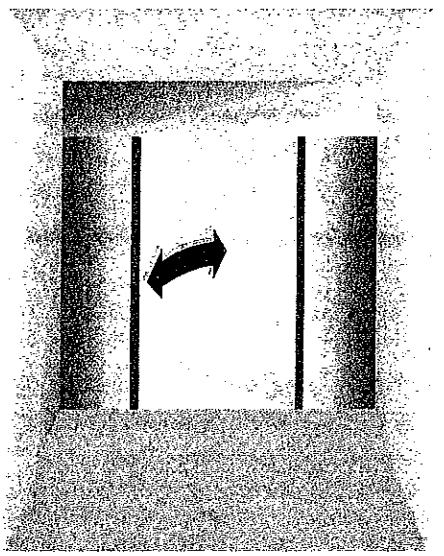
TORMAX
AUTOMATIC

T-1132 e 8.04
valid for Software Version V1.4 and up



Installation On Site

Tormax TTXII
Low Energy Swing Door Operator

Contents

First edition: 9.02 provisional for 0-Series
Update: 3.03, 8.04

We print on environment-friendly paper bleached without chlorine.

The enterprises Landert Motoren AG and Landert GmbH are certified according to ISO 9001.

1 Introduction

Adressee/Status

These instructions are addressed at qualified installation personnel and contain all required information for the installation on site.

Area of Application

This document is applicable to the TORMAX TTXII low energy operator with the software V1.2 and up

Explanation of Symbols

Non-compliance endangers the safety of the installation personnel, the system operator or the user.

Warning of electrical voltage.

Passages with text on grey background must be absolutely observed for reliable performance of the system! Neglect can cause material damages.

◆ This symbol marks optional components, which are not installed in all units.

Languages

These instructions are available in different languages. Please ask your TORMAX dealer.

2 Safety

2.1 General Safety and Accident Prevention Regulations

General safety instructions

Prior to installation or commissioning, read and follow this information that is being described on this page—especially the following notes relating to safety—and adhere to them at all times! Damage to the unit and personal injury may result if these instructions were not carefully followed.

Pay particular attention to the specially marked notes in this manual (for an explanation of the symbols please refer to chapter 1)!

These products are Underwriters Laboratories, Inc. (UL) listed and cUL certified for the Canadian marketplace, and therefore comply with the requirements of the National Electrical Code (NEC) and the Canadian Electrical Code (CEC). Installations intended to meet UL and cUL requirements must be followed as described in the instruction provided herein. These are minimum standard requirements. Where local codes exceed these requirements, they must be followed as well.

Preventing General Hazards and Possible Damage to This Equipment

- Keep fingers away from all moving parts.
- Verify that the power selection switch is set to the correct voltage before start-up.
- The power supply cable (flexible cord) should be entered at the end side that is close to the input power supply plug. It should not be routed through doorways, window openings, walls, ceilings, floors, etc. The power supply cable (flexible cord) should not be attached or otherwise secured to the building structure. It should not also be concealed behind walls, etc.
- Never allow the power supply cable (flexible cord) to become entrapped in moving parts of the operator, door, or system.
- The power receptacle must be of the grounding-type. It is very important that the unit will be properly grounded.
- To reduce the risk of electrical shock, this equipment has a grounding-type plug that has a third grounding pin. This plug will only fit into a grounding-type outlet. If the plug does not fit into the outlet, contact a qualified electrician to install the proper outlet. Do not change the plug in any way.

Warnings of Dangerous Electrical Voltages or Current

- Make sure there is no voltage to operator when installing.
- Install the electrical cables and power only after the mechanical installation to the unit is done.
- Turn on the power to the operator unit only after all internal cables are connected. Do not connect cables while the unit is powered.
- Always use appropriate tools for installation and repair.

Prior to commissioning or performing any work on the door system, the operating instructions for the TORMAX operator and the following safety directions should be studied with great care and must be observed!

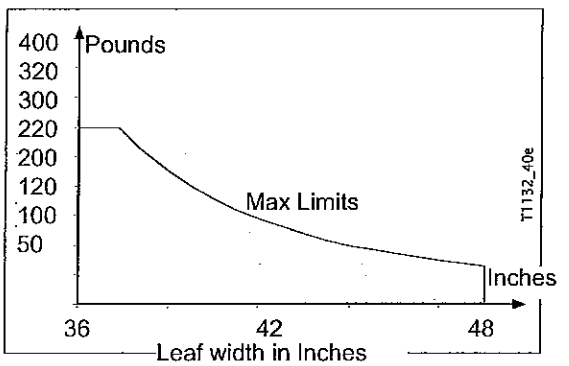
Use for intended Purpose

The TORMAX operator is designed according to the current state of technology as well as the recognized safety-relevant regulations and is intended exclusively for the deployment in conjunction with automatic interior and exterior doors (without wind loads) used by people e.g. in hospitals, homes for the elderly, shopping centres, office buildings and large-scale enterprises. The operator corresponds to protective class IP 22. Without additional safety precautions, it may only be installed within, i.e. at the inside, of buildings.

Any other use or any use exceeding this aim is determined to be not for its intended purpose and may lead to personal injury to the user or a third party. Furthermore, the system or other material assets can be damaged. The manufacturer will not be responsible for any damage resulting from this; the risk is carried entirely by the operator of the door system.

The operating, service and maintenance conditions specified by the manufacturer are to be maintained. The persons entrusted with the service and maintenance must be acquainted with the matter and informed about any possible danger.

Maximum Door Leaf Weights



To ensure a reliable function of the door the moment of friction caused by e.g. bad aligning of door leaves or wind charge may not exceed 5 pounds.

In addition to the operating instructions a copy of the ANSI 156.19 standard is recommended to ensure that installation and adjustments comply.

Arbitrary changes to the system will exempt the manufacturer from any liability for damages resulting from this.

2.2 Safeguarding Danger Points

General

Automatic door systems are to constructed in such a manner that on opening and closing motions endangerments through jamming, shearing and drawing-in are avoided or safeguarded against, for example through:

- Safety separations
- Limitation of the door-leaf forces
- Monitored safety sensors
- Separating protective facilities

Tormax strongly recommends a AAADM certified inspector install and service all Tormax operators. Refer to ANSI 156.19 and any local codes to ensure operator is setup properly.

2.3 Organizational Measures

Requirements for Installation Personnel

The installation should be carried out by individuals who are AAADM certified and have attended a TORMAX factory training course.

Fundamental Safety Measures – Appropriate Behaviour

- Use the system only in a technically sound state. Eliminate faults immediately that may impair safety.
- Keep fingers away from any mobile parts. Special caution is required in the area of the drive lever, the linkage and the secondary closing edges of the hinges.
- Use exclusively tools that are suitable for the respective work procedure. Pay attention to good condition of the tools.

- Electric voltage/current: The operator is to be disconnected from electrical mains before any work is performed on electrical parts.
  Install cabling only after the installation is complete.
  Plug in the power plug only after all internal cables are connected.

3 Basic Functions

Motion Control – General

The door opens motor-driven in accordance with the stored speed profile (see section 7.1) against the installed spring. If the motor torque decreases the door is braked down by the spring. The door is held in the open position by a reduced motor torque. The closing action is performed through spring force only. Thereby, the motor adjusts the speed. At the completion of the closing motion, deceleration occurs with adjustable homing in speed over an adjustable angle (see section 7.4.2). The motor is switched off when the door is closed.

Functionality of the unit

Activator

Opens the door in operating mode AUTO in accordance with "Teach-In General".

Key Switch

Opens the door in operating mode AUTO and in operating mode OFF in accordance with "Teach-In General", or with "Teach-In Key Switch" if this was performed after "Teach-In General".

"Push-and-Go"

Opens the door in AUTOMATIC mode according to the "Teach-In General" instructions when the door is manually pushed open to an adjustable angle. "Push-and-Go" can be switched off.

"Push-and-Close"

When the open door (operating mode OPEN, during hold-open time, step control) is moved manually and considerably (16 °) in closing direction, it will close automatically.

Safety device in Opening Direction (Swing / Pull Side)
Inputs 14 - 15 NC

Inputs 14 - 15 (NC) prevents door from opening if closed. If door is opening it will cancel the opening cycle and door will safety close. If both Safety Device Opening and a activation signal are given at the same time the door will stall. If the Safety Device Opening signal is removed and the activation signal is present door will open and complete cycle. If the activation signal is removed and Safety Device Opening signal is present door will safety close.

Safety device in closing direction/safety device for the swing area/ Safety Device Bodyguard
Inputs 18 - 19 NC

Standard function: (Approach / Push Side)

Inputs 18 - 19 (NC) are for a door mounted / reactivation sensor. If the door is pushed open manually signal is ignored. The signal is only active when a activation signal is given and becomes inactive when door closes completely.

Optional functions:

Safety device for the swing area
The door remains open or closed. (Safety / Carpet)

Safety Device Bodyguard
This function is used only with BEA Bodyguard and LO21.

The door remains open or closed. (Safety door fully open / safety door fully closed) Using this function automatically changes the settings of Feedback Door State to "door opening or door open". This function is necessary for the BEA Bodyguard and LO21 to function correctly.

Test of safety devices

Output for active testing of the safety device in opening direction and safety device in closing direction BEA (Superscan).

Operating Mode OFF

An opening can only be initiated through the key switch. Switching to operating mode OFF interrupts any current hold-open time.
Closing inputs 1 and 2 turns operator OFF

Operating Mode AUTO

An opening can be initiated by an activator, a key switch and also by "Push and Go" Inputs 1, 2 and 3 open will put operator in AUTO

Operating Mode OPEN

The door opens and stops in open position. It opens according to the settings of "Teach-In General". Closing inputs 2 and 3 will put operator in HOLD OPEN

Door Lock

Unlocks on each opening command. On completion of the opening time delay, the door starts opening. When the door has moved somewhat in opening direction, the door lock drops off again. The door lock is activated only in proximity of the "door closed" position.

Feedback Door State

Outputs 11 - 12 (Door Closed Status) default or (Door Opening / Open) programmable is a 24vDC output that can be used to monitor door position

If a second opening width has been configured ("Teach-In key switch") the feedback "door open" is as follows:

Triggering of opening	Feedback defined by
Activator	"Teach-In General"
Key-switch	"Teach-In key-switch"
"Push-and-Go"	"Teach-In General"
Manual operation	the smaller of both opening widths

Door Opening / Door Open must be used with the BEA Bodyguard and LO21.

Power Supply 24 VDC

The TORMAX TTXII operator provides a 24 VDC output with a max rating of 0.75 amps. If the operators power supply has been overloaded the red led on the display will go out and the operator automatically switches off, if this occurs a aux transformer may be necessary

Reversing Motion
(Reverse On Obstruction)

If the operator encounters a firm obstacle during the opening cycle the cycle is terminated. If the operator encounters an obstacle during the closing cycle it will reopen and immediately close. Reverse On Obstruction will be disabled the last 10 degrees of the closing cycle. If Reverse On Obstruction is shut off - if the operator does not reach the full open position it will keep trying to open for 60 seconds then close, while closing the operator will remain on the obstruction.

Time Control

The door opens when an impulse is received (key-switch, activator or "Push-and-Go"), remains in the valid open position during the valid hold-open time, and closes thereafter again.

Step Control

The door opens when an impulse is received (from the key switch, activator or "Push-and-Go") and remains in the open position. The door closes immediately after the next impulse or "Push-and-Close". The motional sequence depends on the settings of the respective "Teach-In".

Internal Protective Devices

The motor is switched off immediately when the door is blocked.
Motor and transformer contain thermal relays that interrupt the current supply to the control system at 230 °F. The system operates as during a power failure until the temperature drops 185 °F.

Power Failure

The door can be manually opened if the door lock can be unlocked with the door handle. The door closes through spring force. The motor, which is controlled short-circuited, controls the closing action with constant braking power. After return of power, the system is immediately ready for use again.

