



201 Grandin Road  
Maineville, Ohio 45039  
(513) 677-0500

# **Extra Small (XS) Drawer<sup>TM</sup>**

## **Installation and Service Manual**

---

Copyright 2021 E. F. Bavis & Associates, Inc.  
All Right Reserved

Revised: 03/04/2021  
PN: 00763011



# Transaction Drawer™

## Table of Contents

Important Safety Instructions.....	1
Grounding Instructions .....	1
Features .....	2
Installation/Service Information .....	3
Troubleshooting .....	6
Main Exploded Parts Diagram.....	8
Drive Assembly Exploded Parts Diagram.....	9
Power Supply & Operator Switch Exploded Parts Diagram .....	10
Parts List .....	11-12
XSD Basic Wiring Diagram.....	13
Original XSD Wiring Diagram .....	14
Current XSD Wiring Diagram .....	15
Installation Dimensions .....	16
Replacement Screw Diagram.....	17
Lubrication Instructions .....	18



## **Important Safety Instructions**

1. PLEASE READ THESE ENTIRE INSTRUCTIONS BEFORE INSTALLATION AND OR SERVICING.
  2. KEEP THESE INSTRUCTIONS.
  3. HEED ALL WARNINGS.
  4. FOLLOW ALL INSTRUCTIONS.
  5. DO NOT CLEAN THIS APPARATUS WITH A WATER SPRAY OR SOLVENT BASED CLEANERS.
  6. DO NOT BLOCK ANY VENTILATION OPENINGS. INSTALL IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
  7. DO NOT INSTALL NEAR ANY HEAT SOURCES SUCH AS RADIATORS, HEAT REGISTERS, STOVES OR OTHER APPARATUS THAT PRODUCES HEAT.
  8. ONLY USE ATTACHMENTS / ACCESSORIES SPECIFIED BY THE MANUFACTURER.
  9. DISCONNECT POWER FROM THE APPARATUS BEFORE SERVICING.
  10. REFER ALL SERVICING TO QUALIFIED SERVICE PERSONNEL. SERVICING IS REQUIRED WHEN THE APPARATUS HAS BEEN DAMAGED IN ANY WAY, SUCH AS LIQUID HAS BEEN SPILLED OR OBJECTS FALLEN INTO THE APPARATUS, THE APPRATUS DOES NOT OPERATE NORMALLY.
- 

## **Grounding Instructions**

1. THIS MACHINE MUST BE CONNECTED TO A GROUNDED METAL, PERMANENT WIRING SYSTEM; OR AN EQUIPMENT-GROUNDING CONDUCTOR MUST BE RUN WITH THE CIRCUIT CONDUCTORS AND CONNECTED TO THE EQUIPMENT-GROUNDING TERMINAL OR LEAD ON THE CONVEYOR.
2. DANGER - CHECK WITH A QUALIFIED ELECTRICIAN OR SERVICEMAN IF THE GROUNDING INSTRUCTIONS ARE NOT COMPLETELY UNDERSTOOD, OR IF IN DOUBT AS TO WHETHER THE APPARATUS IS PROPERLY GROUNDED.

## XSD Features

The Extra Small (XS) Transaction Drawer™ is a grounded, permanently connected, reciprocating conveyor system for use in package passing applications. The conveyor is designed to extend from the inside to the outside of a facility. The system uses a drawer that travels approximately 30 fpm with a maximum capacity of 25 pounds.

Unlike previous transaction drawers the XSD is equipped with a teller door magnet overrun system (MOR). This system allows the teller door to be closed and opened independently of the customer door while the customer door is **closed**. This allows for less countertop obstruction in addition to additional insulation from the outdoor air.

The device is rated 115 volts ac, 60 hertz, and 1 amp.

Adjustable stainless steel flanges are provided for mounting. The flanges can be adjusted from 1-1/2" above to 1 1/2" below the top of the drawer. Please refer to drawing page 12 for installation dimensions. **Note: Use maximum 1/4" long screws when mounting the flanges to the drawer shell to prevent internal interference. 8-32 x 1/4" SEMS screws are provided.**

The drawer weighs less than 150 lbs. and can be shipped UPS to most locations.

A night latch is provided.

The drawer shell is constructed of heavy 11-gauge steel with a durable powder coated finish. Note that the top inside panel is made from stainless steel. Its large 25-pound capacity is suitable for banking, pharmacy, commercial and convenience store transactions.

The bin of the drawer is powder coated with a bright red finish and features a stop sign decal that is visible when the drawer is open. The drawer color and stop decal are designed to warn customers not to approach when the drawer is open.

Full 11 1/2" extension of drawer.

Full width bill/paper trap bar.

All of the pivot points that rotate less than 360° feature long life brass construction. All points that rotate more than 360° have high quality ball bearing construction.

No wiper or sliding type weather seals. Our seals are replaceable and operate in compression to reduce wear and provide the best possible protection from the elements.

There are no roller type drawer guides, which are easily jammed with paper clips and coins. The drawer guides are manufactured from a High-Tech lubricated material designed and built specifically for this application.

No gearboxes are used. The XSD features a quiet belt driven direct shaft drive.

The DC drive features quick stop electronic braking action with the operating force electronically limited to 40 pounds. This also eliminates the need for troublesome limit switches.

A momentary switch with class II wiring is provided for operating the drawer. The switch is supplied with a mounting plate. The switch location is up to the installer and can be mounted in

the counter top.

There are no fuses to replace. Overcurrent protection is provided by means of a 1 amp resettable circuit breaker built up to mid-2017, which is on the front of the remote power supply box. The drawers built after mid-2017 have a self-resetting 1 amp circuit protection device on the drive board.

There is a safety plate on the teller opening. This safety plate stops the outward movement of the drawer if there is anything caught between the teller door and the bin. The safety plate is self-resetting.

An optional customer audio panel with speaker, microphone and call button is available in both a 1" deep for mounting on the wall surface and in a flat version that can be mounted flush to the wall. Additionally, there is a bay kit available for the purpose of retrofitting bay window applications with 5 degree tilt to the customer door arms, customer door, and trim. All styles can be ordered to work with the BavSonic™ or BavCom™ type audio system.

- An optional manual operation kit is available.
- An optional heater is available.
- An optional Auto Recall Switch is available.

