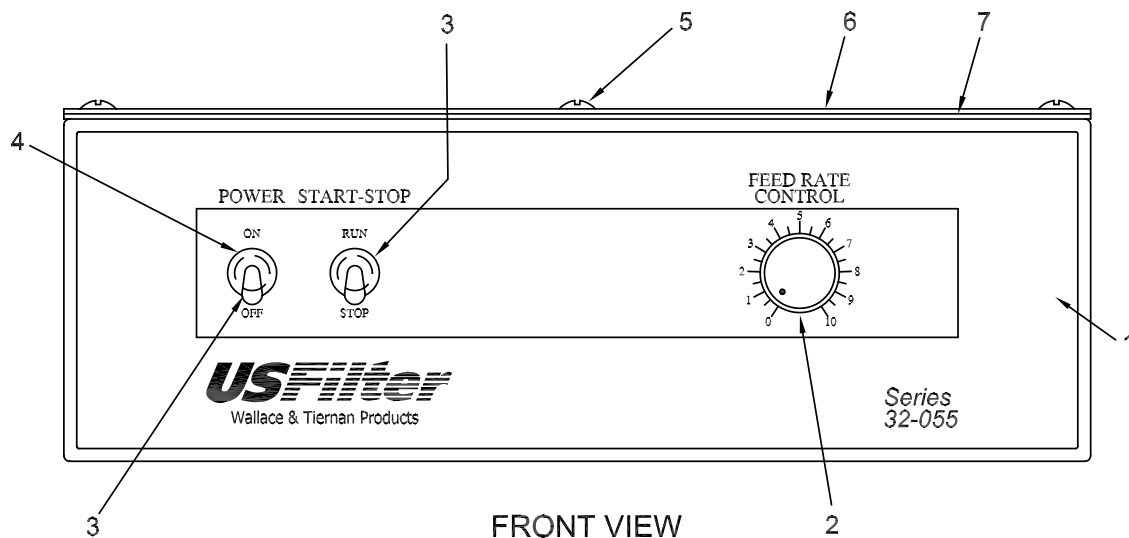
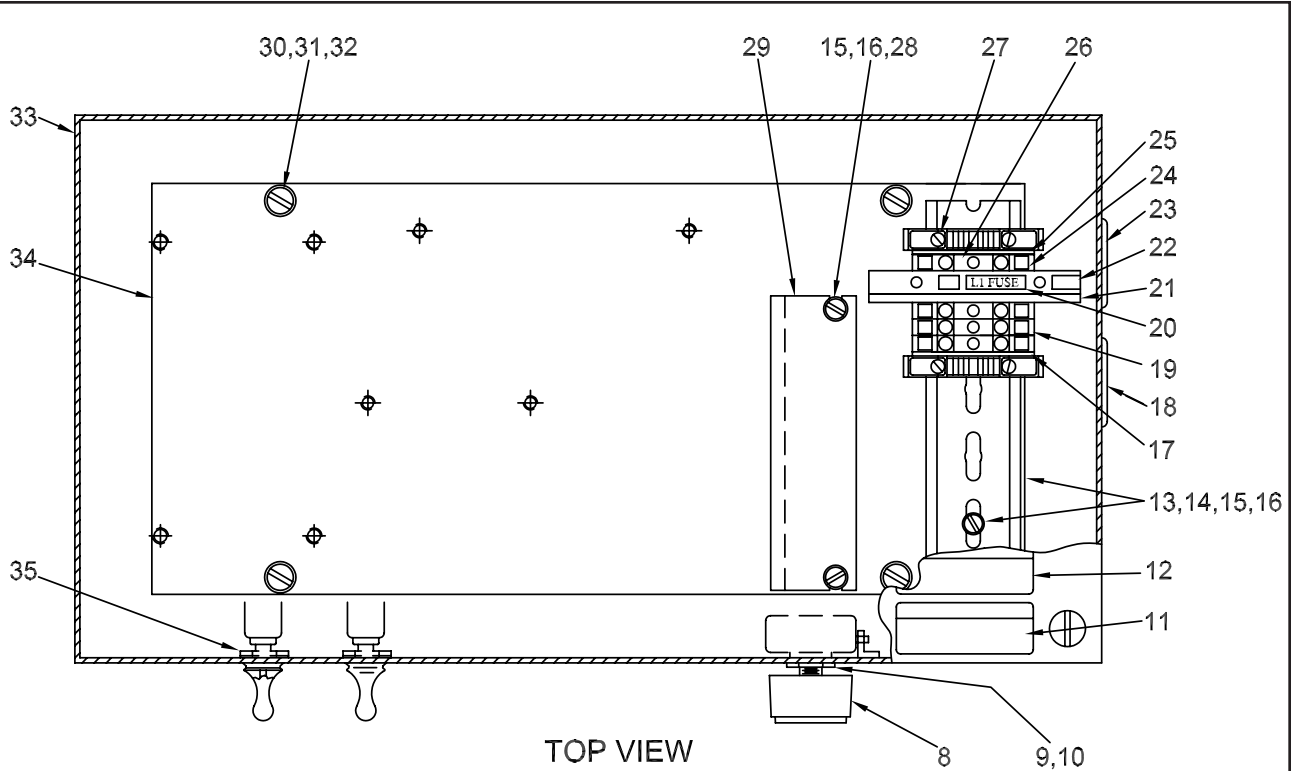
NOTE: ◆ PART OF G1308. ❖ PART OF G1311. ▼ PART OF G827. * PART OF G784.
● PART OF G1399. ▲ PART OF G1400. ■ PART OF G1290. ○ PART OF G1310.