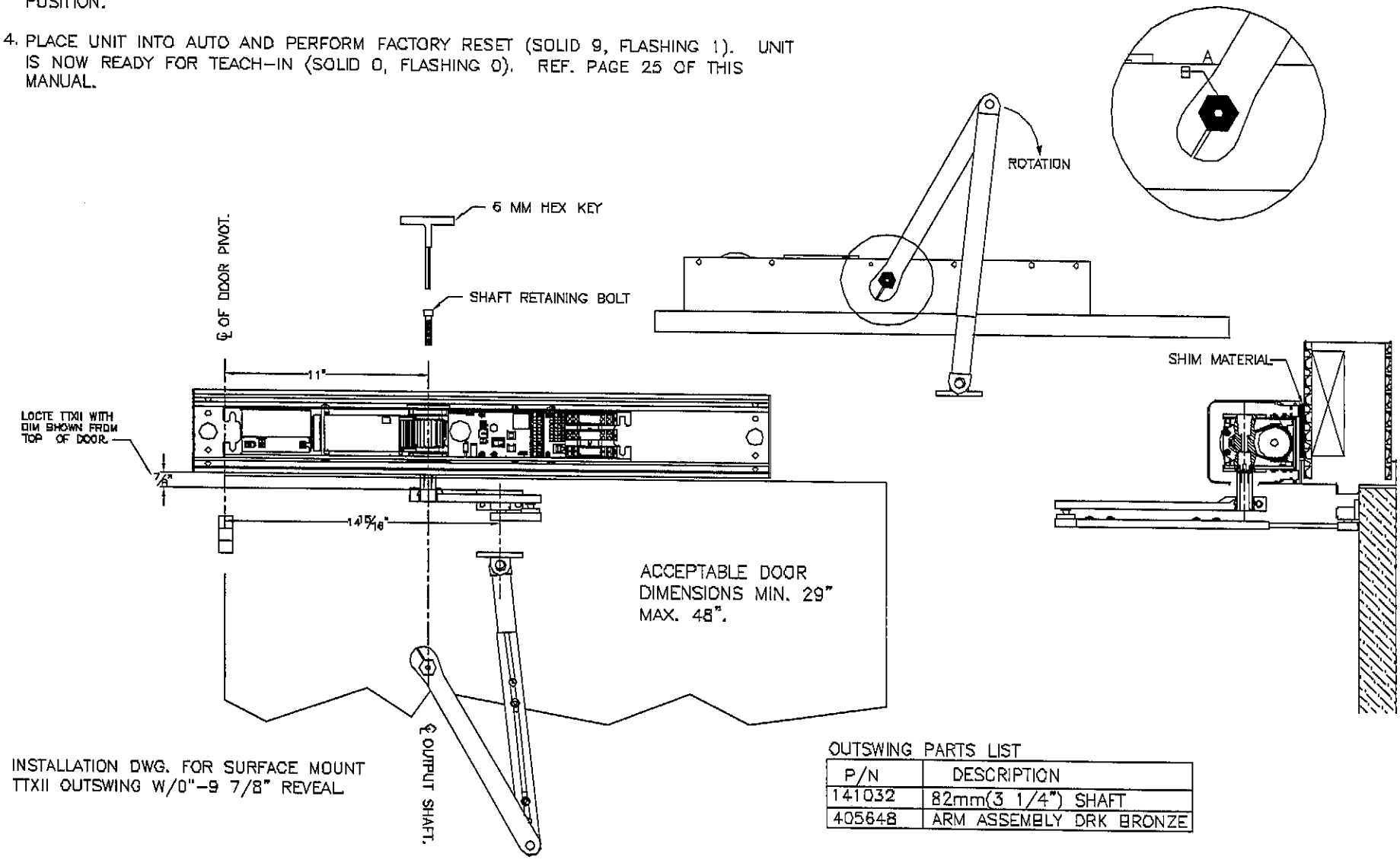
INSTALLATION STEPS:

1. LOCATE TTXII WITH DIMENSIONS SHOWN SO THAT UNIT IS LEVEL. IT MAY BE NECESSARY TO SPACE THE UNIT AWAY FROM WALL WITH PROPER SHIM MATERIAL (AS SHOWN). USE ALL MOUNTING HOLES PROVIDED, WITH CORRECT ANCHORS.

2. REMOVE PROTECTIVE STRIP FROM ENCODER AND CONNECT POWER. PERFORM FACTORY RESET (SOLID 9, FLASHING 1), AND PLACE UNIT INTO HOLD OPEN. ONCE MOTOR HAS ROTATED APPROX. 20 DEG. INSTALL OUTPUT SHAFT AS SHOWN WITH SURFACES A & B RUNNING PARALLEL WITH EACH OTHER AND TORQUE OUTPUT SHAFT TO 30 FT.–LBS.

3. CONNECT DRIVE ARM OPERATOR PORTION TO OUTPUT SHAFT AS SHOWN. MOUNT DOOR PORTION AS REQUIRED AND ADJUST LENGTH TO KEEP DOOR IN THE CLOSED POSITION.

4. PLACE UNIT INTO AUTO AND PERFORM FACTORY RESET (SOLID 9, FLASHING 1). UNIT IS NOW READY FOR TEACH–IN (SOLID 0, FLASHING 0). REF. PAGE 25 OF THIS MANUAL.



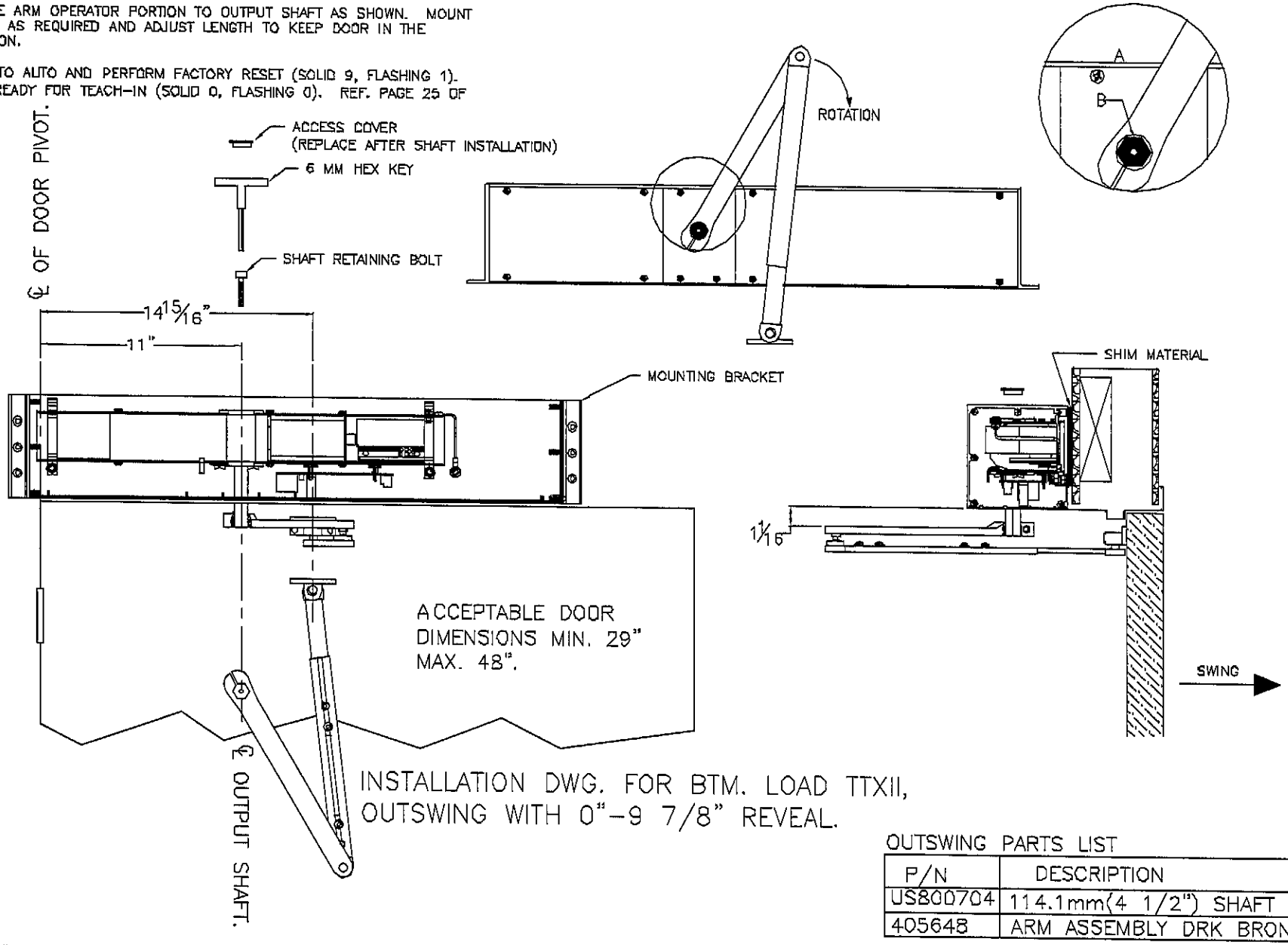
INSTALLATION DWG. FOR SURFACE MOUNT TTXII OUTSWING W/0"–9 7/8" REVEAL

OUTSWING PARTS LIST

P/N	DESCRIPTION
141032	82mm(3 1/4") SHAFT
405648	ARM ASSEMBLY DRK BRONZE

INSTALLATION STEPS:

1. LOCATE TTXII WITH DIMENSIONS SHOWN SO THAT UNIT IS LEVEL. IT MAY BE NECESSARY TO SPACE THE UNIT AWAY FROM WALL WITH PROPER SHIM MATERIAL (AS SHOWN). USE ALL MOUNTING HOLES PROVIDED, WITH CORRECT ANCHORS.
2. REMOVE PROTECTIVE STRIP FROM ENCODER AND CONNECT POWER. PERFORM FACTORY RESET (SOLID 9, FLASHING 1), AND PLACE UNIT INTO HOLD OPEN, ONCE MOTOR HAS ROTATED APPROX. 20 DEG. INSTALL OUTPUT SHAFT AS SHOWN WITH SURFACES A & B RUNNING PARALLEL WITH EACH OTHER AND TORQUE OUTPUT SHAFT TO 30 FT.–LBS.
3. CONNECT DRIVE ARM OPERATOR PORTION TO OUTPUT SHAFT AS SHOWN. MOUNT DOOR PORTION AS REQUIRED AND ADJUST LENGTH TO KEEP DOOR IN THE CLOSED POSITION.
4. PLACE UNIT INTO AUTO AND PERFORM FACTORY RESET (SOLID 9, FLASHING 1). UNIT IS NOW READY FOR TEACH–IN (SOLID 0, FLASHING 0). REF. PAGE 25 OF THIS MANUAL.