Please contact the factory part numbers and specifications of these items. (513) 677-0500

## **Installation/Service Information**

**CAUTION: If your mounting configuration results in the back panel hex head mounting screws being exposed, please note that they can catch on clothing and should be replaced with the truss head screws provided (see page 13).**

### **Red Bin Removal**

To remove the red bin it is necessary to disconnect the nut plate from the drive bar of the drawer. There are two 1/4-20 nuts and fender washers that have to be removed. After the nuts and washers are removed, the drawer can be slid out from the outside. **Note: After the nut plate is detached, the Teller Door can push on the drawer and it may slide all the way out of the shell.**

Reinstalling the drawer is as simple as sliding the drawer back into position. The nut plate should be near the rearmost position. Insert the two 1/4-20 studs of the drive bar through the nut plate and re-install the nuts and washers. **Note: DO NOT OVER TIGHTEN THE NUTS!! After tightening the nuts, verify that the red bin is centered, left to right, in the guide tracks at both ends of its travel. If the drawer binds or has no play, loosen the 1/4-20 bolts, readjust the bin position, tighten the 1/4-20 nuts and test again.**

### **Customer Door Removal**

To make installation of the XSD easier from the inside, it is possible to remove the customer door. Note that the red bin must be released from the nut plate as described in the previous section. Slide the bin out until the teller door is closed and the customer door pivot posts are exposed. Carefully remove the "E" clips and washers from each side. Take the arms off of the pivot posts by gently spreading the customer door actuator arms outward until they clear the pivot posts. **Note that there**

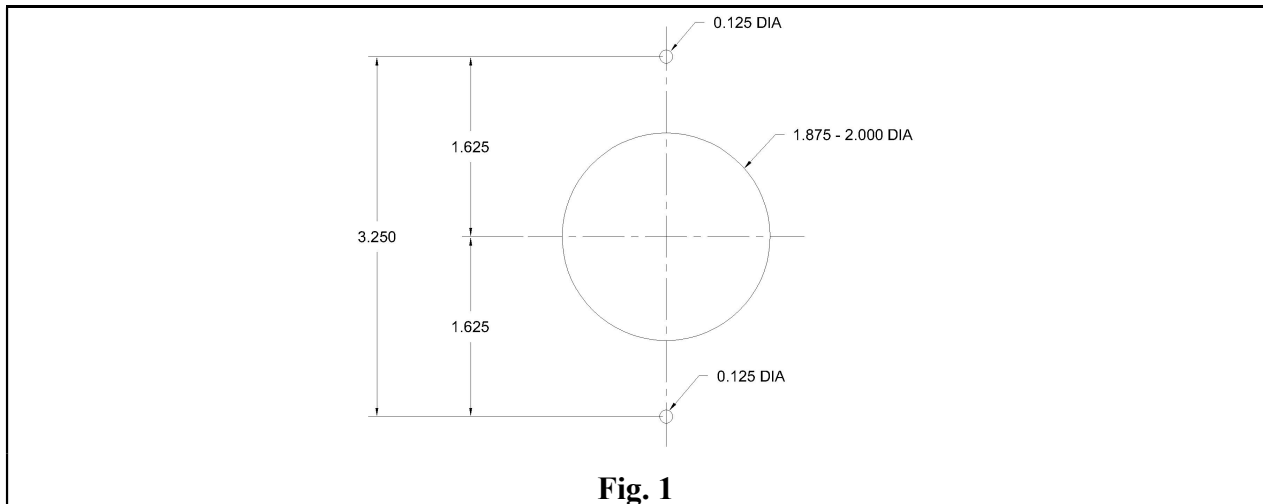
**are washers on both sides of the customer arms.** Remove the customer door. Reverse the steps to reinstall the customer door. **Note that there should be one washer inside and one washer outside of each arm before reinstalling the "E" clips.**

The customer door gasket works best if the XSD is installed so the gasket on the customer door contacts the drawer's outer shell first, before contacting supporting wall or audio panel.

## Servicing the Inside of the Drawer

Access to the inside of the drawer is generally through the back . There are three screws on the face and two on the bottom that hold the back panel in place.

### Switch Installation



The power present at the switch is at 24vdc, inherently limited to less than 100va, which by National Electrical Code is a class II level. In most areas, this jacketed wiring can be run open without the need for conduits. The wiring should be secured to prevent it from being pulled, disconnected, or damaged. Please refer to drawing on page 14 for complete wiring diagram.

The switch is supplied with a mounting plate. The switch can be installed into the counter. If the switch assembly needs to be installed into the top or back of the Transaction Drawer™, please contact the factory first.

**Caution: Before drilling any holes, please check the backside of the location for the switch to insure that there is nothing in its way that would prevent the switch from being installed or the drilling would harm. The switch and wiring protrudes 1-1/4" into whatever it is mounted to.**

Fig. 1 shows the proper dimensions for the hole layout to install the switch. Locate the center for the switch. The screw holes for mounting the switch plate are 3-1/4" apart. These holes will be on the centerline for the switch hole. The mounting plate holes can be pre-drilled at this time or marked and drilled after the switch hole is drilled. The hole for the switch needs to be 1-7/8" to 2" in diameter. An acceptable hole can be made with a spade bit or hole saw in countertop.

The operator switch electrical connection is via a 22-gauge 4-conductor cable. The cable and switch assembly are both equipped with mating 4 position connectors.



After making the electrical connection to the switch, test the drawer for proper operation. Normal orientation is such that when the switch furthest away is pressed, the drawer runs out. Place the switch into the hole and secure with the appropriate screws. Flat head sheet metal screws are provided for in-counter installation.

### **Field Wiring Connections**

The device is rated 115 volts ac, 60 hertz, and 1 amp. The field wiring connection is via leads on the interior of the remote control box. A strain relief is provided for a power cord (not supplied) if allowed by all applicable code. The power connection should be made by qualified personnel in a workmanship like manner according to all applicable national, state and or local codes having jurisdiction.

### **Servicing the Electrical Controls**

***Warning - Risk of electrical shock - Disconnect power before servicing.***

The electrical components are located in a stainless steel remote control box.

There is a transformer that supplies the 36vac that the drawer operates on from the 115vac input power. A resettable circuit breaker is between the 36vac output and the control board. The control board supplies the 32vdc and electronic braking circuitry to the motor that runs the drawer. When the drawer is stalled out, the force goes to a maximum of 40 pounds at approximately 7vdc and .9 amps of power. The control board also creates a class II power circuit that connects to the switch, which allows the operator to run the drawer in and out.

The switch is momentary operation, when no direction is selected the board applies a dynamic brake to the motor which stops the drawer instantly and prevents creeping of the drawer.

The control board has failsafe devices that limit the power to safe levels in the event of a voltage regulator failure. If these devices have been tripped, the board must be returned to the factory for service.

### **Closing Drawer Manually**

In case of a power failure, forcing the drawer closed can cause damage to the drawer. Without the manual operation kit, the drawer can be closed by pushing **slowly** and **evenly** on the customer door so that it runs back inside.

## Troubleshooting

### Drawer won't work...

Is AC power on? If not, restore power.

Breaker tripped? Reset breaker if tripped.

Is the drawer jammed? If the drawer is jammed, correct the problem.

### Drawer won't run out...

Check that the night latch is set to unlock.

Check safety bar operation.

### Drawer won't close fully...

Check that the night latch is set to unlock.

After completing the above, if a problem continues, contact a qualified service person to perform the following tests.

Problem	Action
Motor won't run	Check with meter for 36 - 42Vac at W1 and W2 on the control board for 36V Transformer and 28 – 33 Vac for 28V Transformer
No power to control board	Check circuit breaker for continuity with power disconnected, (if so equipped).
No continuity through circuit breaker	Replace circuit breaker
Continuity through the breaker but no power to control board	Replace the transformer
If the 36Vac is present at W1 and W2	Press direction button, listen to hear if a relay clicks
Relay does not click	Check for 24Vdc power between GREEN&WHITE, GREEN&BLACK and GREEN&RED wires at switch
No 24Vdc power	Replace the control board
24Vdc power is present	Check switch for continuity between terminals with wires disconnected and while activating switch
No continuity through switch when "ON"	Replace switch
Continuity when switch is activated	Check for 28 - 30Vdc to motor
No voltage at motor when switch "ON"	Replace control board
8Vdc at motor when switch "ON"	Check for jammed drawer
28 - 30Vdc at motor when switch "ON"	Replace the motor

**Operator Switch Cable Functions;**

White = +24Vdc.