WHEN ORDERING MATERIAL, ALWAYS SPECIFY MODEL AND SERIAL NUMBER OF APPARATUS.

FEED SCREWS, SPOUTS & TROUGHS - PARTS LIST
320.055.002.010B

ISSUE 7 3-04

32-055 VOLUMETRIC FEEDER



NOTE: FOR PARTS LIST, SEE DWG. 320.050.003.011B.

AAB5876 CONTROL PANEL - MANUAL - PARTS

320.055.003.011A

ISSUE 5 9-00

32-055 VOLUMETRIC FEEDER

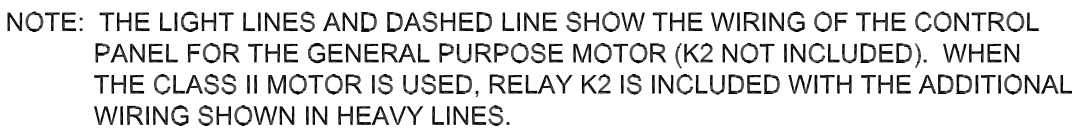
KEY NO.	PART NO.	QTY.	DESCRIPTION
1	AAB5978	1	NAMEPLATE
2	U25048	1	POTENTIOMETER 5K
3	U9812	2	SWITCH, TOGGLE
4	U25045	2	SEAL SWITCH
5	P22403	6	SCREW
6	P51991	1	COVER
	OR		
	P53451	1	COVER (FOR WALL MOUNTING)
7	P51987	1	GASKET
8	U20894	1	KNOB
9	P45195	1	WASHER 3/8" LOCK
10	P38893	1	NUT, 3/8"-32 HEX
11	L2016	1	LABEL, WARNING
12	P59440	1	LABEL, CAUTION
13	AAB5837	1	RAIL, DIN 35mm x 5.5" LNG
14	FP2436	2	SCREW 8-32 x 3/8" PAN HD
15	P43747	4	WASH. LOCK #8
16	P18143	4	WASHER FLAT #8
17	AAB4988	1	BARRIER, END, TERMINAL BLOCK
18	P51292	1	PLUG HOLE SEAL
19	AAB4991	3	BLOCK BARRIER TERM.
20	AAB5855	1	BLOCK FUSE
21	AAB5858	1	END, BARRIER, FINGER SAFE FUSE TERM.
22	AAB5891	1	FUSE, 5A SLO-BLO
23	P49255	1	PLUG PLASTIC
24	AAB5027	8	CARDS, MARKER, BLANK
25	AAB5021	1	BARRIER END, GROUND BLOCK
26	AAB4985	1	BLOCK, GROUNDING
27	AAB5018	2	END, ANCHOR
28	FP2431	2	SCREW 8-32 x 1/2 PH
29	AAB5843	1	CONTROLLER
30	PC34038	4	SCREW 10-24 x 3/8"
31	P45188	4	WASHER #10 LOCK
32	PC18141	4	WASH. #10 FLAT
33	AAB5861	1	SCR. CONTROL BOX
34	AAB5804	1	PLATE MTG.
35	P42106	2	WASHER, LOCK ST.

WHEN ORDERING MATERIAL, ALWAYS SPECIFY MODEL AND SERIAL NUMBER OF APPARATUS.