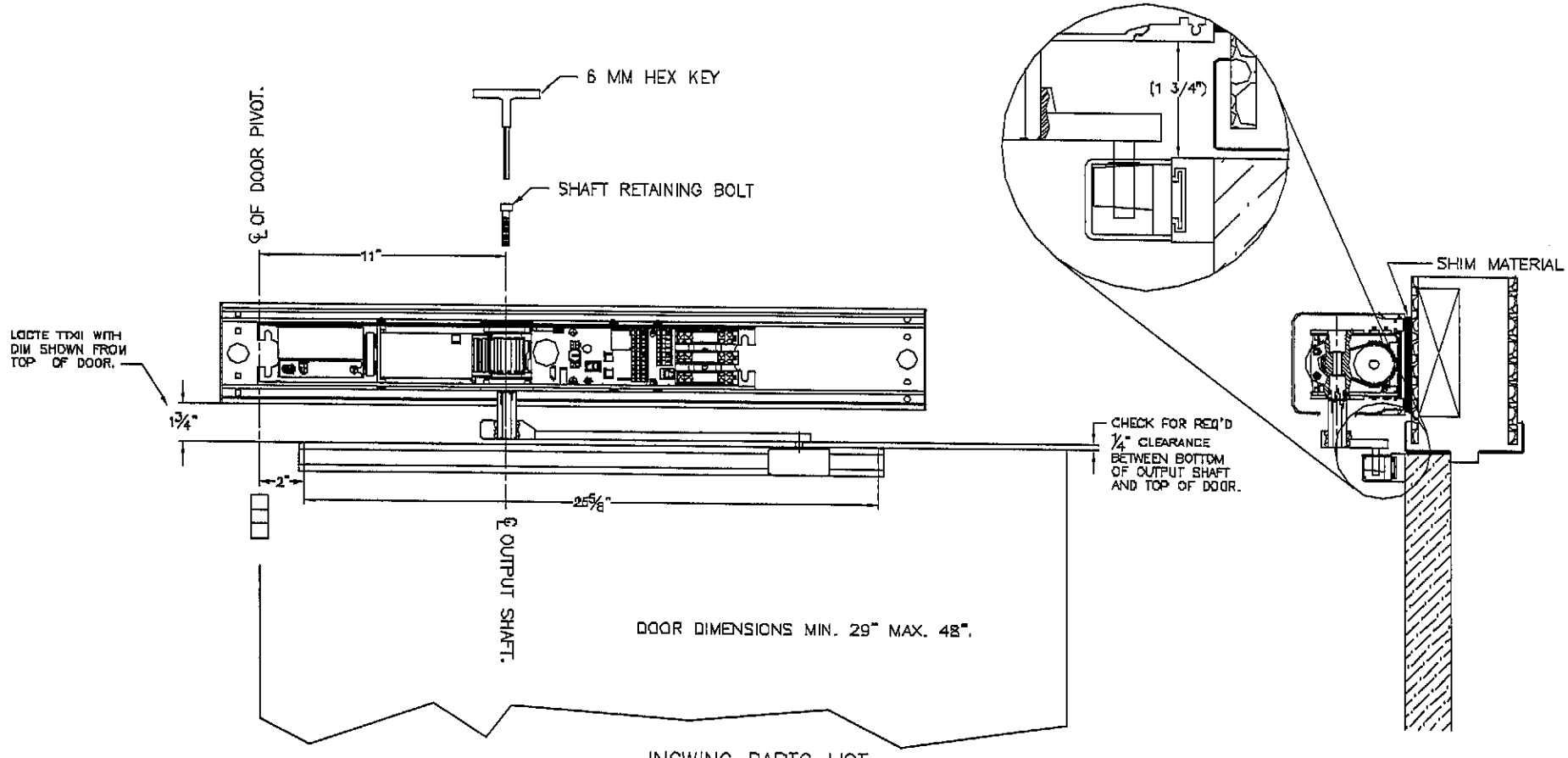
INSTALLATION DWG. FOR BTM. LOAD TTXII, OUTSWING WITH 0"–9 7/8" REVEAL.

OUTSWING PARTS LIST

P/N	DESCRIPTION
US800704	114.1mm(4 1/2") SHAFT
405648	ARM ASSEMBLY DRK BRONZE

INSTALLATION STEPS:

1. LOCATE TTXII WITH DIMENSIONS SHOWN SO THAT UNIT IS LEVEL. IT MAY BE NECESSARY TO SPACE THE UNIT AWAY FROM THE WALL WITH PROPER SHIM MATERIAL (AS SHOWN). USE ALL MAOUNTING HOLES PROVIDED, WITH CORRECT ANCHORS.
2. MOUNT SLIDE TRACK WITH DIMENSIONS SHOWN. TRACK UST BE PARALLEL TO TTXII UNIT & MOUNTED AS CLOSE TO TOP OF DOOR AS POSS. USE ALL PROVIDED MOUNTIG LOCATIONS. SLIDE FASTENER COVER INTO PLACE.
3. INSTALL SLIDE ONTO TRACK WITH SLOTTED SIDE OF COVER FACING UP. SLIDE SHOUOLD MOVE SMOOTHLY IN TRACK. INSTALL TRACK END CAPS.
4. INSTALL DRIVE ARM INTO SLIDE FIRST, THEN PLACE OUTPUT SHAFT & ARM NTO TTXII. INSTALL OUTPUT SHAFT RETAINING BOLT LOOSELY INTO OUTPUT SHAFT FROM OPPOSITE SIDE OF TTXII (AS SHOWN).
5. REMOVE PROTECTIVE STRIP FROM ENCODER, CONNECT POWER, PERFORM FACTORY RESET ON TTXII (SOLID 9, FLASHIN 1). PLACE UNIT INTO HOLD OPEN FOR PRELOADING.
6. TIGHTEN DRIVE ARM TO OUTPUT SHAFT, THEN RETAINING BOLT TO DOUPUT SHAFT.
7. PLACE UNIT INTO AUTO, AND PERFORM FACTORY RESET. UNIT IS NOW READY FOR TEACH-IN (SOLID 0, FLASHINGO). REF. PAGE 25 OF THIS MANUAL.



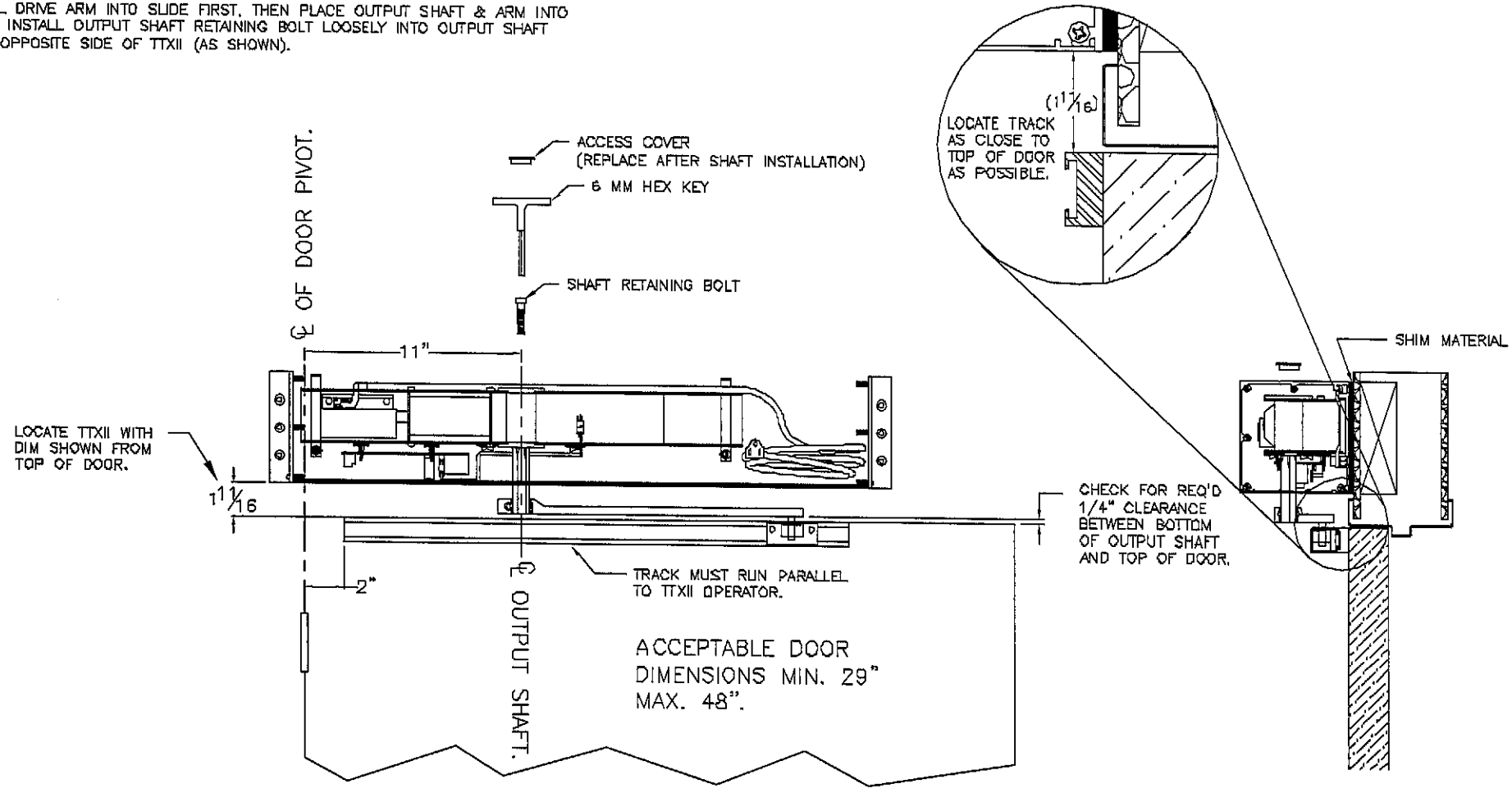
INSTALLATION DWG. FOR SURFACE MOUNT TTXII INSWING W/0" REVEAL.

INSWING PARTS LIST

P/N	DESCRIPTION
141032	82mm(3.22") SHAFT
405065	INSWING ARM DRK BRONZE

INSTALLATION STEPS:

1. LOCATE TTXII WITH DIMENSIONS SHOWN SO THAT UNIT IS LEVEL. IT MAY BE NECESSARY TO SPACE THE UNIT AWAY FROM WALL WITH PROPER SHIM MATERIAL (AS SHOWN). USE ALL MOUNTING HOLES PROVIDED, WITH CORRECT ANCHORS.
2. MOUNT SLIDE TRACK WITH DIMENSIONS SHOWN. TRACK MUST BE PARALLEL TO TTXII UNIT & MOUNTED AS CLOSE TO TOP OF DOOR AS POSS. USE ALL PROVIDED MOUNTING LOCATIONS. SLIDE FASTENER COVER INTO PLACE.
3. INSTALL SLIDE ONTO TRACK WITH SLOTTED SIDE OF COVER FACING UP. SLIDE SHOULD MOVE SMOOTHLY IN TRACK. INSTALL TRACK END CAPS.
4. INSTALL DRIVE ARM INTO SLIDE FIRST, THEN PLACE OUTPUT SHAFT & ARM INTO TTXII. INSTALL OUTPUT SHAFT RETAINING BOLT LOOSELY INTO OUTPUT SHAFT FROM OPPOSITE SIDE OF TTXII (AS SHOWN).
5. REMOVE PROTECTIVE STRIP FROM ENCODER, CONNECT POWER, PERFORM FACTORY RESET ON TTXII (SOLID 9, FLASHING 1). PLACE UNIT INTO HOLD OPEN FOR PRELOADING.
6. TIGHTEN DRIVE ARM TO OUTPUT SHAFT, THEN RETAINING BOLT TO OUTPUT SHAFT.
7. PLACE UNIT INTO AUTO. AND PERFORM FACTORY RESET. UNIT IS NOW READY FOR TEACH-IN (SOLID 0, FLASHING 0). REF. PAGE 25 OF THIS MANUAL.