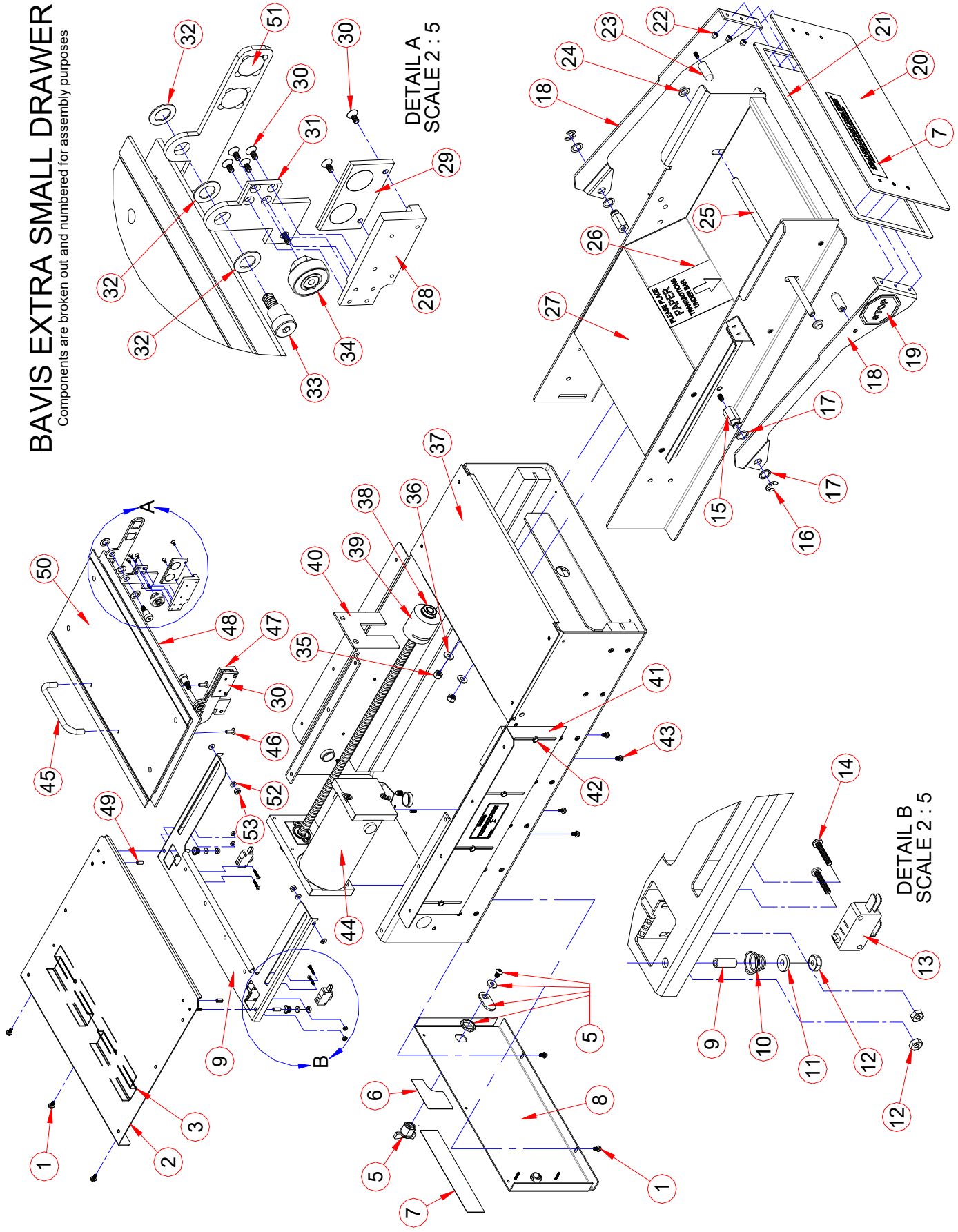
Green = Vdc Common

Red = Run drawer out by shorting to Green wire.

Black = Run drawer in by shorting to Green wire.