AAB5876 CONTROL PANEL - MANUAL - PARTS LIST

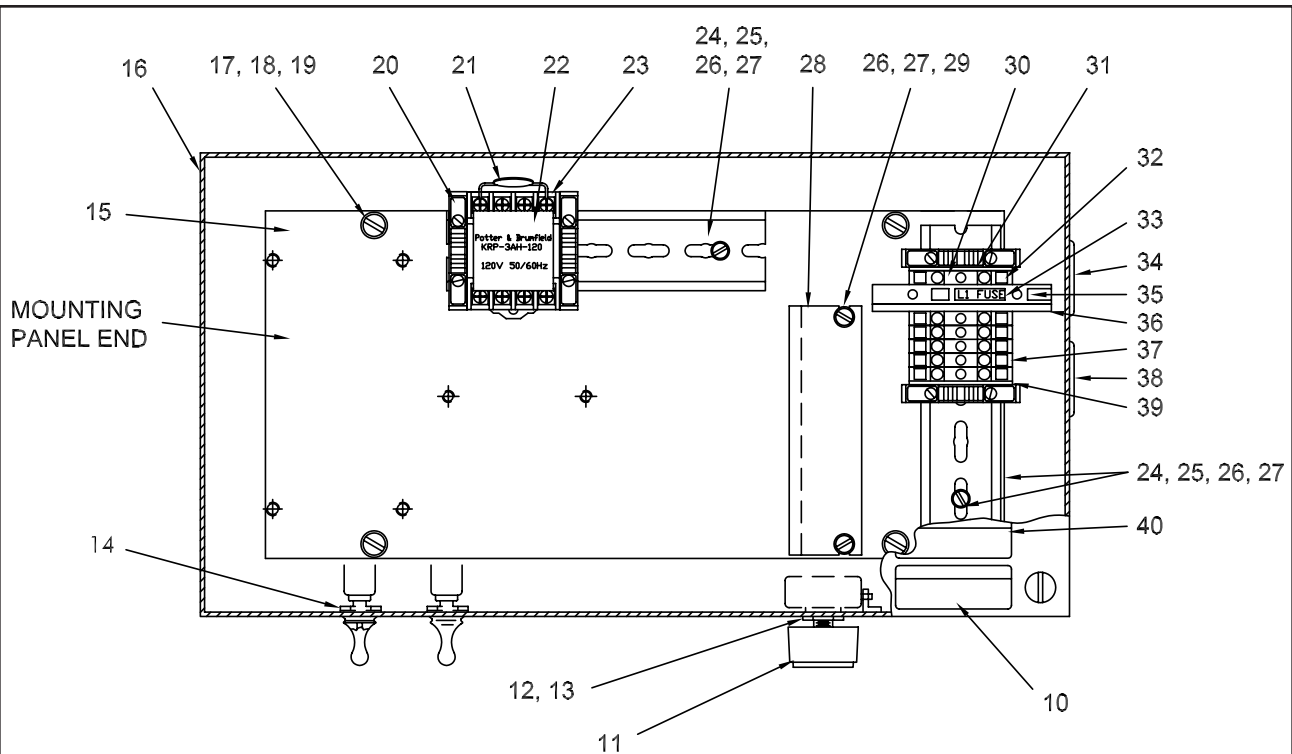
320.055.003.011B

ISSUE 2 12-01

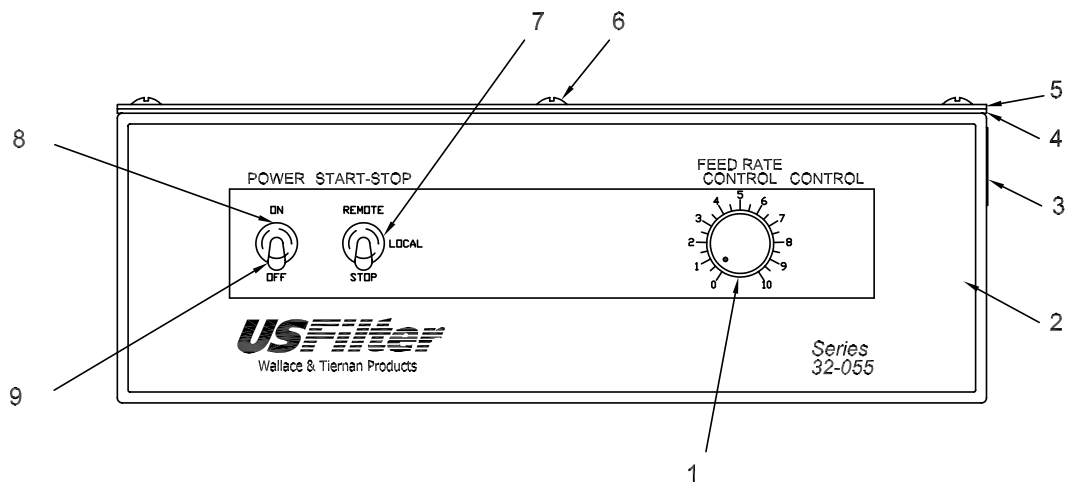


ISSUE 1 3-04

32-055 VOLUMETRIC FEEDER



TOP VIEW



FRONT VIEW

NOTE: FOR PARTS LIST, SEE DWG. 320.050.003.021B.

AAB5924 CONTROL PANEL - REMOTE START/STOP - PARTS

320.055.003.021A

ISSUE 4 3-04

32-055 VOLUMETRIC FEEDER

KEY NO.	PART NO.	QTY.	DESCRIPTION
1	U25048	1	POTENTIOMETER 5K
2	AAB5897	1	NAMEPLATE
3	P48983	1	PLATE SERIAL NO.
4	P51987	1	GASKET
● 5	P51991	1	COVER
	OR		
	P53451	1	COVER (FOR WALL MOUNTING)
6	P22403	6	SCREW
7	U24493	1	SWITCH, TOGGLE
8	U25045	2	SEAL SWITCH
9	U9812	1	SWITCH, TOGGLE
10	L2016	1	LABEL, WARNING
11	U20894	1	KNOB
12	P45195	1	WASHER 3/8" LOCK
13	P38893	1	NUT, 3/8"-32 HEX
14	P42106	2	WASHER, LOCK ST.
15	AAB5804	1	PLATE MTG.
16	AAB5861	1	SCR CONTROL BOX
17	PC34038	4	SCREW 10-24 x 3/8"
18	P45188	4	WASHER #10 LOCK
19	PC18141	4	WASH. #10 FLAT
20	AAB5018	4	END, ANCHOR
■ 21	U25053	1	VARISTOR UNIT
■ 22	UXA18488	1	RELAY
■ 23	AAB5906	1	SOCKET, RELAY
24	AAB5837	2	RAIL, DIN 35mm x 5.5" LNG
25	FP2436	4	SCREW 8-32 x 3/8" PAN HD
26	P43747	6	WASH. LOCK #8
27	P18143	6	WASHER FLAT #8
28	AAB5843	1	CONTROLLER
29	FP2431	2	SCREW 8-32 x 1/2" PH
30	AAB4985	1	BLOCK, GROUNDING
31	AAB5021	1	BARRIER END, GROUND BLOCK
32	AAB5027	12	CARDS, MARKER, BLANK
33	AAB5855	1	BLOCK FUSE
34	P49255	1	PLUG PLASTIC
35	AAB5891	1	FUSE, 5A SLO-BLO
36	AAB5858	1	END, BARRIER, FINGER SAFE FUSE TERM
37	AAB4991	5	BLOCK BARRIER TERM.
38	P51292	1	PLUG HOLE SEAL
39	AAB4988	1	BARRIER, END, TERMINAL, BLOCK
40	P59440	1	LABEL, CAUTION

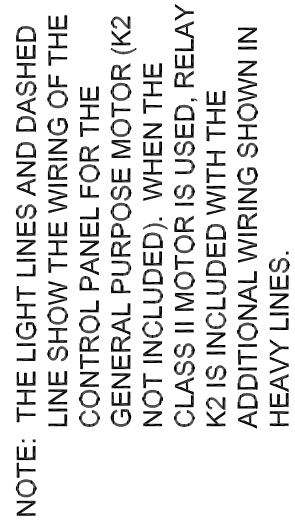
NOTE: ● NOT PART OF AAB5924.
 ■ ONE ADDITIONAL OF EACH (KEY NUMBERS 31, 32, AND 33, AS WELL AS ATTACHING PARTS) ARE REQUIRED FOR USE WITH CLASS II MOTORS.)