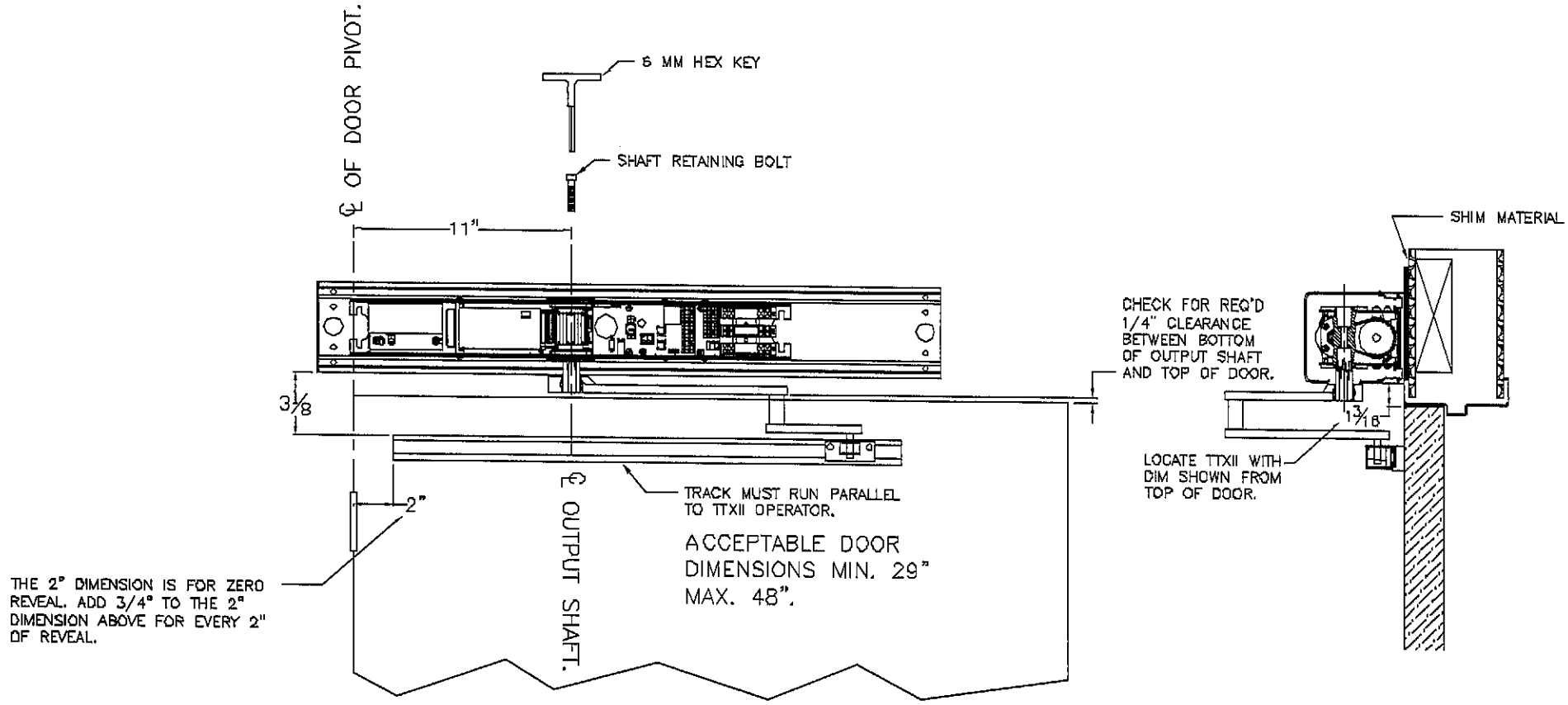
INSTALLATION DWG. FOR BTM. LOAD TTXII INSWING W/0" REVEAL

INSWING PARTS LIST

P/N	DESCRIPTION
US800704	114.1mm(4 1/2") SHAFT
405065	INSWING ARM DRK BRONZE

INSTALLATION STEPS:

1. LOCATE TTXII WITH DIMENSIONS SHOWN SO THAT UNIT IS LEVEL. IT MAY BE NECESSARY TO SPACE THE UNIT AWAY FROM WALL WITH PROPER SHIM MATERIAL (AS SHOWN). USE ALL MOUNTING HOLES PROVIDED, WITH CORRECT ANCHORS.
2. MOUNT SLIDE TRACK WITH DIMENSIONS SHOWN. TRACK MUST BE PARALLEL TO TTXII UNIT & MOUNTED AS CLOSE TO TOP OF DOOR AS POSS. USE ALL PROVIDED MOUNTING LOCATIONS. SLIDE FASTENER COVER INTO PLACE.
3. INSTALL SLIDE ONTO TRACK WITH SLOTTED SIDE OF COVER FACING UP. SLIDE SHOULD MOVE SMOOTHLY IN TRACK. INSTALL TRACK END CAPS.
4. INSTALL DRIVE ARM INTO SLIDE FIRST, THEN PLACE OUTPUT SHAFT & ARM INTO TTXII. INSTALL OUTPUT SHAFT RETAINING BOLT LOOSELY INTO OUTPUT SHAFT FROM OPPOSITE SIDE OF TTXII (AS SHOWN).
5. REMOVE PROTECTIVE STRIP FROM ENCODER, CONNECT POWER, PERFORM FACTORY RESET ON TTXII (SOLID 9, FLASHING 1). PLACE UNIT INTO HOLD OPEN FOR PRELOADING.
6. TIGHTEN DRIVE ARM TO OUTPUT SHAFT, THEN RETAINING BOLT TO OUTPUT SHAFT.
7. PLACE UNIT INTO AUTO. AND PERFORM FACTORY RESET. UNIT IS NOW READY FOR TEACH-IN (SOLID 0, FLASHING 0). REF. PAGE 25 OF THIS MANUAL.



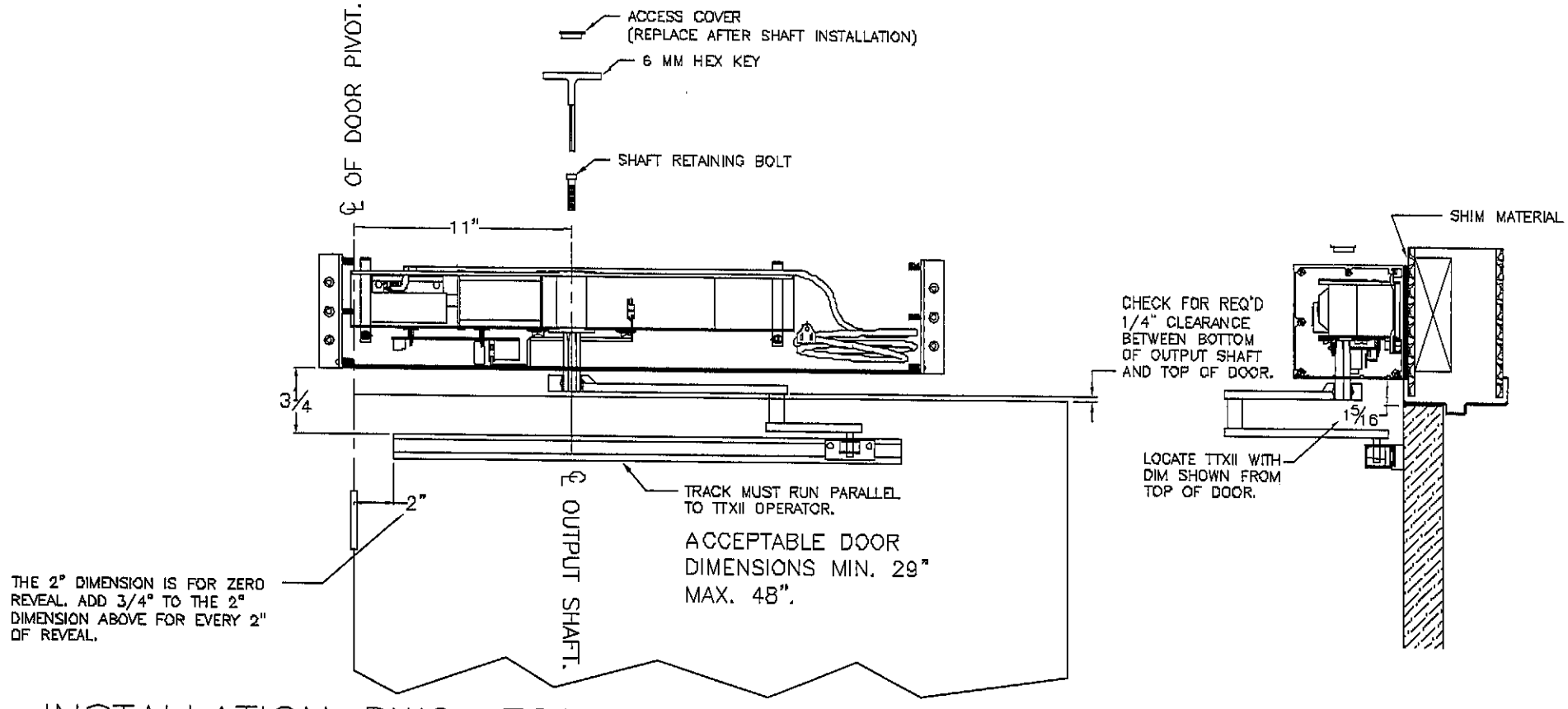
INSTALLATION DWG. FOR SURFACE MOUNT TTXII INSWING W/DEEP REVEAL.

INSWING PARTS LIST

P/N	DESCRIPTION
141020	67mm(2.65") SHAFT
141133	RH DL ARM BLK
141134	LH DL ARM BLK

INSTALLATION STEPS:

1. LOCATE TTXII WITH DIMENSIONS SHOWN SO THAT UNIT IS LEVEL. IT MAY BE NECESSARY TO SPACE THE UNIT AWAY FROM WALL WITH PROPER SHIM MATERIAL (AS SHOWN). USE ALL MOUNTING HOLES PROVIDED, WITH CORRECT ANCHORS.
2. MOUNT SLIDE TRACK WITH DIMENSIONS SHOWN. TRACK MUST BE PARALLEL TO TTXII UNIT & MOUNTED AS CLOSE TO TOP OF DOOR AS POSS. USE ALL PROVIDED MOUNTING LOCATIONS. SLIDE FASTENER COVER INTO PLACE.
3. INSTALL SLIDE ONTO TRACK WITH SLOTTED SIDE OF COVER FACING UP. SLIDE SHOULD MOVE SMOOTHLY IN TRACK. INSTALL TRACK END CAPS.
4. INSTALL DRIVE ARM INTO SLIDE FIRST, THEN PLACE OUTPUT SHAFT & ARM INTO TTXII. INSTALL OUTPUT SHAFT RETAINING BOLT LOOSELY INTO OUTPUT SHAFT FROM OPPOSITE SIDE OF TTXII (AS SHOWN).
5. REMOVE PROTECTIVE STRIP FROM ENCODER, CONNECT POWER, PERFORM FACTORY RESET ON TTXII (SOLID 9, FLASHING 1). PLACE UNIT INTO HOLD OPEN FOR PRELOADING.
6. TIGHTEN DRIVE ARM TO OUTPUT SHAFT, THEN RETAINING BOLT TO OUTPUT SHAFT.
7. PLACE UNIT INTO AUTO. AND PERFORM FACTORY RESET. UNIT IS NOW READY FOR TEACH-IN (SOLID 0, FLASHING 0). REF. PAGE 25 OF THIS MANUAL.



INSTALLATION DWG. FOR BTM. LOAD TTXII INSWING W/DEEP REVEAL.

INSWING PARTS LIST

P/N	DESCRIPTION
141106-A	100mm(4") SHAFT
141133	RH DL ARM BLK
141134	LH DL ARM BLK

ROVIDED, WITH CORRECT ANCHORS.

)WN. TRACK MUST BE PARALLEL TO
OF DOOR AS POSS. USE ALL
STENER COVER INTO PLACE.

SIDE OF COVER FACING UP. SLIDE
ALL TRACK END CAPS.

N PLACE OUTPUT SHAFT & ARM INTO
BOLT LOOSELY INTO THE OUTPUT SHAFT
).