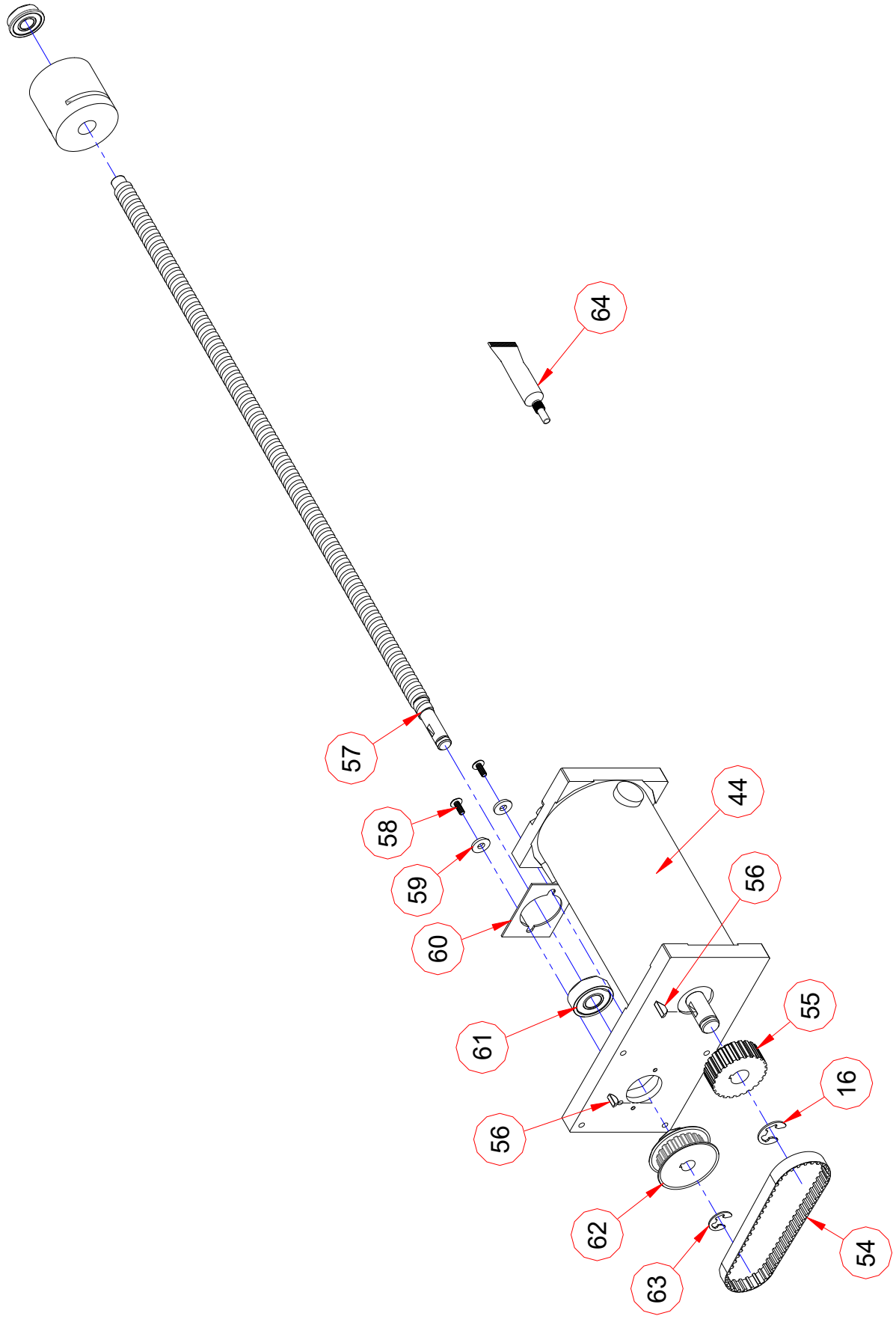
# BAVIS EXTRA SMALL DRAWER

Components are broken out and numbered for assembly purposes

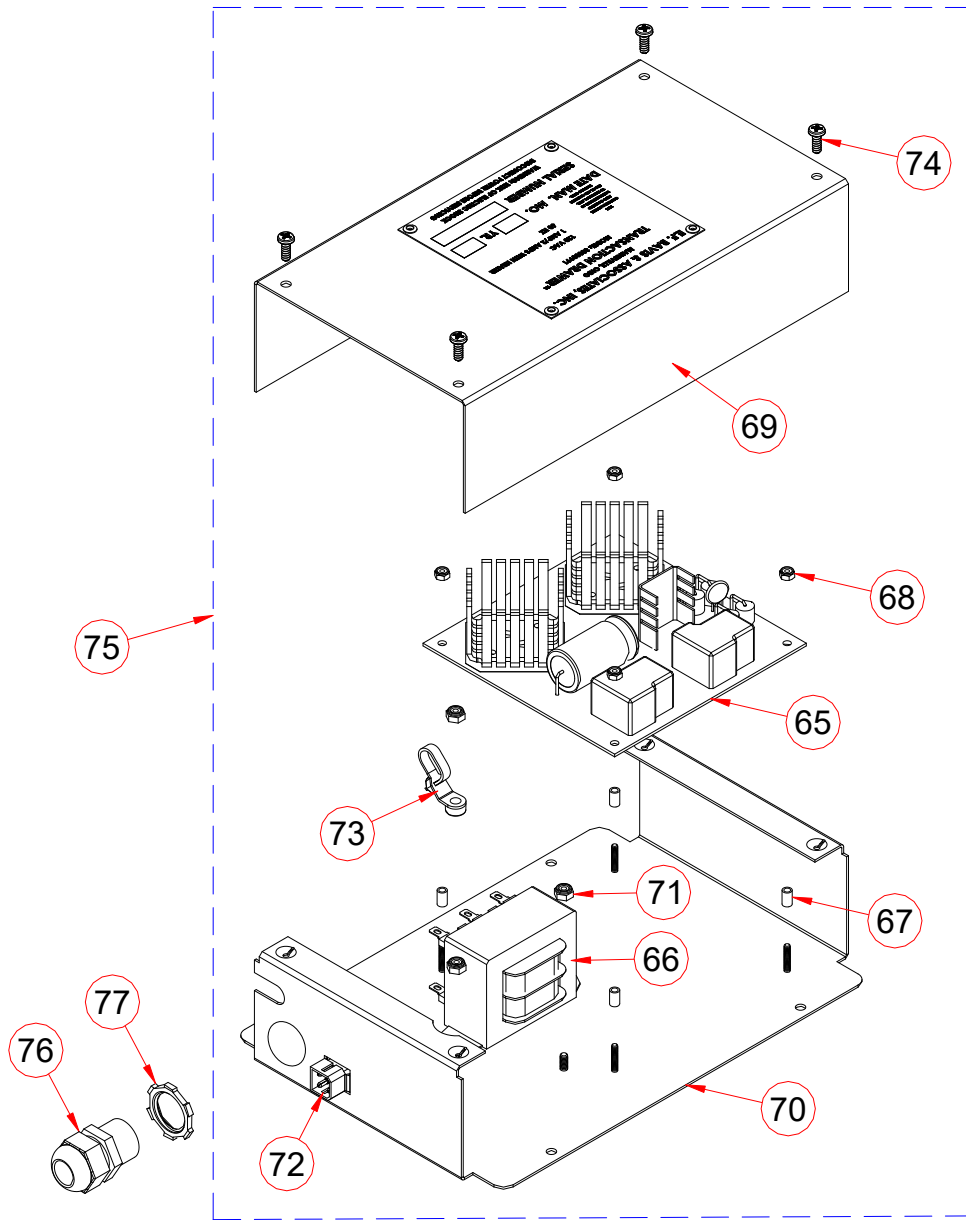


# BAVIS EXTRA SMALL DRAWER DRIVE ASSEMBLY

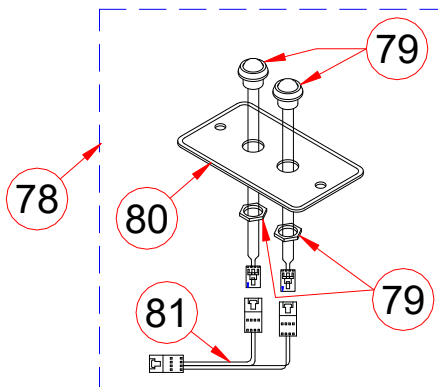
Components are broken out and numbered for assembly purposes only.