WHEN ORDERING MATERIAL, ALWAYS SPECIFY MODEL AND SERIAL NUMBER OF APPARATUS.

AAB5924 CONTROL PANEL - REMOTE START/STOP - PARTS

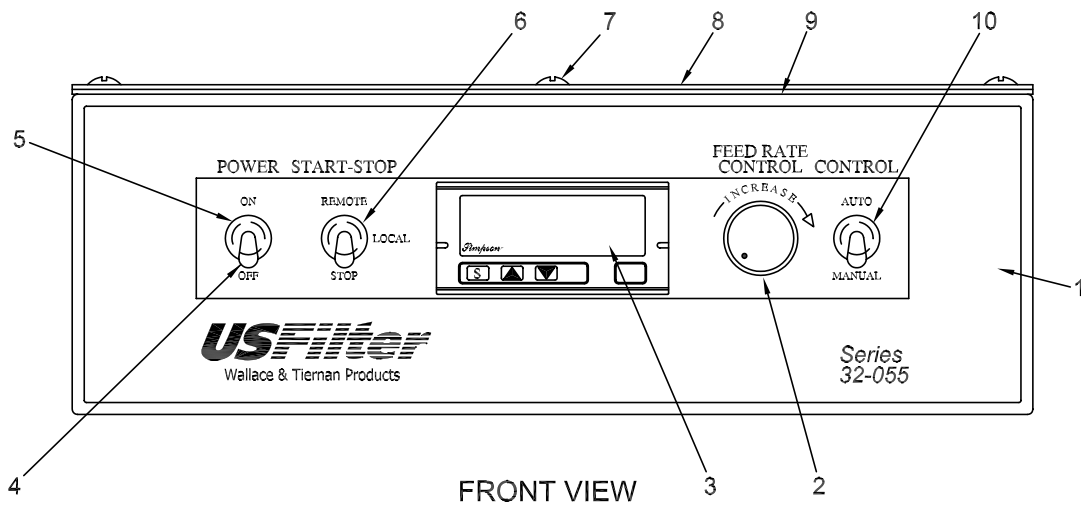
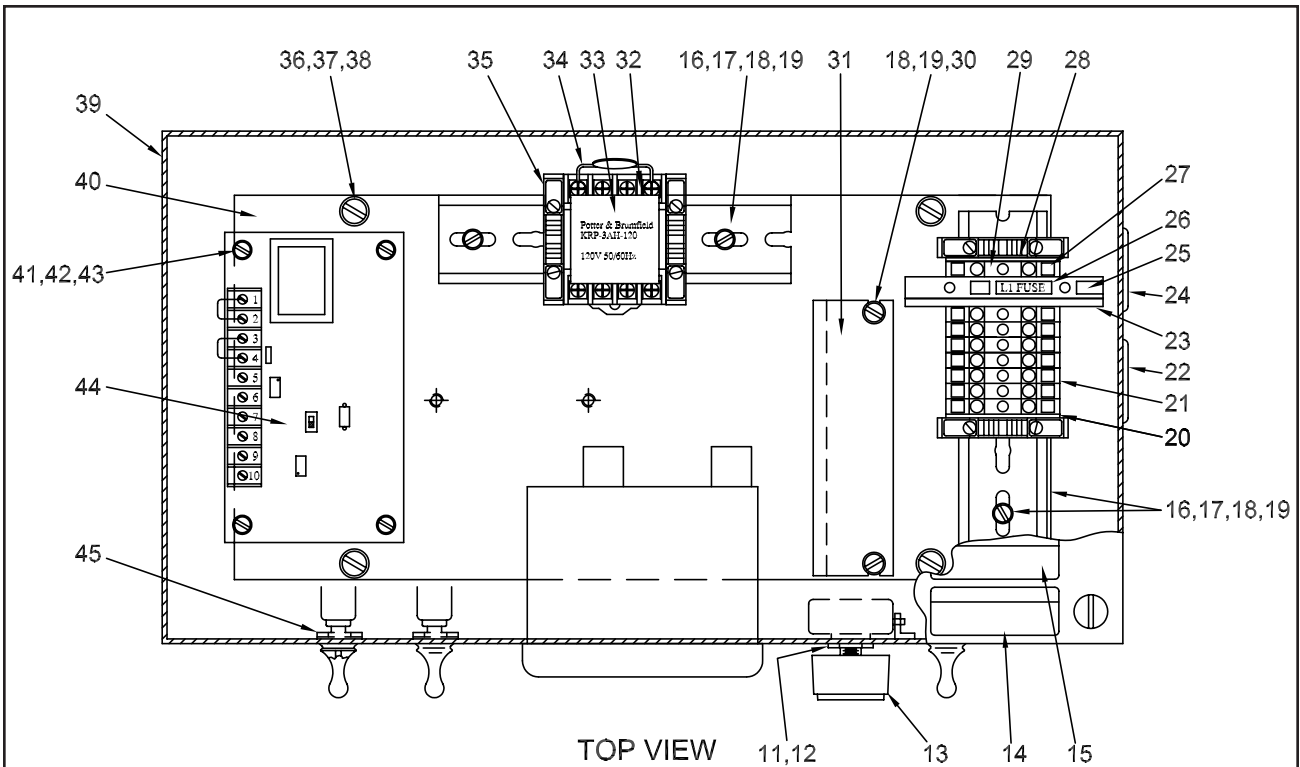
320.055.003.021B

ISSUE 5 3-04

[illegible]

320.055.155.151
ISSUE 2 3-04

32-055 VOLUMETRIC FEEDER



NOTE: FOR PARTS LIST, SEE DWG. 320.050.003.031B.