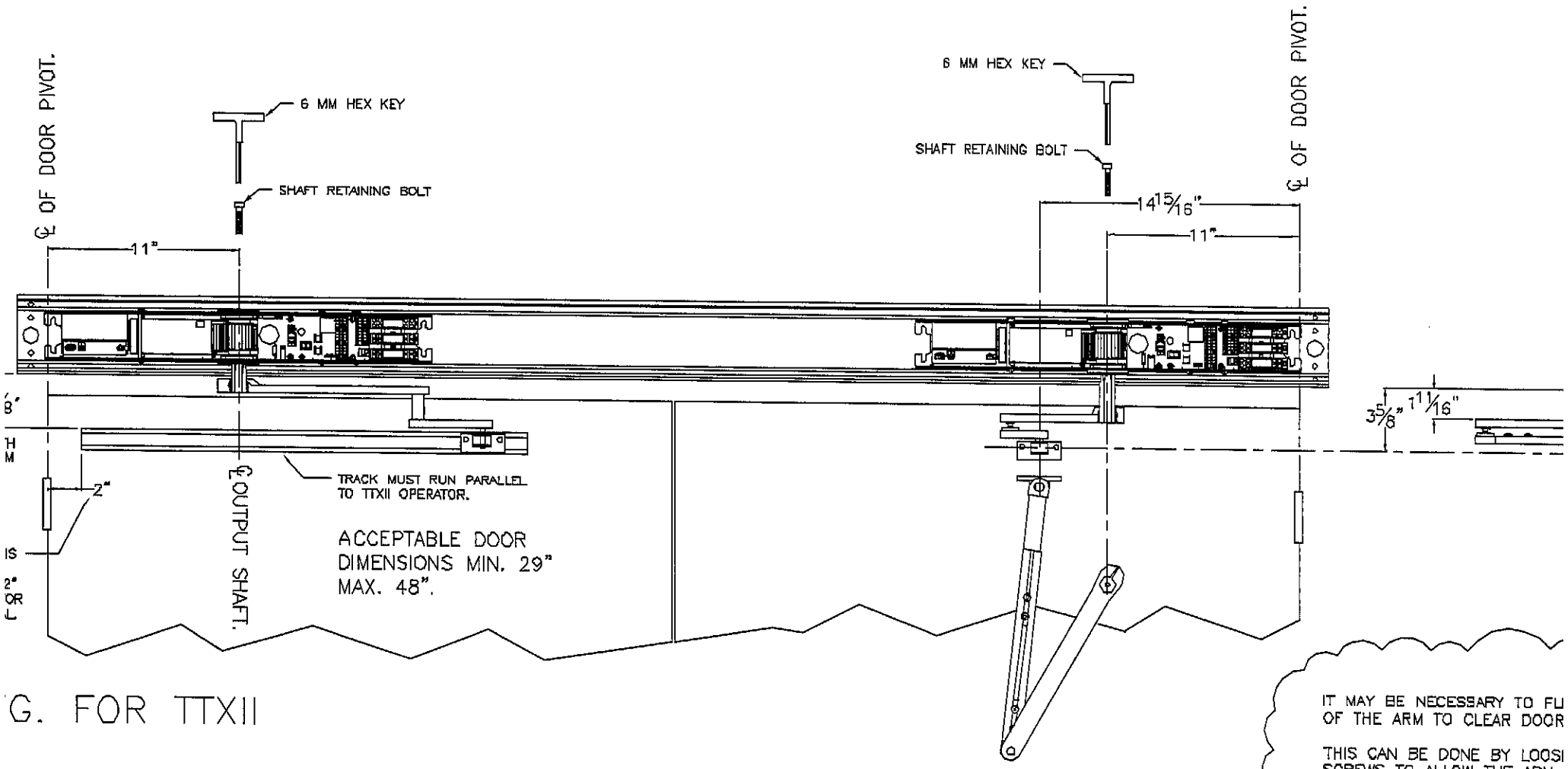
6. TIGHTEN DRIVE ARM TO OUTPUT SHAFT, THEN RETAINING BOLT TO OUTPUT SHAFT.

7. PLACE UNIT INTO AUTO. AND PERFORM FACTORY RESET. UNIT IS NOW READY FOR TEACH-IN (SOLID 0, FLASHING 0). REF. PAGE 25 OF THIS MANUAL.

2. REMOVE PROTECTIVE STRIP FROM ENCODER
FACTORY RESET (SOLID 9, FLASHING 1), AI
ONCE MOTOR HAS ROTATED APPROX. 20 D
WITH SURFACES A & B RUNNING PARALLEI
OUTPUT SHAFT TO 30 FT.-LBS.

3. CONNECT DRIVE ARM OPERATOR PORTION T
DOOR PORTION AS REQUIRED AND ADJUST
CLOSED POSITION.

4. PLACE UNIT INTO AUTO AND PERFORM FAC
UNIT IS NOW READY FOR TEACH-IN (SOLID
THIS MANUAL.



G. FOR TTXII

IT MAY BE NECESSARY TO FL
OF THE ARM TO CLEAR DOOR

THIS CAN BE DONE BY LOOSI
SCREWS TO ALLOW THE ARM
OUT. ROTATE THE SHAFT 180
RE-INSERT AS SHOWN.

INSWING PARTS LIST

P/N	DESCRIPTION

OUTSWING PARTS LIST

P/N	DESCRIPTION

ROVIDED, WITH CORRECT ANCHORS.

)WN. TRACK MUST BE PARALLEL TO
OF DOOR AS POSS. USE ALL
STENER COVER INTO PLACE.

SIDE OF COVER FACING UP. SLIDE
ALL TRACK END CAPS.

N PLACE OUTPUT SHAFT & ARM INTO
BOLT LOOSELY INTO THE OUTPUT SHAFT
).

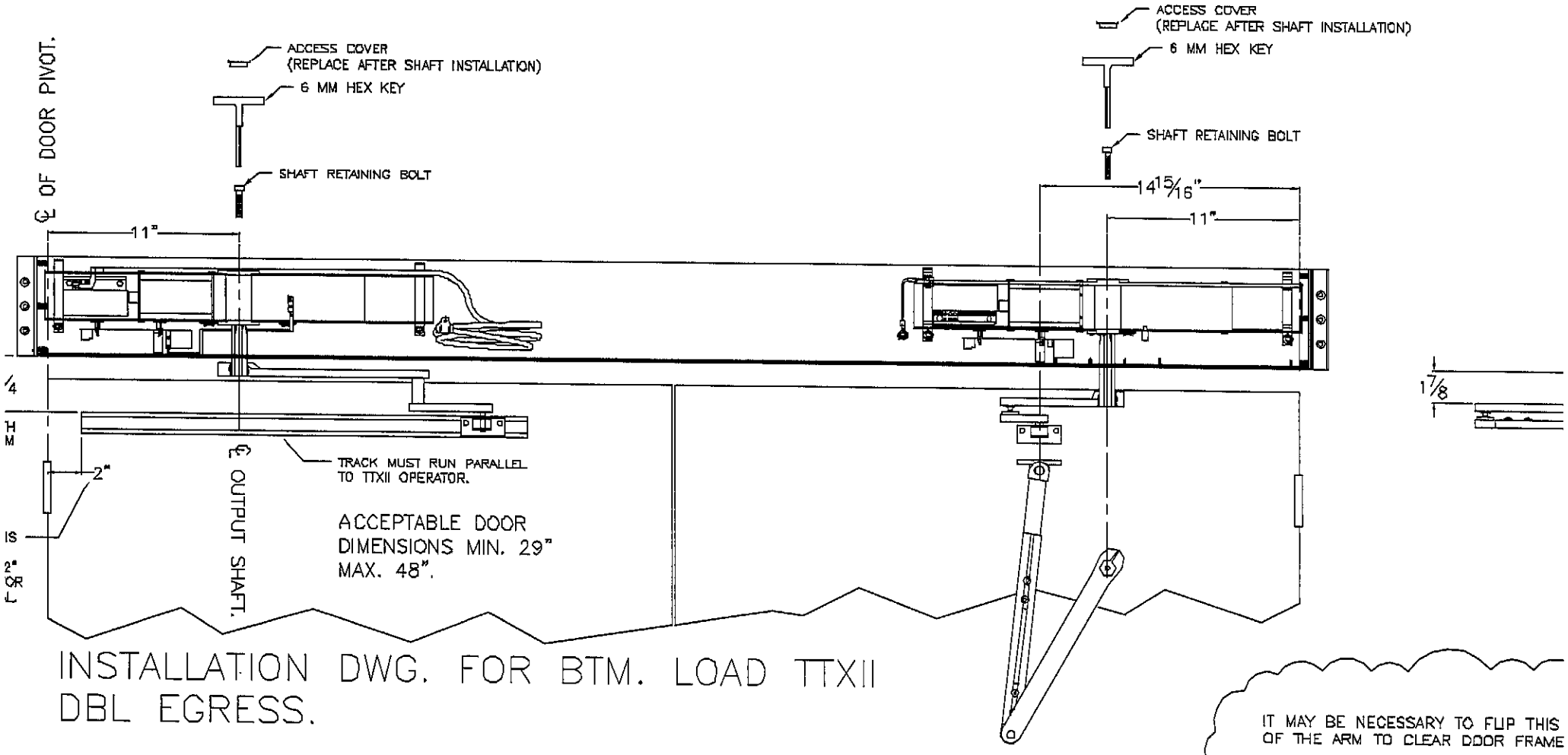
6. TIGHTEN DRIVE ARM TO OUTPUT SHAFT, THEN RETAINING BOLT TO OUTPUT SHAFT.

7. PLACE UNIT INTO AUTO. AND PERFORM FACTORY RESET. UNIT IS NOW READY FOR TEACH-IN (SOLID 0, FLASHING 0). REF. PAGE 25 OF THIS MANUAL.

2. REMOVE PROTECTIVE STRIP FROM ENCODER FACTORY RESET (SOLID 9, FLASHING 1), AI ONCE MOTOR HAS ROTATED APPROX. 20 D WITH SURFACES A & B RUNNING PARALLEI OUTPUT SHAFT TO 30 FT.-LBS.

3. CONNECT DRIVE ARM OPERATOR PORTION T DOOR PORTION AS REQUIRED AND ADJUST CLOSED POSITION.

4. PLACE UNIT INTO AUTO AND PERFORM FAC UNIT IS NOW READY FOR TEACH-IN (SOLID THIS MANUAL.



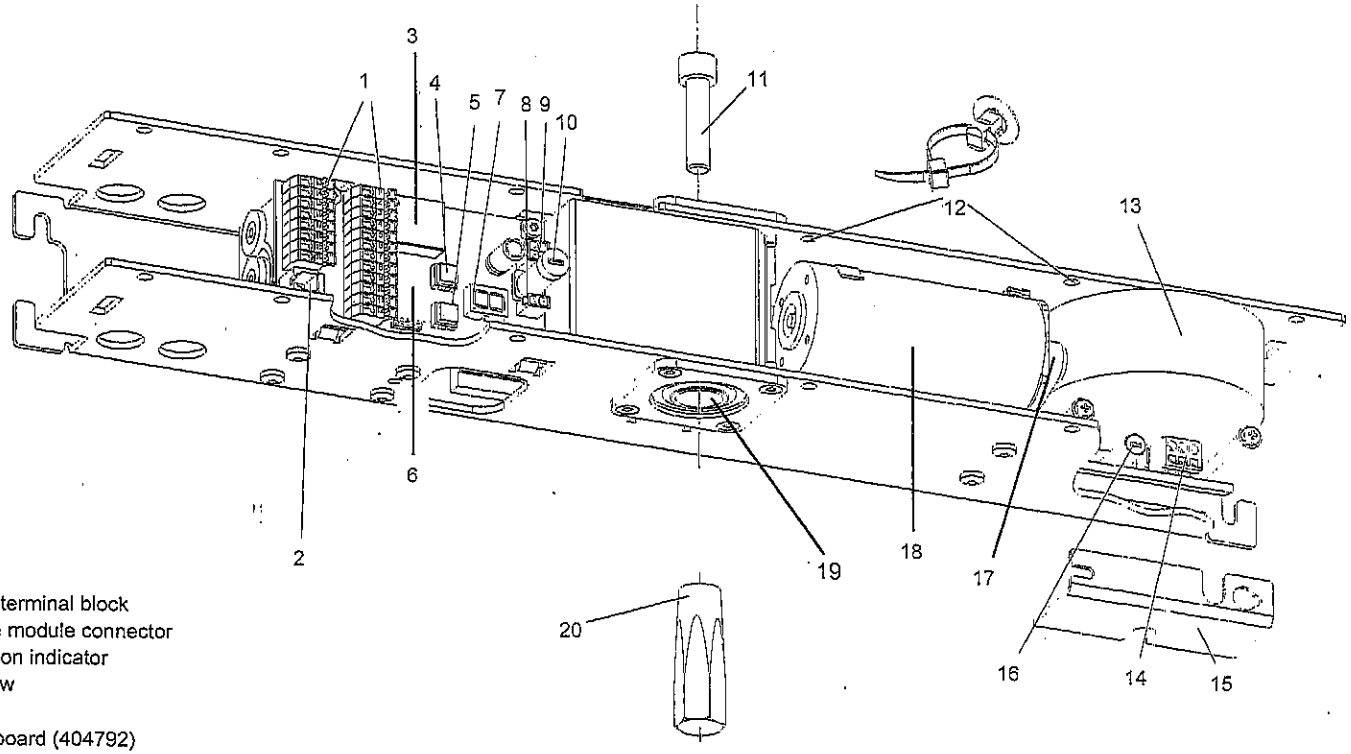
INSTALLATION DWG. FOR BTM. LOAD TTXII DBL EGRESS.