# XSD Power Supply



# Operator Switch



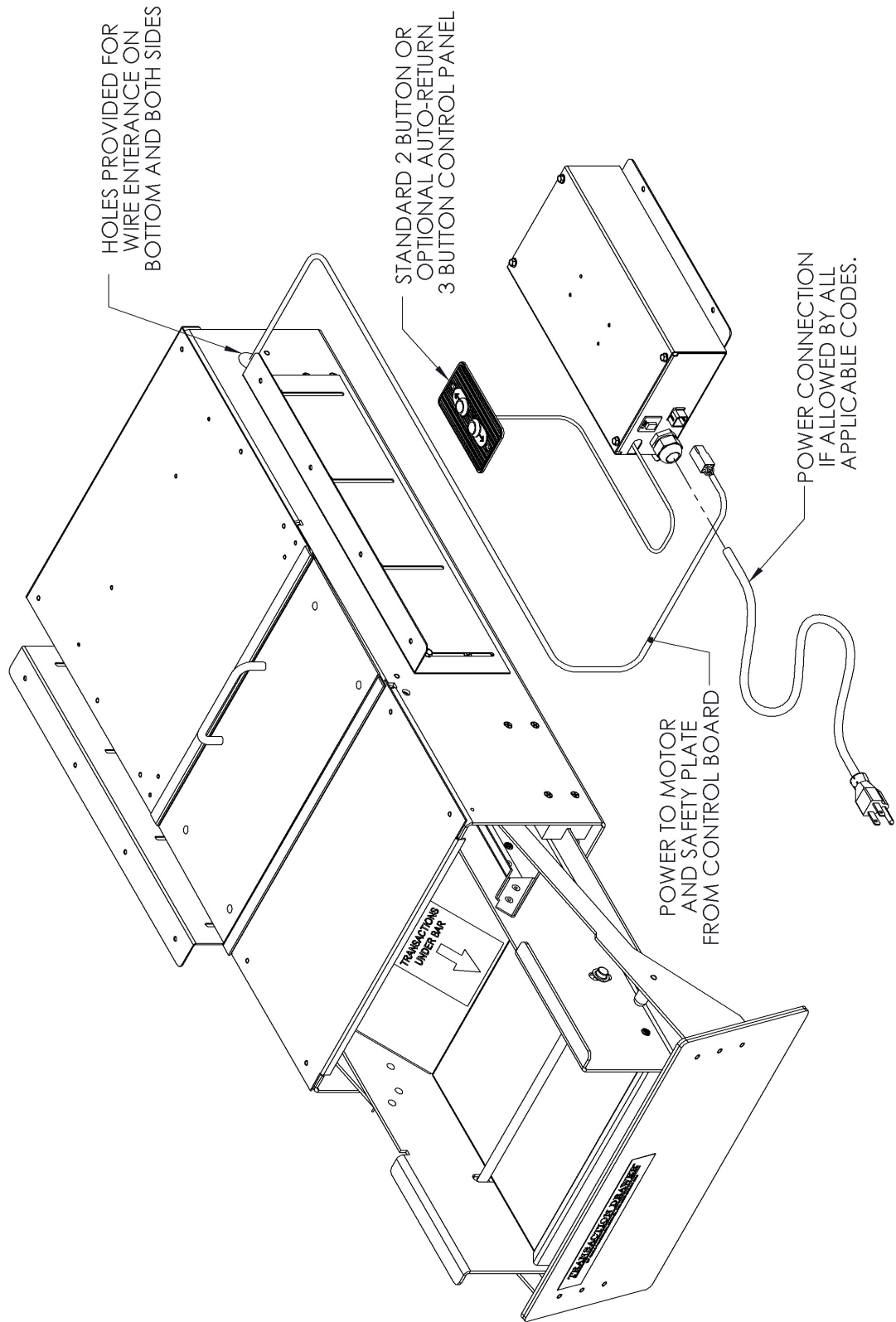
## Parts List

Item #	Part #	Description	Also Contains or (Part of Item #)	Qty.
1	93064321	#8-32 x 3/8 Hex Washer Head		5
2	30062991	XSD Back Top Cover Assembly	3, 4, 9, 10, 11, 12, 13, 14, 49	1
3	30066011	XSD Wire Harness Channel		1
4	30073991	XSD Safety Plate	9, 10, 11, 12, 13, 14, (2)	1
5	00592991	Replacement TD Lock Kit	(8)	1
6	00537041	TD Opaque Lock Label	(8)	1
7	13033011	MD Logo	(8) (20)	2
8	30020991	XSD Back Panel Assembly	5, 6, 7	1
9	30067011	#4 ID x .187 OD x 1/2" Al Spacer	(2) (4)	2
10	00566011	Td Safety Bar Spring	(2) (4)	2
11	92006004	1/8" Aluminum Backup Washer	(2) (4)	2
12	91025002	#4-40 Nylon Locking Nut	(2) (4)	6
13	00305015	Interlock Switch No Arms	(2) (4)	2
14	91102221	#4-40 x 5/8" Round Head Screw	(2) (4)	4
15	30024011	XSD Customer Door Pivot	(27)	2
16	98005071	1/2" E-Clip	(18)	3
17	98016003	.5 ID x .&% OD x .331 SS Washer	(18)	4
18	30080991	XSD Customer Door Arm Kit	19, 22, 23, 64	1
19	30054011	XSD Stop Label	(18)	1
20	30065991	XSD Customer Door Assembly	7, 21	1
21	30045011	XSD Customer Door Gasket	(20)	1
22	93005007	#8-32 Acorn Nut	(18)	6
23	30032011	XSD Customer Door Limit Pin	(18)	2
24	97000073	3/8" SS Push Cap	(27)	2
25	30050011	XSD Bill Trap Bar	(27)	1
26	00537021	TD Place Paper Label	(27)	1
27	30077991	XSD Bin Assembly	15, 24, 25, 26, 35, 36, 40, 64	1
28	30047021	XSD Magnet Holder Left	(47)	1
29	30048011	XSD Magnet Plate	(47)	2
30	91042131	#4-40 x 1/2" Socket Flat Head	(47)	12
31	30030011	XSD Magnet Arm (Left & Right)	(47)	2
32	30052011	3/8" Plastic Shim	(47)	6
33	97069933	3/8" x 3/8" Socket Shoulder Bolt SS	(47)	2
34	06014194	Basket Bar Axel Assembly	(47)	2
35	95005002	1/4-20 Nylon Locking Nut	(27)	2
36	95024001	1/4" x 1" Fender Washer	(27)	2
37	30004011	XSD Drawer Top SM		1
38	00140013	3/8" Bearing w/Flange		1
39	30076991	XSD Acetal Nut Kit	40, 64	1
40	00506191	TD Nut to Drawer Mount	(27) (39)	1
41	30055011	XSD Mounting Angle		2
42	93042301	#8-32 x 1/4" SEM Screw		8
43	94063311	#10-32 x 3/8" Hex Slot MS Zinc	(44)	4
44	30071991	XSD Replacement Drive Motor	16, 43, 54, 55, 56, 58, 59, 60, 61, 62, 63, 64	1
45	06366011	Wire Pull	(50)	1
46	93082723	#8-32 x 1/2" Phillips Truss Screw	(50)	2