AAB5912 CONTROL PANEL - AUTO-mA - PARTS

320.055.003.031A

ISSUE 4 3-04

32-055 VOLUMETRIC FEEDER

KEY NO.	PART NO.	QTY.	DESCRIPTION
1	AAB5900	1	NAMEPLATE
2	U25048	1	POTENTIOMETER 5K
3	AAB5840	1	METER INDICATOR
4	U9812	1	SWITCH, TOGGLE
5	U25045	3	SEAL SWITCH
6	U24493	1	SWITCH, TOGGLE
7	P22403	6	SCREW
■ 8	P51991	1	COVER
	OR		
	P53451	1	COVER (FOR WALL MOUNTING)
9	P51987	1	GASKET
10	U25084	1	SWITCH TOGGLE
11	P45195	1	"WASHER 3/8" LOCK"
12	P38893	1	"NUT, 3/8" -32 HEX"
13	U20894	1	KNOB
14	L2016	1	LABEL, WARNING
15	P59440	1	LABEL, CAUTION
16	AAB5837	2	"RAIL, DIN 35mm x 5.5" LNG."
17	FP2436	4	"SCREW 8-32 x 3/8" PAN HD"
18	P43747	6	WASHER LOCK #8
19	P18143	6	WASHER FLAT #8
20	AAB4988	1	BARRIER, END, TERMINAL BLOCK
21	AAB4991	7	BLOCK BARRIER TERM.
22	P51292	1	PLUG HOLE SEAL
23	AAB5858	1	END, BARRIER, FINGER SAFE FUSE TERM.
24	P49255	1	PLUG PLASTIC
25	AAB5891	1	FUSE, 5A SLO-BLO
26	AAB5855	1	BLOCK FUSE
27	AAB5027	16	CARDS, MARKER, BLANK
28	AAB5021	1	BARRIER END, GROUND BLOCK
29	AAB4985	1	BLOCK, GROUNDING
30	FP2431	2	"SCREW 8-32 x 1/2" PH"
31	AAB5843	1	CONTROLLER
● 32	AAB5906	2	SOCKET RELAY
● 33	UXA18488	2	RELAY
● 34	U25053	2	VARISTOR UNIT
35	AAB5018	4	END ANCHOR
36	PC34038	4	"SCREW 10-24 x 3/8"
37	P45188	4	WASHER #10 LOCK
38	PC18141	4	WASHER #10 FLAT
39	AAB5834	1	SCR CONTROL BOX
40	AAB5804	1	PLATE MTG.
41	P3729	4	"SCREW 6-32 x 5/8" PAN HD"
● 42	P43816	4	WASHER LOCK #6
43	P42074	4	WASHER, #6 FLAT
44	AAB5828	1	ISOLATOR
45	P42106	3	WASHER, LOCK ST.

NOTE: ▲ NOT PART OF AAB5912.

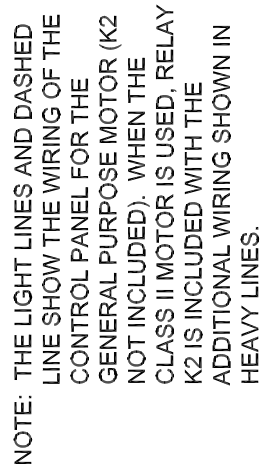
- FOR K2 RELAY USED WITH CLASS II MOTORS, THE FOLLOWING PARTS ARE REQUIRED: KEY NO. 45 (QTY.2); KEY NOS. 13 & 19 (ADD'L QTY.2); KEY NOS. 17, 18, 20 & 44 (ADD'L QTY.1).

WHEN ORDERING MATERIAL, ALWAYS SPECIFY MODEL AND SERIAL NUMBER OF APPARATUS.