IT MAY BE NECESSARY TO FLIP THIS
OF THE ARM TO CLEAR DOOR FRAME

THIS CAN BE DONE BY LOOSENING T
SCREWS TO ALLOW THE ARM TO SLIC
OUT. ROTATE THE SHAFT 180 DEGREI
RE-INSERT AS SHOWN.

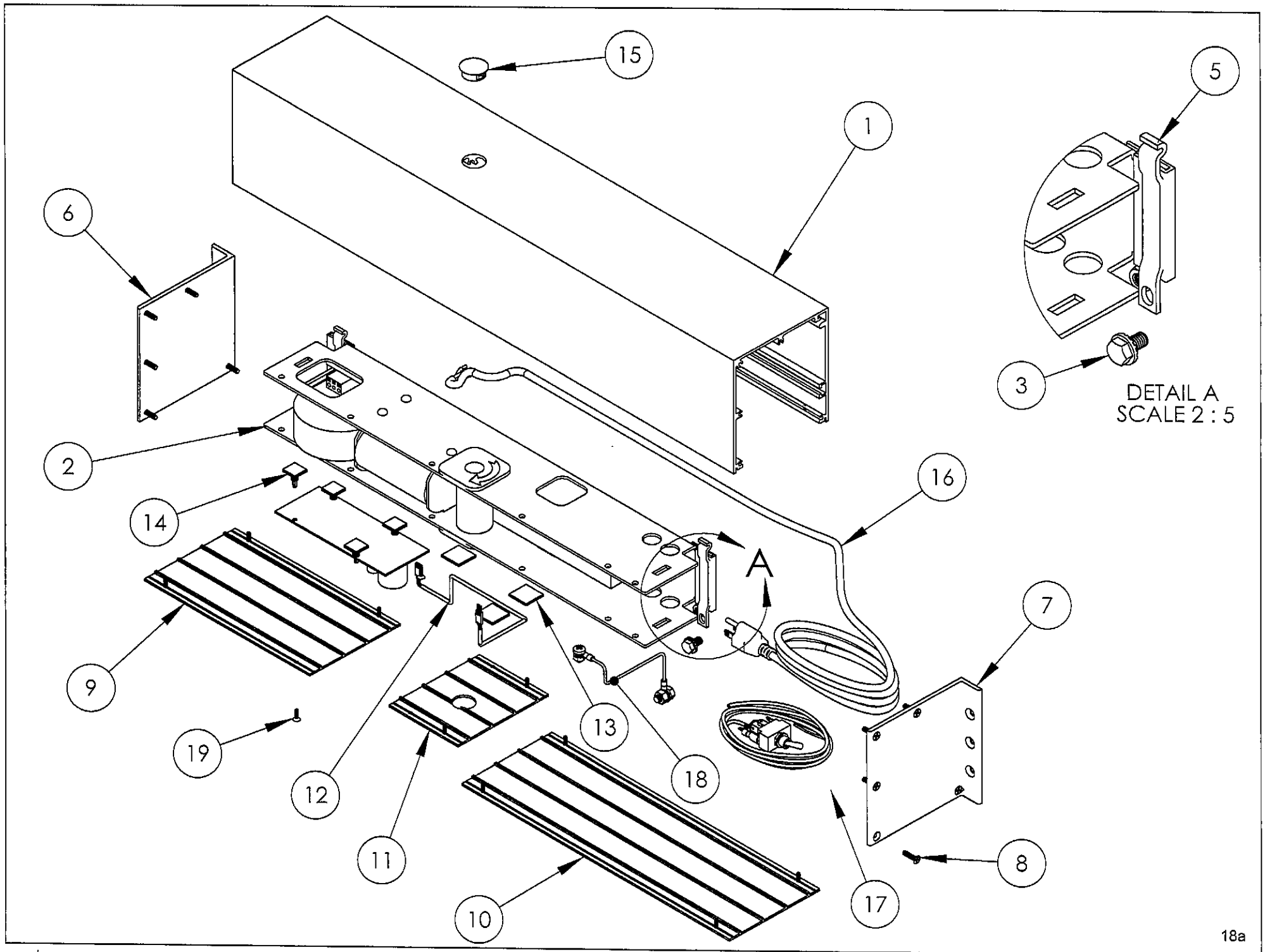
INSWING PARTS LIST

OUTSWING PARTS LIST



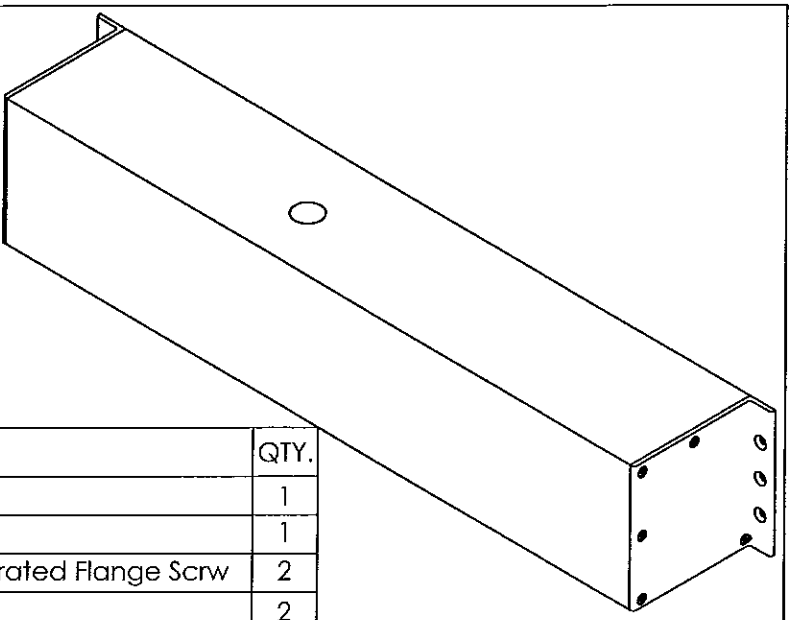
1 - Input / Output terminal block
2 - Master / Slave module connector
3 - Software version indicator
4 - Switch 1 Yellow
5 - Switch 2 Blue
6 - TTXII control board (404792)
7 - Digital display
8 - 24vAC input
9 - Motor / thermal overload input
10 - T 5A fuse (332362)
11 - 6mm alen bolt
12 - Tie wraps
13 - 24 vAC transformer (JEP.0002)
14 - Mains plug (140676)
15 - Mains plug cover
16 - 115 / 230v selector switch
17 - Drive belt (141047)
18 - TTXII motor (404762)
19 - Recepton
20 - Output shaft
2-5/8 " (141020)
3-1/4" (141032)
3-15/16" (141106-A)
4-7/8" (141205)

TORMAX
AUTOMATIC
8.04



18a

5 4 3 2

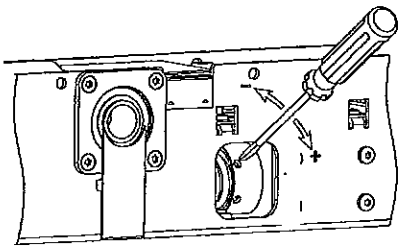


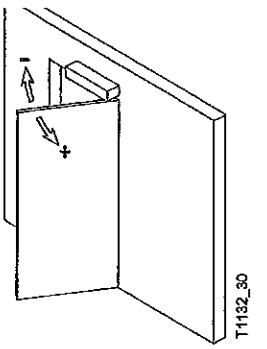
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	US800473	EXT: TTX-II Bottom Load Header	1
2	141022-UL	TTX-II Operator	1
3	142057	FSTNR: 5/16-18 x 1/2" Lg Hx Hd Serrated Flange Scrw	2
4	140241-10	FSTNR: 5/16-18 Hex Nut, ZP	2
5	US800477	TTX-II Btm Load, Chasis Bracket	2
6	US800701	TTX-II Btm Load, Endplate-LH	1
7	US800702	TTX-II Btm Load, Endplate-RH	1
8	US800706	FSTNR: 10-24 x 3/4" Fl Hd Ph, Thread Rolling, ZP-MS	10
9	US800474	EXT: TTX-II Btm Load Cover Plate	1
10	US800474	EXT: TTX-II Btm Load Cover Plate	1
11	US800470	TTX-II Btm Load, Spindle Cover Plate	1
12	US800712	TTX-II Btm Load Encoder Extension Harness	1
	US800708	22AWG Euro-Style Male Pin Connector, Bare	3
	US800710	3-Pin Connector Casing, Crimp Style	2
	US800709	22AWG Euro-Style Female Pin Connector, Bare	3
	US800707	22 AWG 4 Conductor Wire, PVC Shielded (10" Long)	1
13	140816	FSTNR: 1" Sq Mntng Base for Cble Ties Adh Bckd	3
14	US800703	Computer Board Stand-Off	4
15	US800711	Locking Hole Plug for 1" ID Hole, Nylon	1
16	140841	Power Cord 6'-0" Lg 18 AWG 3 Prong Pigtail	1
17	US800714	TTX-II Btm Load On-Off-HO Toggle Assembly	1
	US800713	3-Way Toggle Switch, 6 Terminal, Heavy Duty	1
	US800444	Label - OPEN-AUTO-OFF	1
	140999	PKG 4" x 6" Plastic Bag Zip Press, 100/Pack	1
	US800717	Female Terminal, 1/4" QD, 22-18 Ga	3
	US800707	22 AWG 4 Conductor Wire, PVC Shielded (48" Long)	1
18	US800588-01	TTX-II, Static Drain Assembly	1
	US800582	Ring Terminal, 16-14Ga, 1/4" Stud	1
	US800393-02	Static Drain Wire, Green, 16ga, 8" Long	1
	140245-02	FSTNR: 1/4-20 x 1/2" Lg, Pan Hd Phillips, ZP-MS	1
	140240-11	FSTNR: 5/16-18 x 5/8" Lg, Hex Hd Bolt, Grade-5, ZP	1
	140242-19	FSTNR: 5/16 Lock Wshr, Int-Tooth, ZP	1
	US800587	Ring Terminal, 16-14Ga, 5/16" Stud	1
	140241-10	FSTNR: 5/16-18 Hex Nut, ZP	1
	140242-23	FSTNR: 1/4" Int Tooth Lock Washer, SS	1
	US800574	FSTNR: 1/4-20 Hex Nut, Standerd Pattern, ZP	1
19	140245-53	FSTNR: 6-32 x 1/2" Lg, Flat Socket Hd, ZP-MS	12

Tormax Technologies	Part Number 111038	Drawing Number BOM - 111038-A
C:\Documents and Settings\dwoodring\My Documents\David Cad\TTX Bottom Load\		SCALE:1:10 SHEET 2 OF 2

5 Mechanical Adjustments

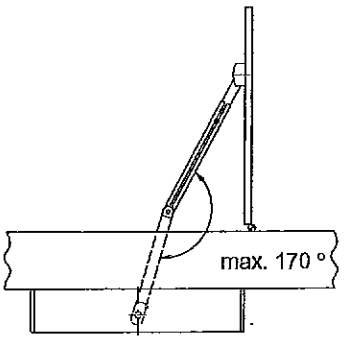
The internal Open end Stop will keep the door from opening beyond 90 degrees.□ Open the operator to 90 degrees, adjust Open end Stop 3/8" away from brass block, □ teach in the door keeping the 3/8" gap.