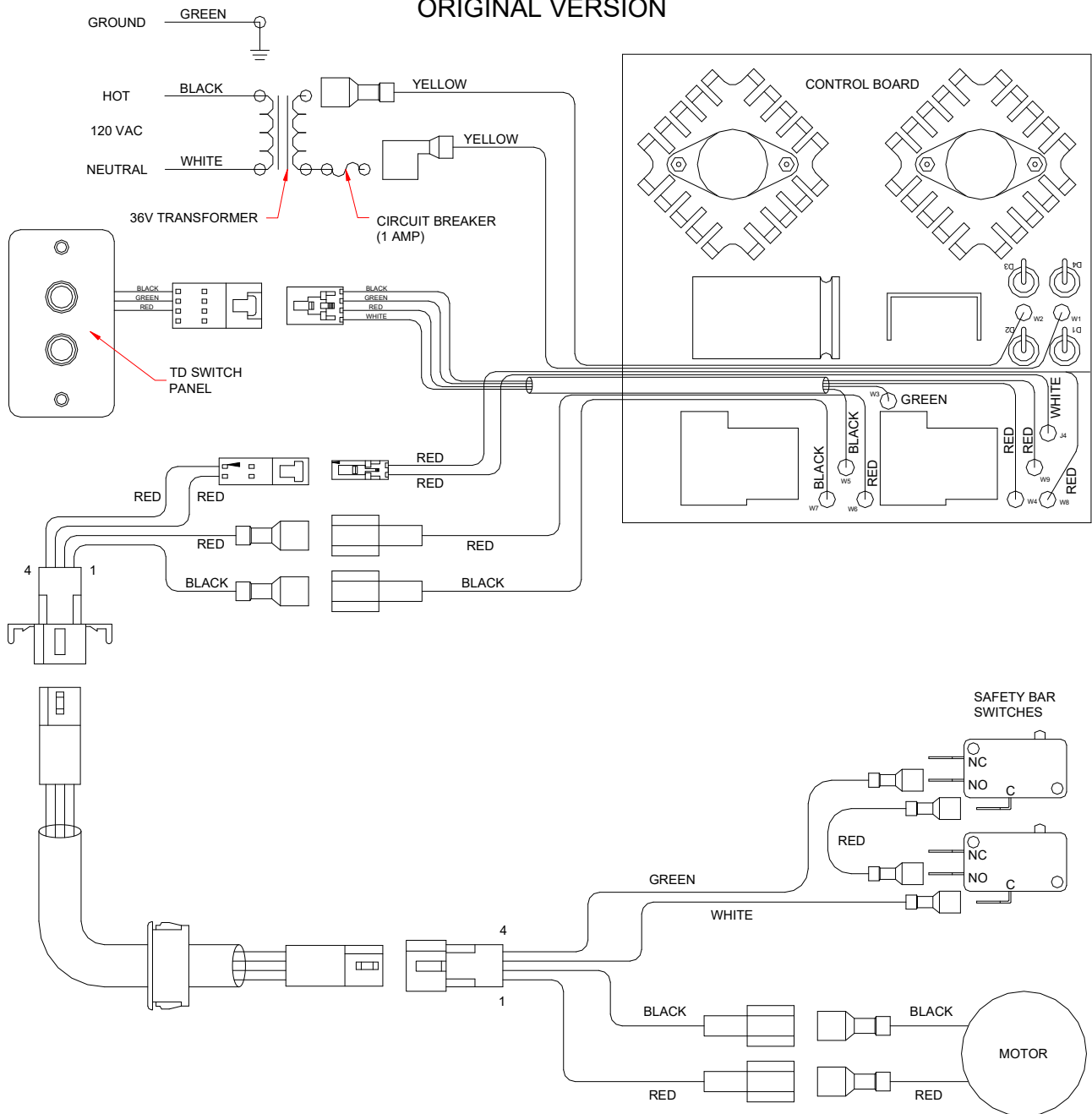
47	30074991	XSD MOR Replacement Kit, (Both Sides)	28, 29, 30, 31, 32, 33, 34, 51, 64	1
48	30046011	XSD Teller Door Gasket	(50)	1
49	91045004	#4-40 x 1/4" 3/16" Al Hex Spacer	(2)	2
50	30075991	XSD Teller Assembly	32, 45, 46, 48, 64	1
51	30049011	XSD 5/8" x .100" Magnet	(47)	12
52	92006002	#6 Flat Washer SS		4
53	92005002	#6 Nylon Lock Nut		2
54	30034011	110 x Lo37 Gearbelt	(44)	1
55	30036192	XSD Drive Pulley	(44)	1
56	92089001	#404 1/8" x 1/2" Woodruff Key	(44)	2
57	30072991	XSD Threaded Rod Kit	43, 56, 63, 64	1
58	92062712	#6-32 x 3/8" Phillips Truss MS SS	(44)	2
59	94006004	3/16" Al Backup Washer	(44)	2
60	30057011	XSD Bearing Spacer Plate	(44)	1
61	30037011	7/16" Bearing	(44)	1
62	30035192	XSD Threaded Rod Pulley	(44)	1
63	97005071	3/8" E-Clip	(44)	1
64	30079991	XSD Grease Kit	(18) (44) (47) (50)	1
65	00590991	New TD Board Kit	(75)	1
66	00524013	TD 28V Transformer	(75)	1
67	01008014	5/16 Nylon Spacer	(75)	4
68	91025001	4-40 Nylon Locking Nut	(75)	4
69	30041011	XSD Power Supply Top	(75)	1
70	30041021	XSD Power Supply Bottom	(75)	1
71	92005002	6-32 Nylon Locking Nut	(75)	3
72	30042031	XSD Power Supply Harness	(75)	1
73	01008004	Wire Tie w/Eye	(65) (75)	1
74	93080621	No. 8x1/2 Phil Pan SMS Zinc	(75)	4
75	30040991	XSD Power Supply	65, 66, 67, 68, 69, 70, 71, 72, 73, 74	1
76	06926023	1/2" Black Strain Relief		1
77	06926014	1/2" Pipe Nut		1
78	00589991	TD 2 Button Switch Assembly	79, 80, 81	1
79	00319702	Red Sealed TD Button w-Leads	(78)	2
80	24053011	Molded 2 Button Switch Plate	(78)	1
81	00587012	TD Button "Y" Harness	(78)	1