AAB5912 CONTROL PANEL - AUTO-mA - PARTS

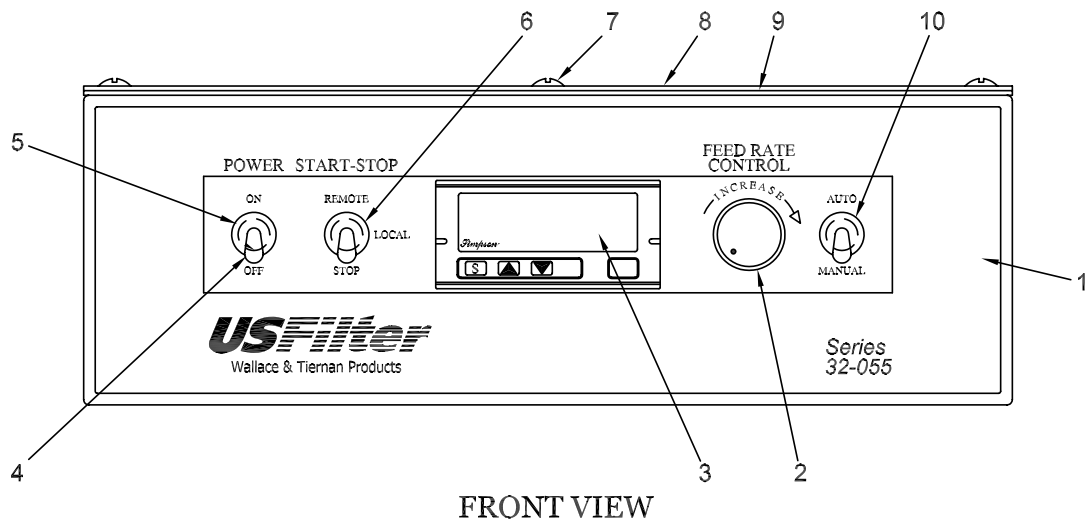
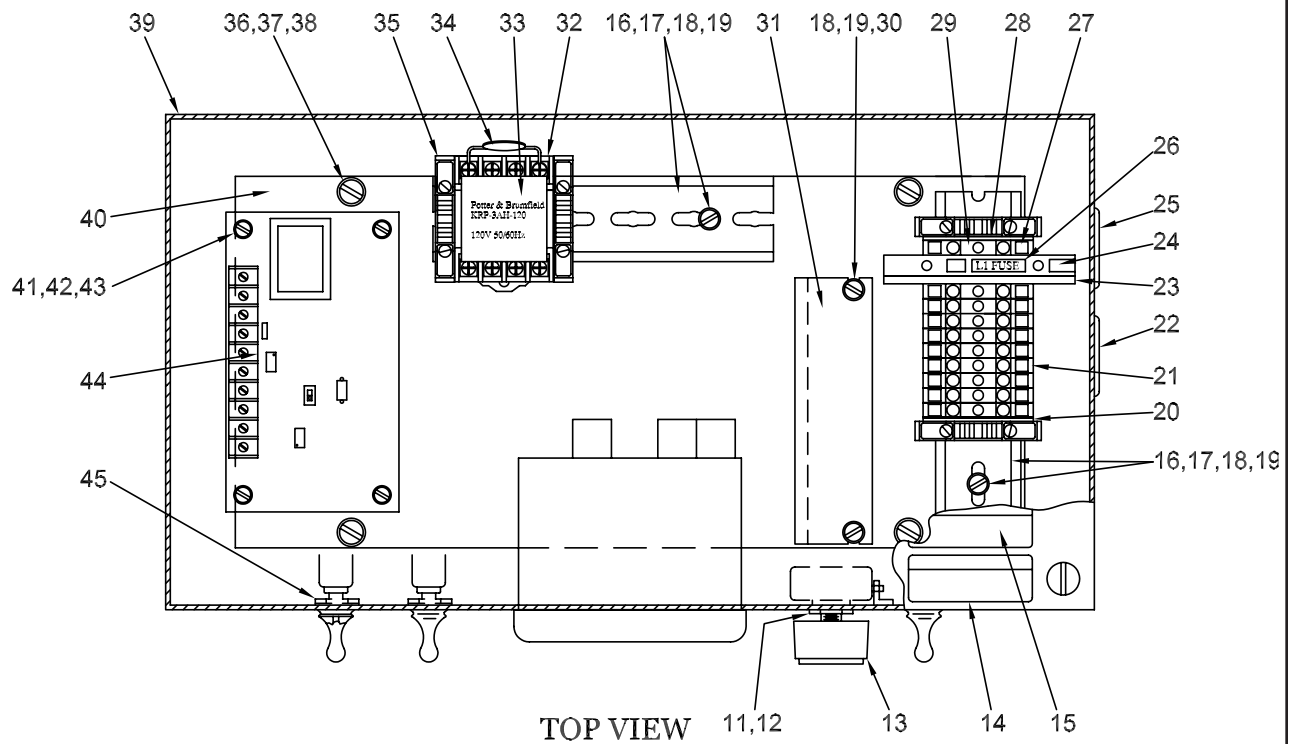
320.055.003.031B

ISSUE 6 3-04



ISSUE 1 12-01

32-055 VOLUMETRIC FEEDER



NOTE: FOR PARTS LIST, SEE DWG. 320.050.003.041B.

AAB5984 CONTROL PANEL - AUTO-mA WITH 4-20 mA TRANSMITTER - PARTS

320.055.003.041A

ISSUE 0 9-00

32-055 VOLUMETRIC FEEDER

KEY NO.	PART NO.	QTY.	DESCRIPTION
1	AAB5900	1	NAMEPLATE
2	U25048	1	POTENTIOMETER 5K
3	AAB5846	1	METER INDICATOR
4	U9812	1	SWITCH, TOGGLE
5	U25045	3	SEAL SWITCH
6	U24493	1	SWITCH, TOGGLE
7	P22403	6	SCREW
■ 8	P51991	1	COVER
	OR		
	P53451	1	COVER (FOR WALL MOUNTING)
9	P51987	1	GASKET
10	U25084	1	SWITCH TOGGLE
11	P45195	1	WASHER 3/8" LOCK
12	P38893	1	NUT, 3/8"-32 HEX
13	U20894	1	KNOB
14	L2016	1	LABEL, WARNING
15	P59440	1	LABEL, CAUTION
16	AAB5837	2	RAIL, DIN 35mm x 5.5" LNG.
17	FP2436	4	SCREW 8-32 x 3/8" PAN HD
18	P43747	6	WASH. LOCK #8
19	P56650	6	WASHER FLAT #8
20	AAB4988	1	BARRIER, END, TERMINAL BLOCK
21	AAB4991	7	BLOCK BARRIER TERM.
22	P51292	1	PLUG HOLE SEAL
23	AAB5858	1	END, BARRIER, FINGER SAFE FUSE TERM.
24	AAB5891	1	FUSE, 5A SLO-BLO
25	P49255	1	PLUG PLASTIC
26	AAB5855	1	BLOCK FUSE
27	AAB5027	16	CARDS, MARKER, BLANK
28	AAB5021	1	BARRIER END, GROUND BLOCK
29	AAB4985	1	BLOCK, GROUNDING
30	FP2431	2	SCREW 8-32 x 1/2" PH
31	AAB5843	1	CONTROLLER
● 32	AAB5906	2	SOCKET RELAY
● 33	UXA18488	2	RELAY
● 34	U25053	2	VARISTOR UNIT
35	AAB5018	4	END ANCHOR
36	PC34038	4	SCREW 10-24 x 3/8"
37	P45188	4	WASHER #10 LOCK
38	PC18141	4	WASHER #10 FLAT
39	AAB5195	1	SCR CONTROL BOX
40	AAB5804	1	PLATE MTG.
41	P3729	4	SCREW 6-32 x 5/8" PAN HD
● 42	P43816	4	WASHER LOCK #6
43	P42074	4	WASHER, #6 FLAT
44	AAB5828	1	ISOLATOR
45	P42106	3	WASHER, LOCK ST.