New internal Open end Stop has rubber bumpers that absorb impact if the door is forced open beyond 90 degrees. By absorbing the impact the output shaft will not slip if 6mm bolt is tightened to 30 ftlb.

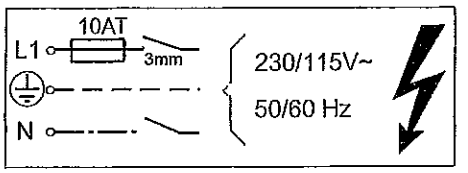
The door should only be opened so far that the standard linkage cannot tip over and the sliding lever does not leave the rail.



Door in full open position and 3/8" gap between□ Open end Stop and brass block.

6 Electrical Connections

A system switch must be mounted on site.



T1132/1

Mains Connection

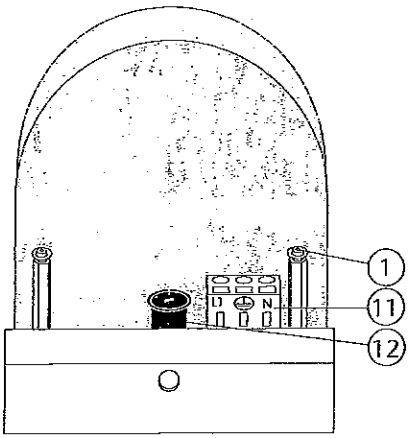
Before beginning the work described here check that the mains supply is switched off.

If possible, route the mains connection along the side of the power supply to the operator.

The connecting cables must be of the type "PVC cable H05VV-F" or "rubber hose cable H05RR-F".

Round the edges and remove burrs from all conduits used for the mains connection.

- Remove mains supply cover (1).
- Connect the mains cable to terminal (11) in accordance with figure.
- Route the mains cable either through the prepared holes of the side cover or through the slots in the mounting plate.
- Use only cable bushings made from synthetic materials. Metallic bushings are to be earthed.
- Check correct adjustment of the voltage selector (12) and reinstall the mains supply cover (1).
- Secure mains cable with a cable strap at the plastic binder (17) and at the supporting metal sheet.



T1132_34

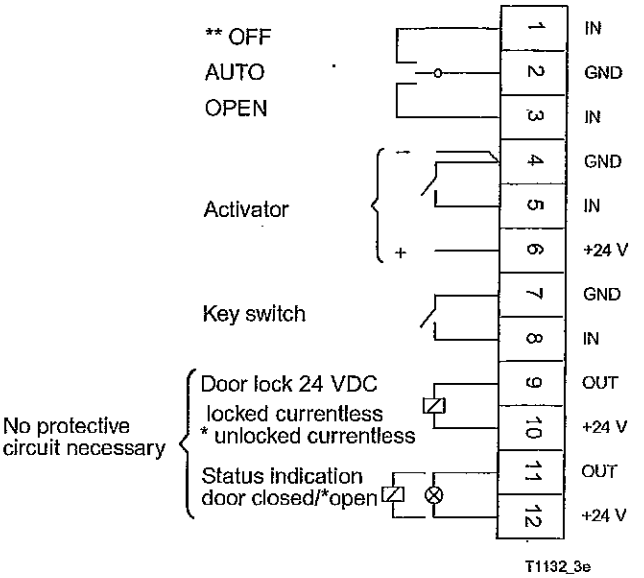
Emergency-off Switch ◆

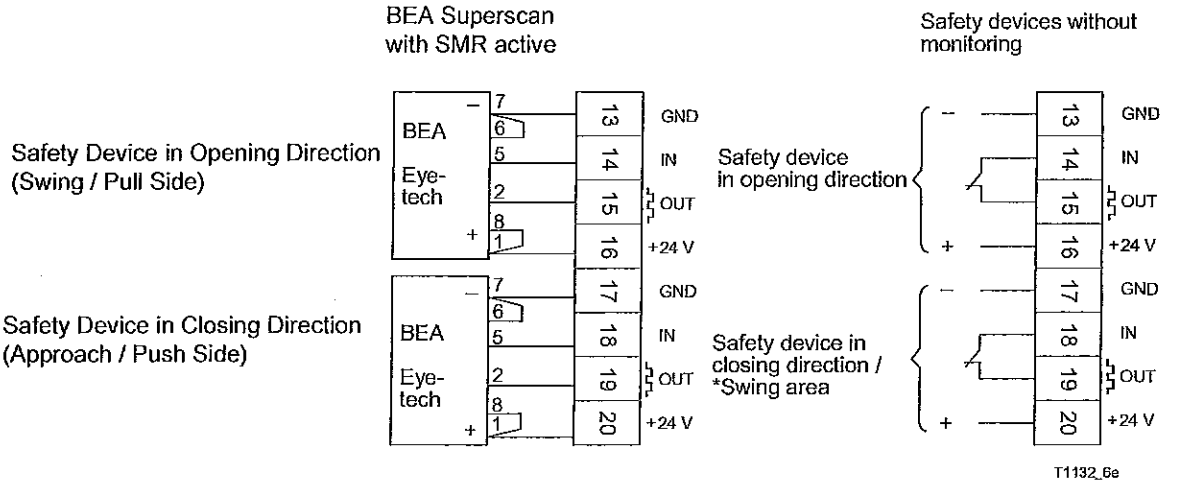
- Mount the emergency-off switch in accordance with the contract order and route the mains connection via emergency-off switch. (Optional)

Activator and Safety Sensors ◆

- Mount for ANSI 156.19 compliance
- Connect in accordance with connection diagram and the manufacturer's specification
- Adjust the detection field/sensitivity and action radius according to the requirements and the surroundings of the system.

Terminal Connections





Legend:

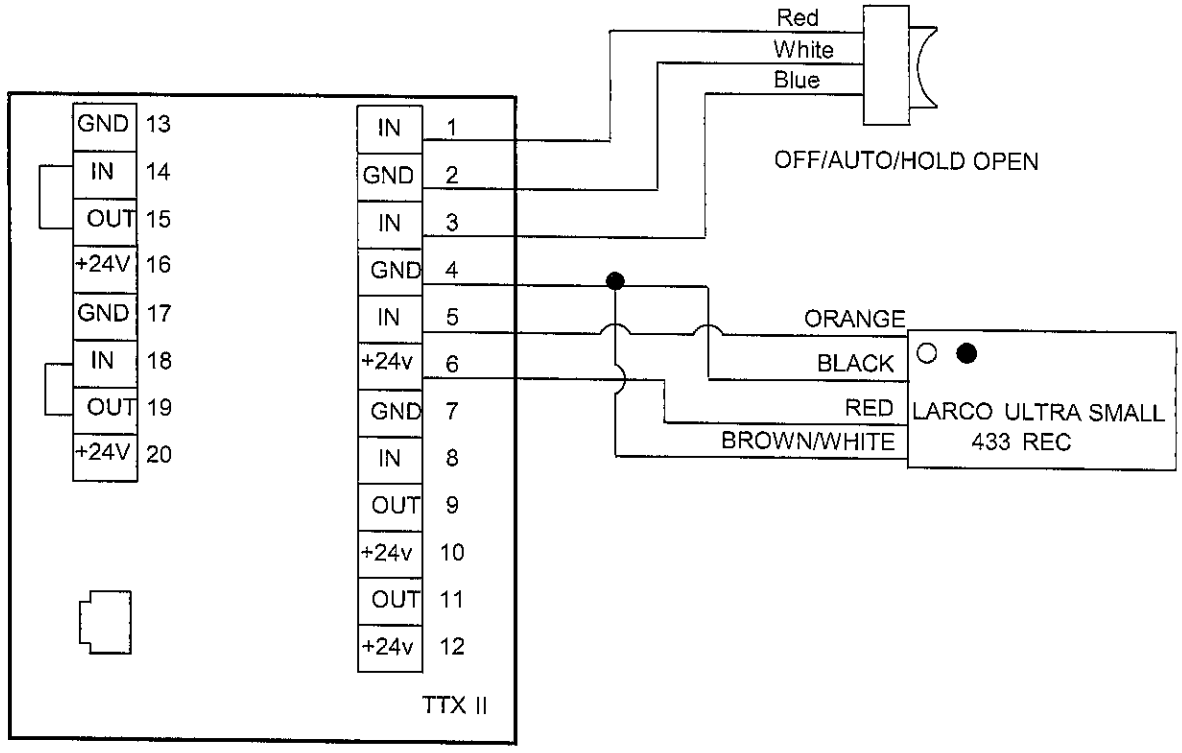
*	programmable
+24 V	24 VDC (21 ... 24 VDC), total max. 0.75 A
IN	Input (contact load 24 VDC / 4 mA)
OUT	Output NPN (max. load 24 VDC/0,75 A) integrated protective diode
**	Applying an impulse on operating mode OFF (min 0.6 s) interrupts the current hold-open time.

Configuration of BEA Superscans / Eyetech sensors

Master-Slave Mode: activated

Master function mode: light on

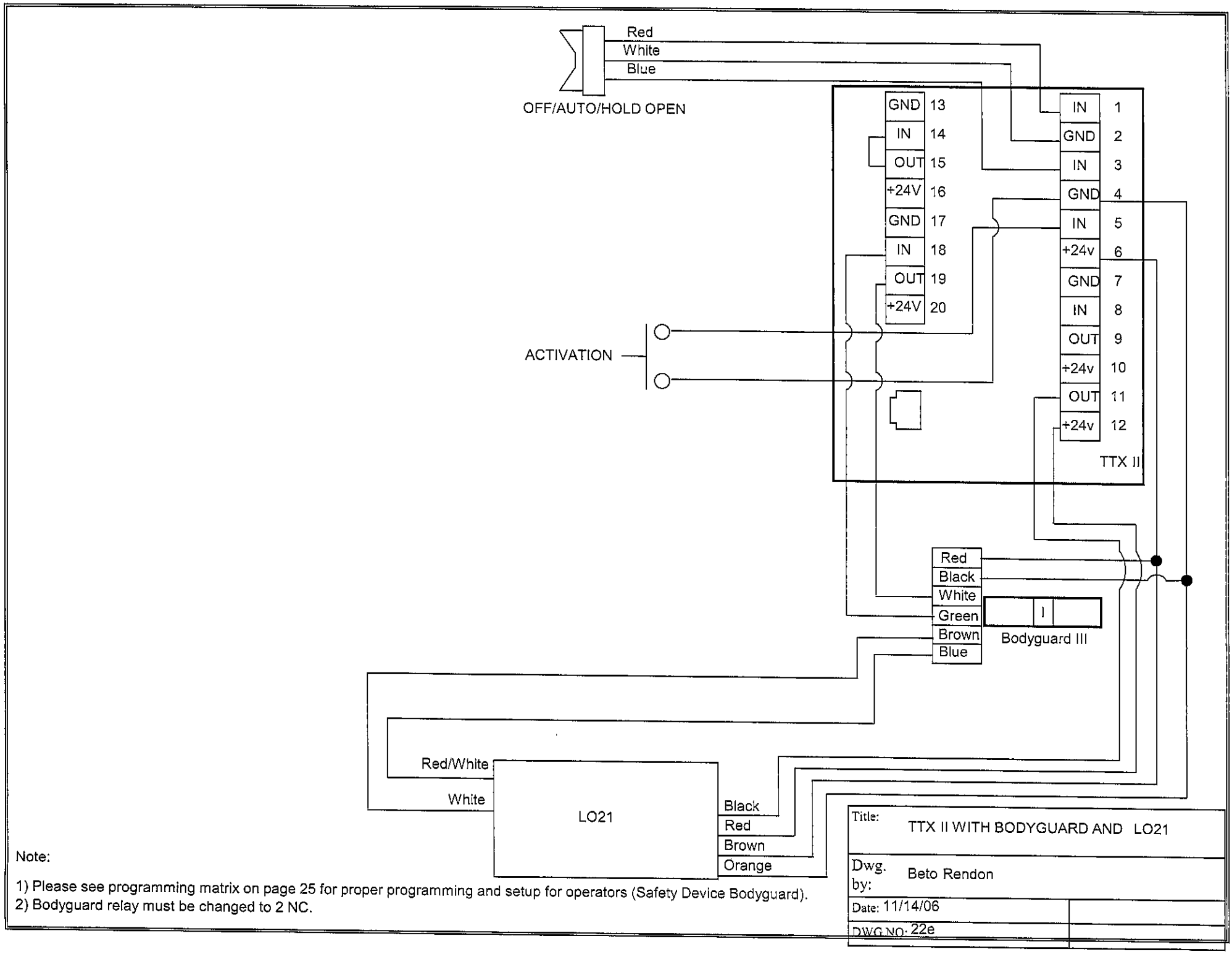
For detailed information see BEA Sperscan / Eyetech user guide.