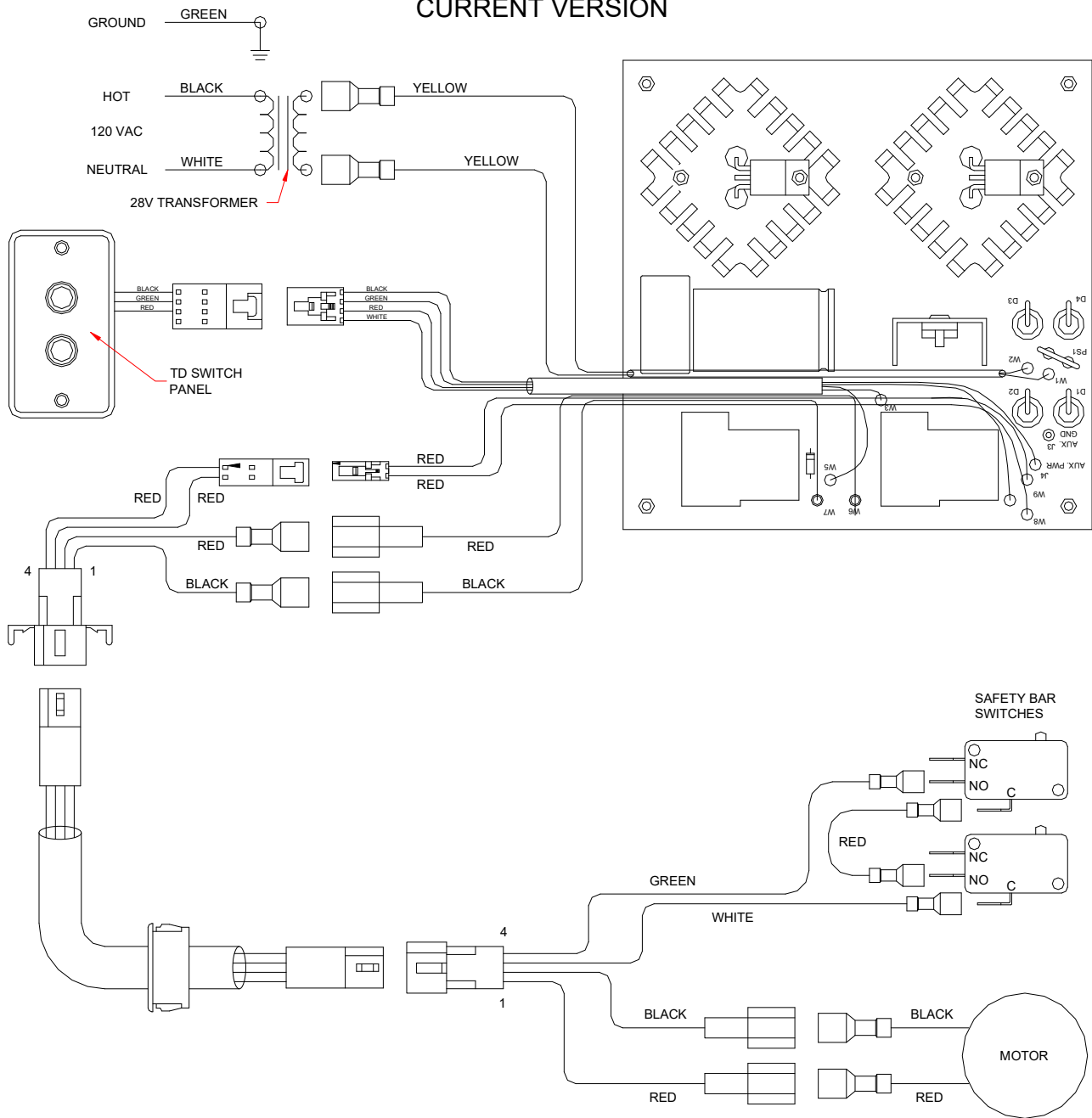
# BAVIS EXTRA SMALL DRAWER BASIC ELECTRICAL CONNECTIONS



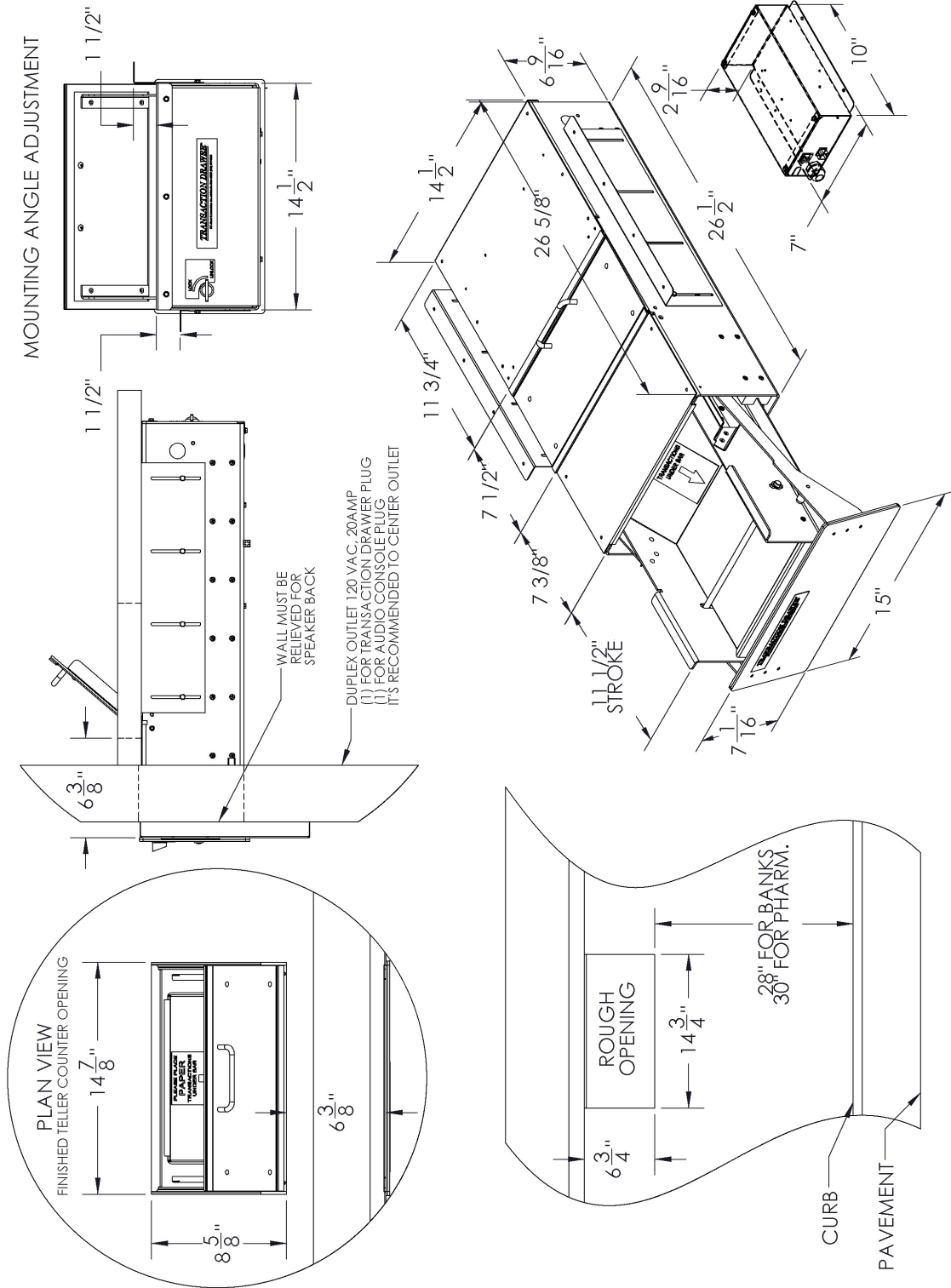
# XSD WIRING DIAGRAM ORIGINAL VERSION

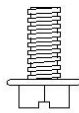


# XSD WIRING DIAGRAM CURRENT VERSION

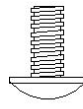


# BAVIS EXTRA SMALL DRAWER BASIC DIMENSIONS

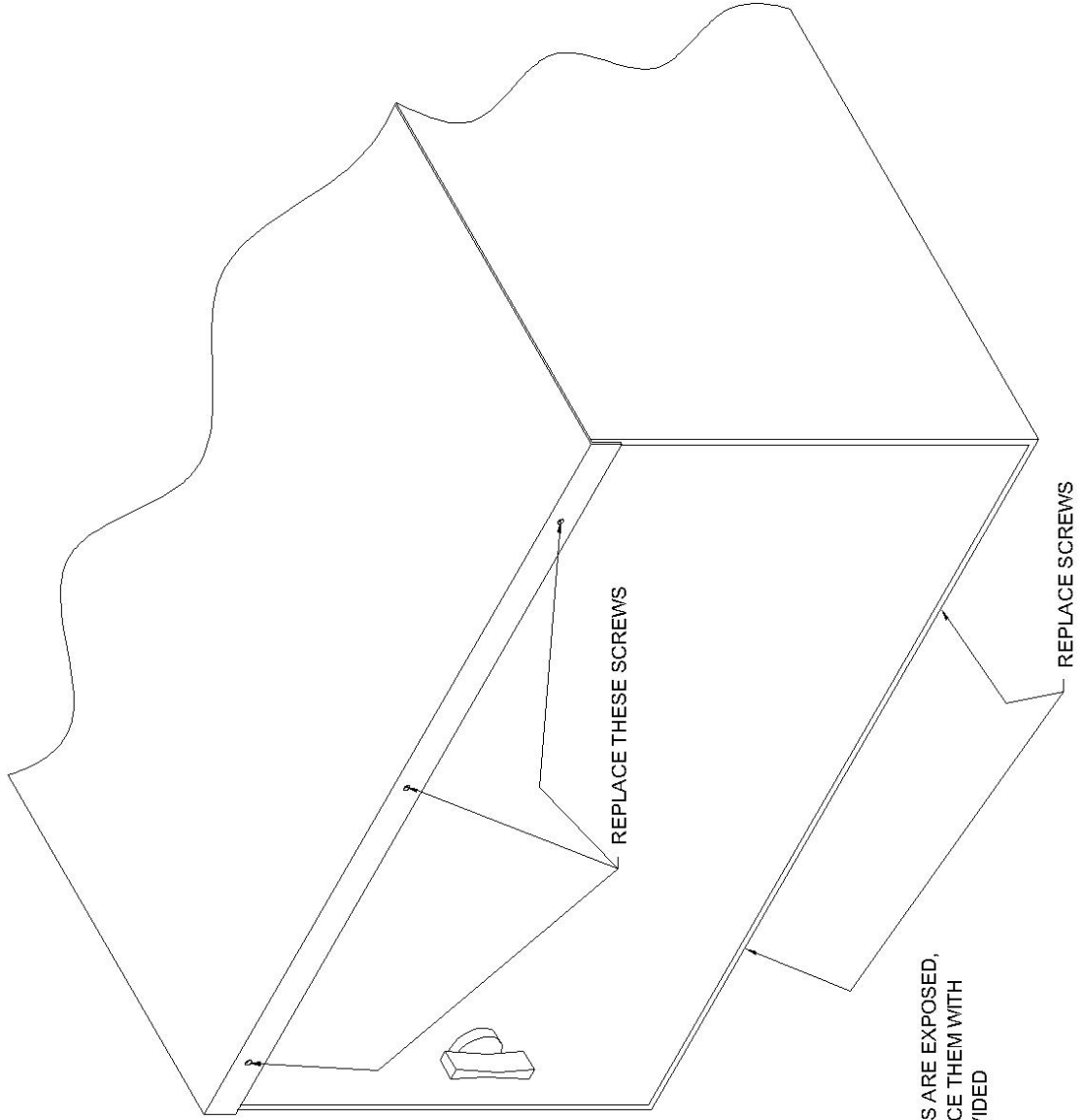




REPLACE THESE HEX HEAD SCREWS



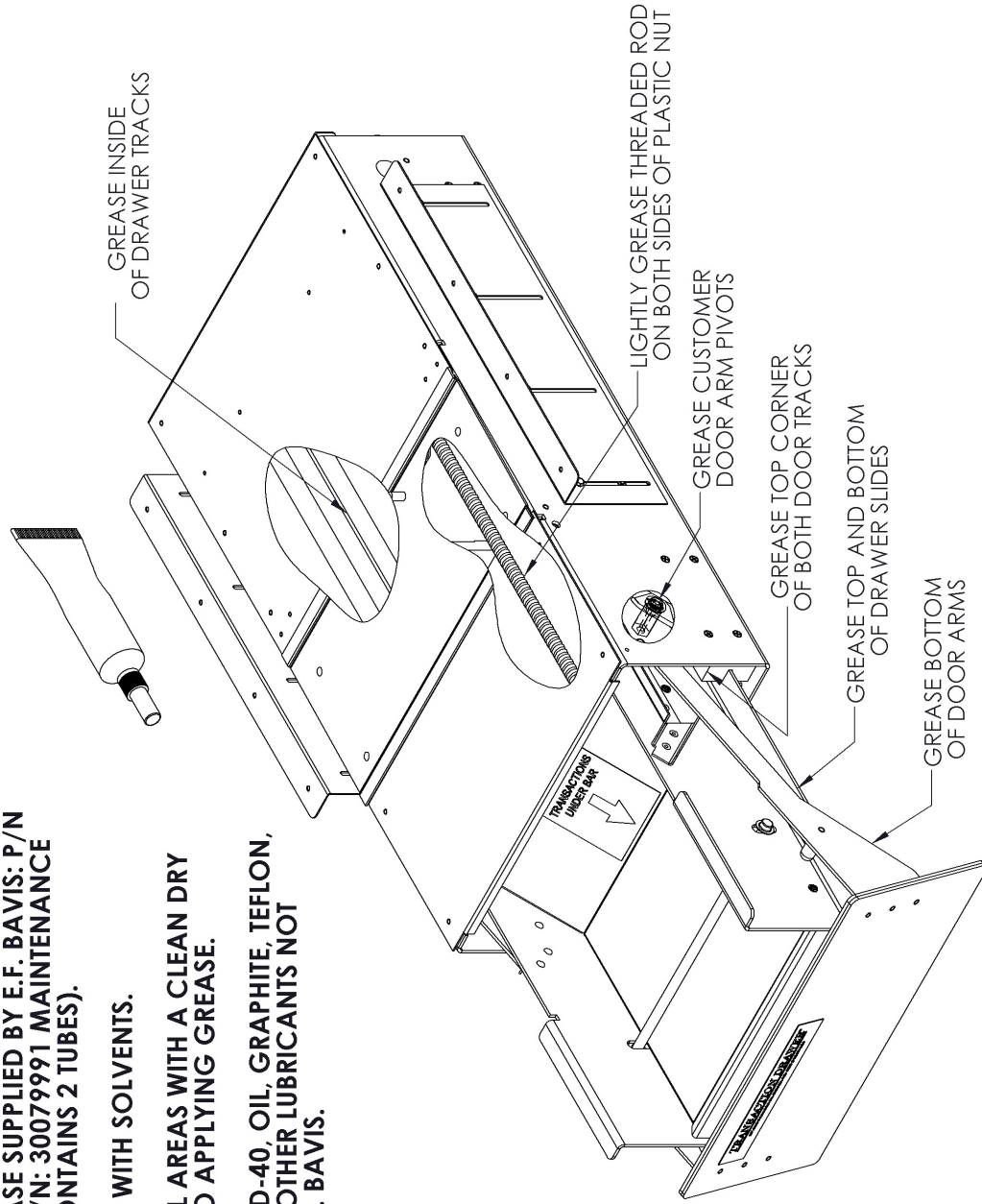
WITH THESE TRUSS HEAD SCREWS



IF BACKPANEL HEX MOUNTING SCREWS ARE EXPOSED, AND COULD CATCH CLOTHING, REPLACE THEM WITH THE #8-32 TRUSS HEAD SCREWS PROVIDED

## BAVIS EXTRA SMALL DRAWER CLEAN AND GREASE INSTRUCTIONS

- ONLY USE GREASE SUPPLIED BY E.F. BAVIS: P/N 04115011 OR P/N: 30079991 MAINTENANCE GREASE KIT (CONTAINS 2 TUBES).
- DO NOT CLEAN WITH SOLVENTS.
- WIPE DOWN ALL AREAS WITH A CLEAN DRY CLOTH PRIOR TO APPLYING GREASE.
- DO NOT USE: WD-40, OIL, GRAPHITE, TEFLON, DRY LUBES, OR OTHER LUBRICANTS NOT SUPPLIED BY E.F. BAVIS.



**Revisions:**

<b>ECN</b>	<b>Date</b>
12307	01/20/2011
21429	08/04/2020