NOTE: ▲ NOT PART OF AAB5984.

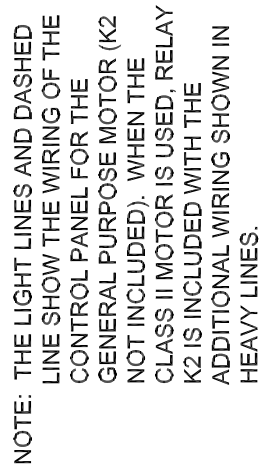
- FOR K2 RELAY USED WITH CLASS II MOTORS, THE FOLLOWING PARTS ARE REQUIRED: KEY NO. 45 (QTY.2); KEY NOS. 13 & 19 (ADD'L QTY.2); KEY NOS. 17, 18, 20 & 44 (ADD'L QTY.1).

WHEN ORDERING MATERIAL, ALWAYS SPECIFY MODEL AND SERIAL NUMBER OF APPARATUS.

AAB5984 CONTROL PANEL - AUTO-mA WITH 4-20 mA TRANSMITTER - PARTS LIST

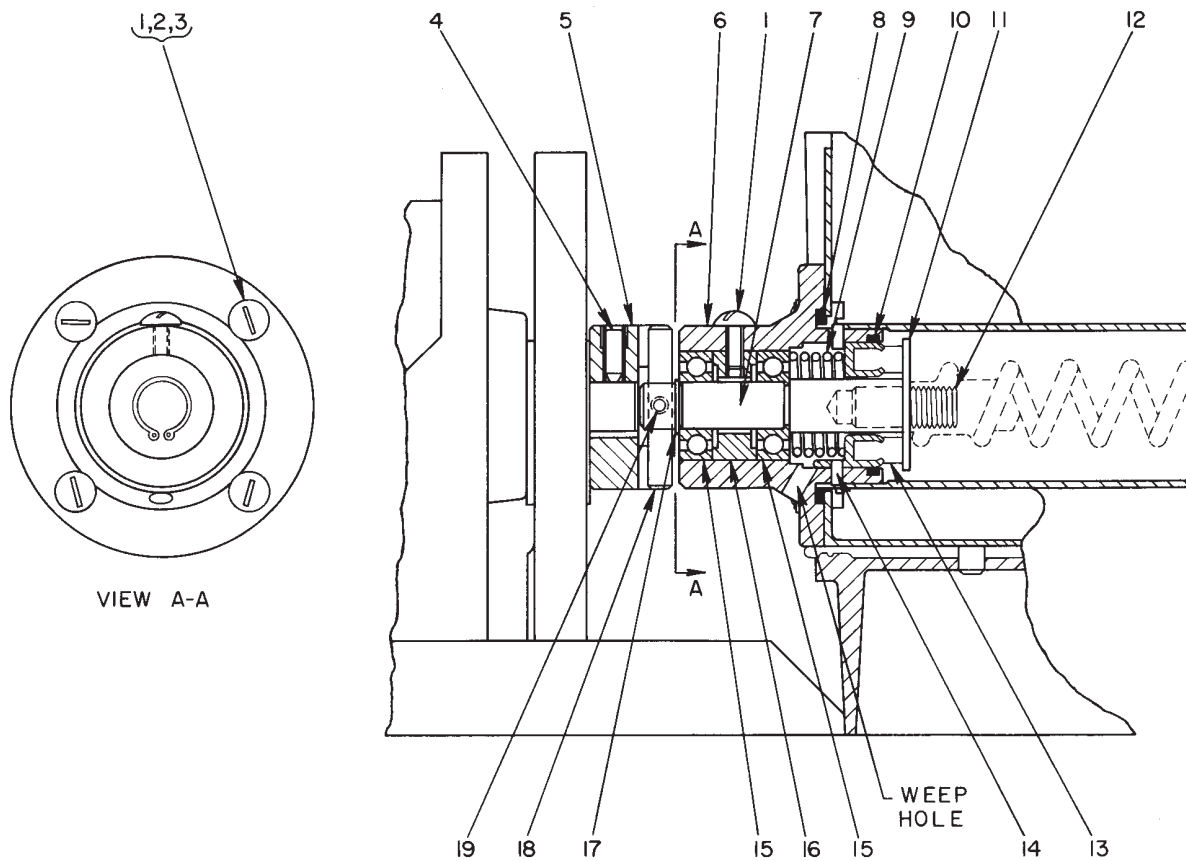
320.055.003.041B

ISSUE 0 9-00



ISSUE 0 12-01

32-055 VOLUMETRIC FEEDER



KEY NO.	PART NO.	QTY.	DESCRIPTION
1	P22403	5	MACH.SCREW (TRUSS HD.,SS) #10-24 x 1/2" LG.
2	P45188	4	#10 LOCKWASHER (SS)
3	P38740	4	#10 WASHER (SS)
4	P33773	1	MACH. SCREW (HEX SOC.,STL.) 1/4"-20 x 1/2" LG.
5	P52698	1	DRIVE COUPLING
6	P52692	1	BEARING SEAL HUB
7	P52693	1	FEED SCREW DRIVE SHAFT
8	P42180	1	O-RING (132) BUNA-N, 1-3/4"ID x 1-15/16"OD
9	P51781	1	SPRING
10	P51863	1	O-RING (125) URETHANE, 1-5/16"ID x 1-1/2"OD
11	P52696	1	1-3/8" WEAR WASHER (SS)
12	P52697	1	STUD (SS) 7/16" DIA.
13	U28700	1	ENCASED FACE SEAL
14	P52718	2	GROOV-PIN, (SS) 1/8" DIA. x 1/4" LG.
15	P47409	2	RADIAL BALL BEARING
16	P52695	1	BEARING RETAINER RING (SS) 1-1/8" DIA. (SEE NOTE)
17	PC21601	1	RETAINING RING
18	P52699	1	DOWEL PIN (STL.) 1/4" DIA. x 1-3/4" LG.
19	P47695	1	MACH.SCREW (HEX SOC.,STL.) #10-32 x 1/8" LG.

NOTE: 0.005 INCH CLEARANCE ON ONE SIDE OF BEARING RETAINER RING.

WHEN ORDERING MATERIAL, ALWAYS SPECIFY MODEL AND SERIAL NUMBER OF APPARATUS.

G1269 FEED SCREW DRIVE SHAFT ASSEMBLY - PARTS

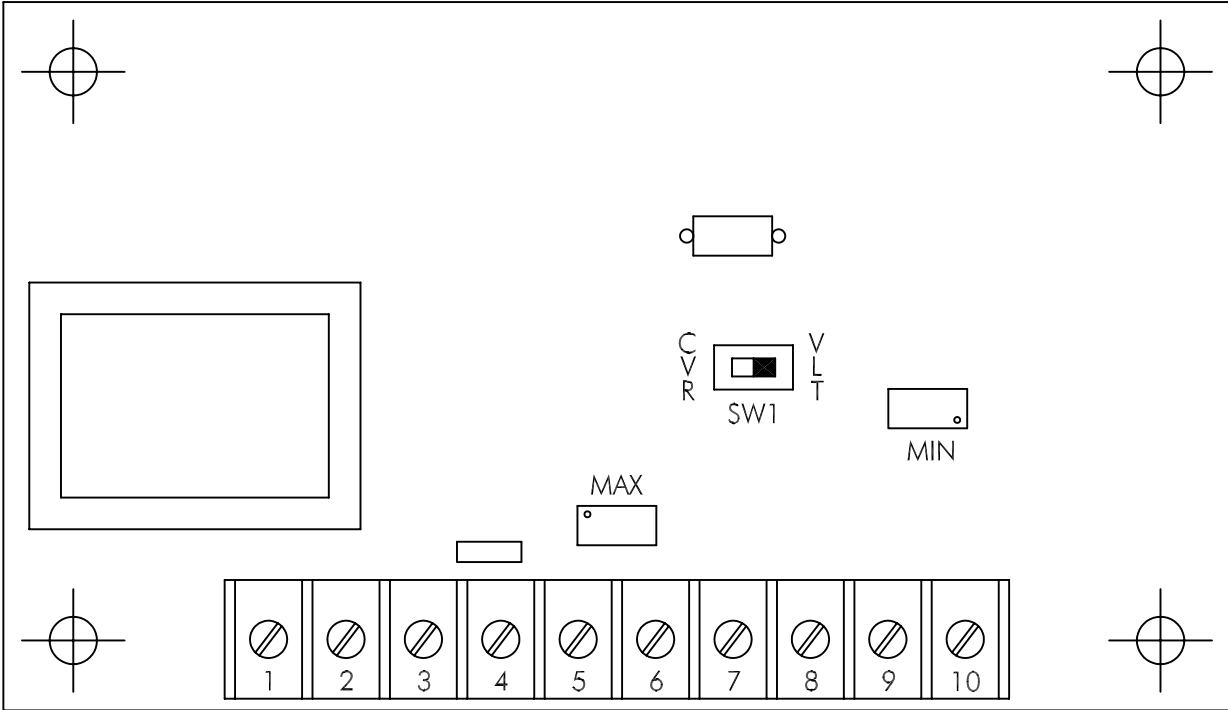
320.055.005.010

ISSUE 4 6-92



ISSUE 4 3-04

32-055 VOLUMETRIC FEEDER



AAB5828 SIGNAL ISOLATOR - PARTS

320.055.015.010
ISSUE 1 9-00

32-055 VOLUMETRIC FEEDER

SECTION 6 - SPARE PARTS LIST

<u>QTY</u>	<u>DESCRIPTION</u>	<u>PART NO.</u>
1	Belt Gates Polyflex No. 5M825 (general purpose applications)	P51148
	Belt Static Conducting Browning FHP part # 2L320	AAB6149
2	Fuse Type FNM 4 Amp.	U25043

*Must be used with the FM approved arrangement.