Note:

Please see programming matrix on page 25 for setup.

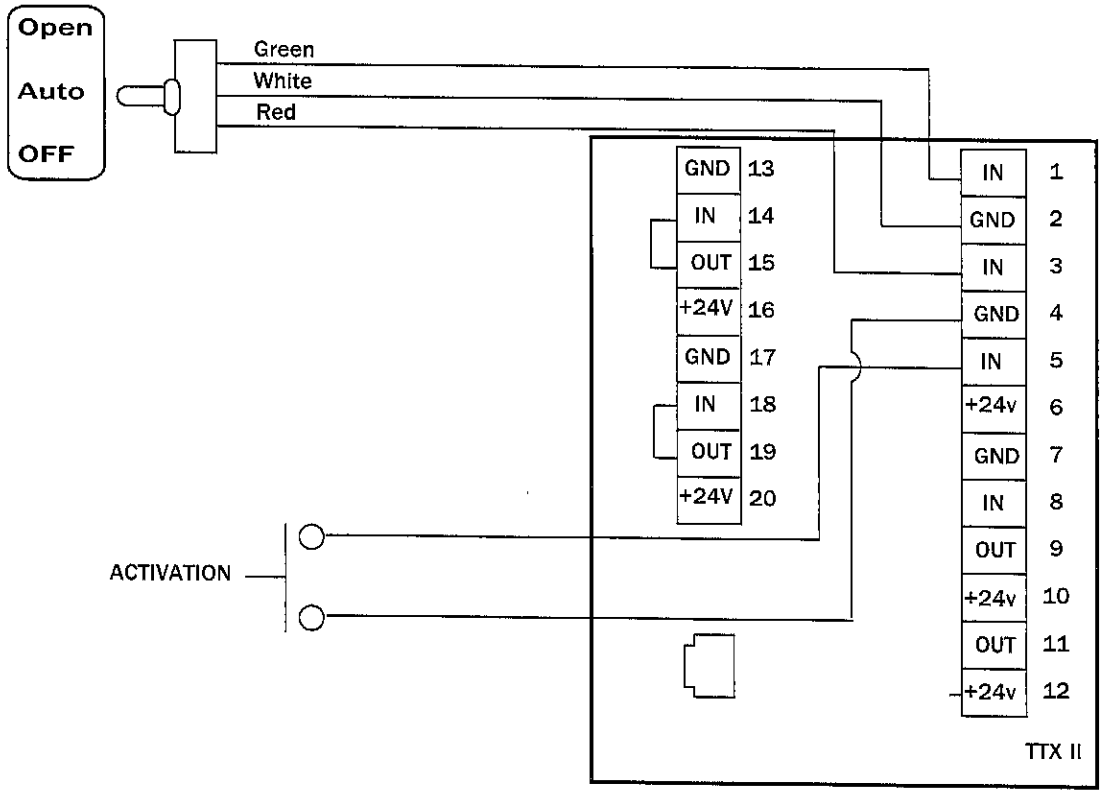
Title:	TTXII WITH LARCO 433 WIRELESS RECEIVER AND TRANSMITTER
Dwg. by:	Beto Rendon
Date:	4-3-06
DWG NO.	22d



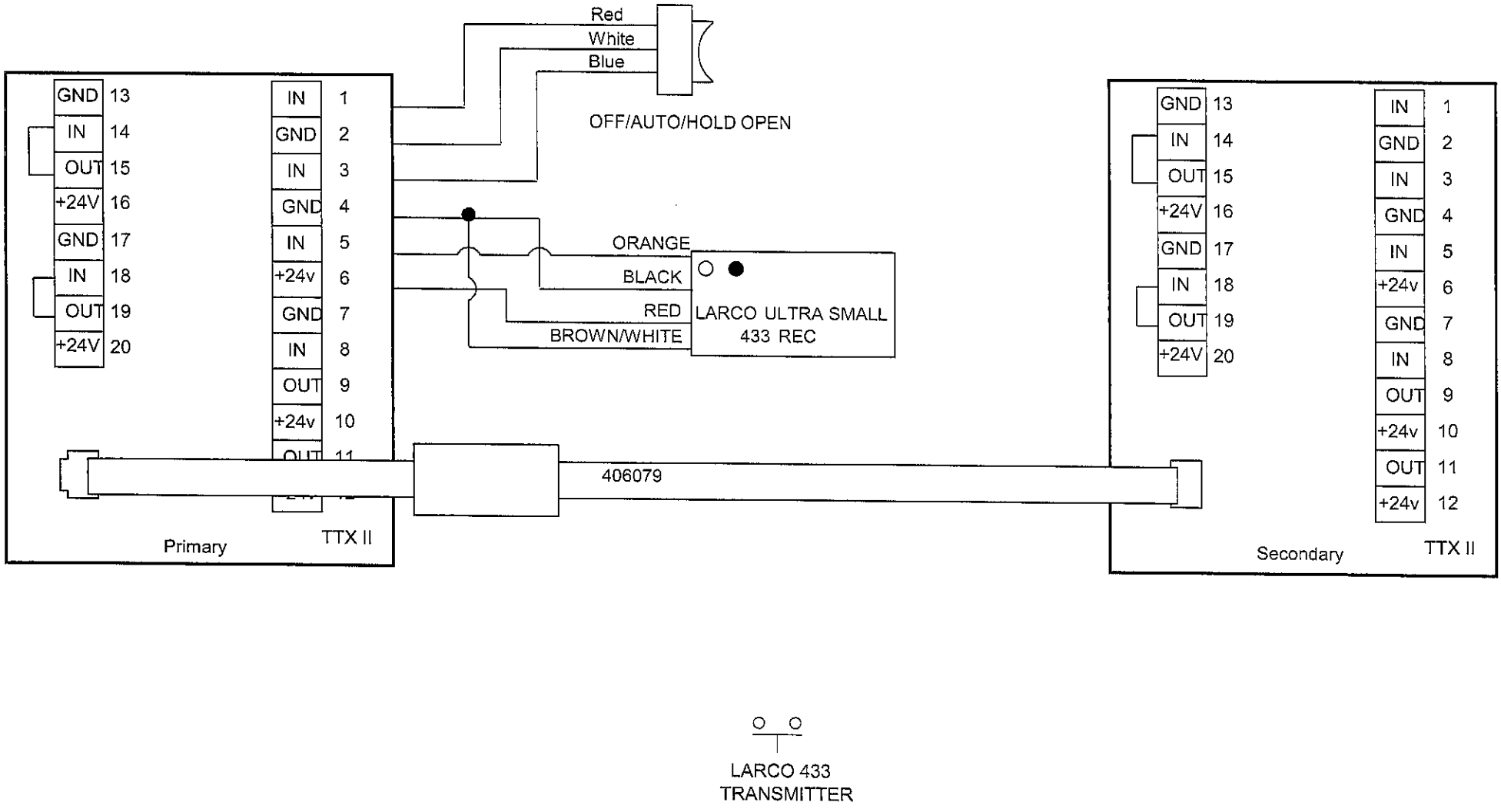
Note:

1) Please see programming matrix on page 25 for proper programming and setup for operators (Safety Device Bodyguard).
2) Bodyguard relay must be changed to 2 NC.

Title:	TTX II WITH BODYGUARD AND LO21
Dwg. by:	Beto Rendon
Date:	11/14/06
DWG NO:	22e



Title:	TTXII Btm Load
Dwg. by:	Beto Rendon
Date:	2/15/08
DWG NO:	1

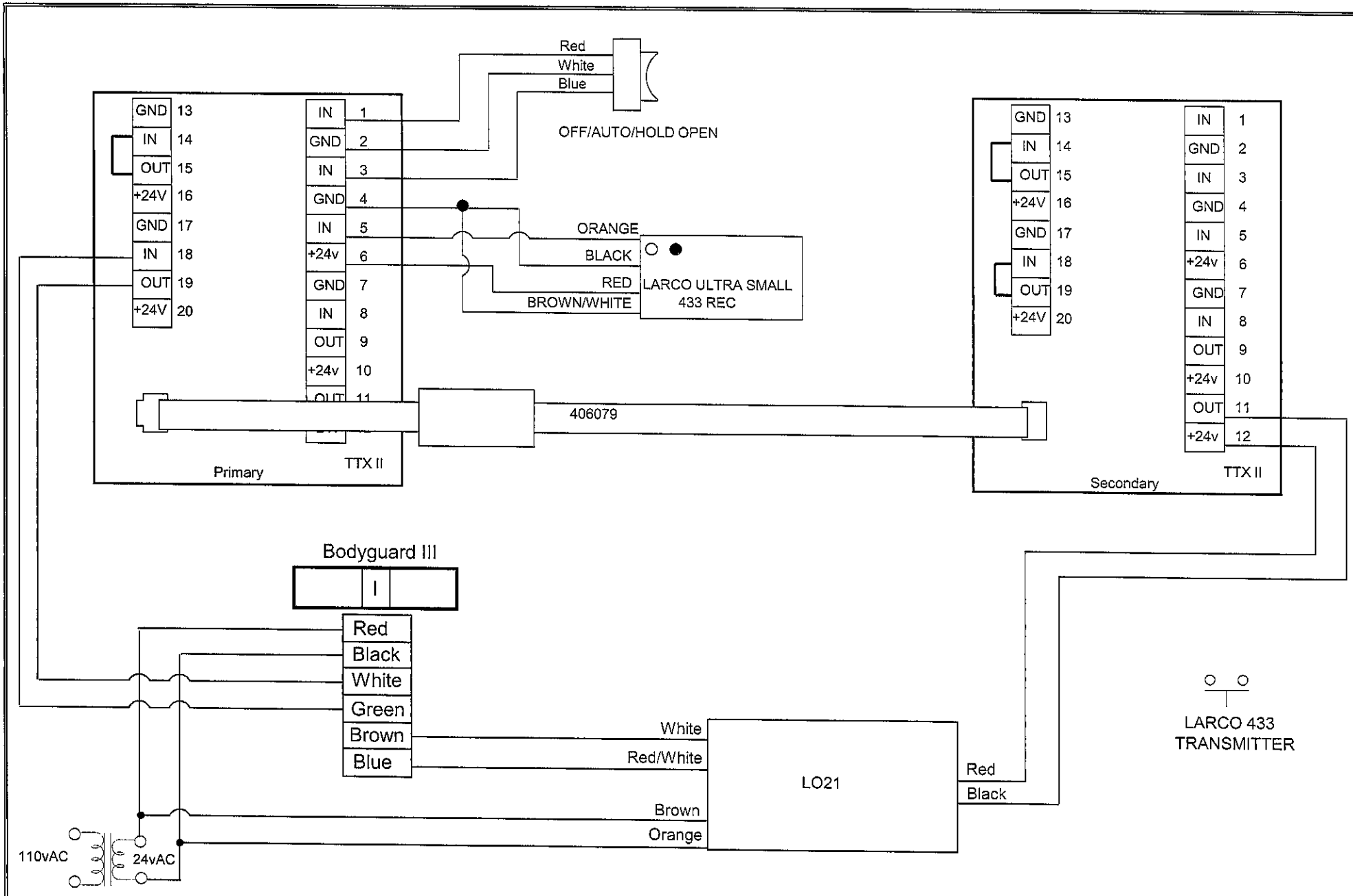


LARCO 433
TRANSMITTER

Note:

See programming matrix on page 25 and programming procedure on page 30.

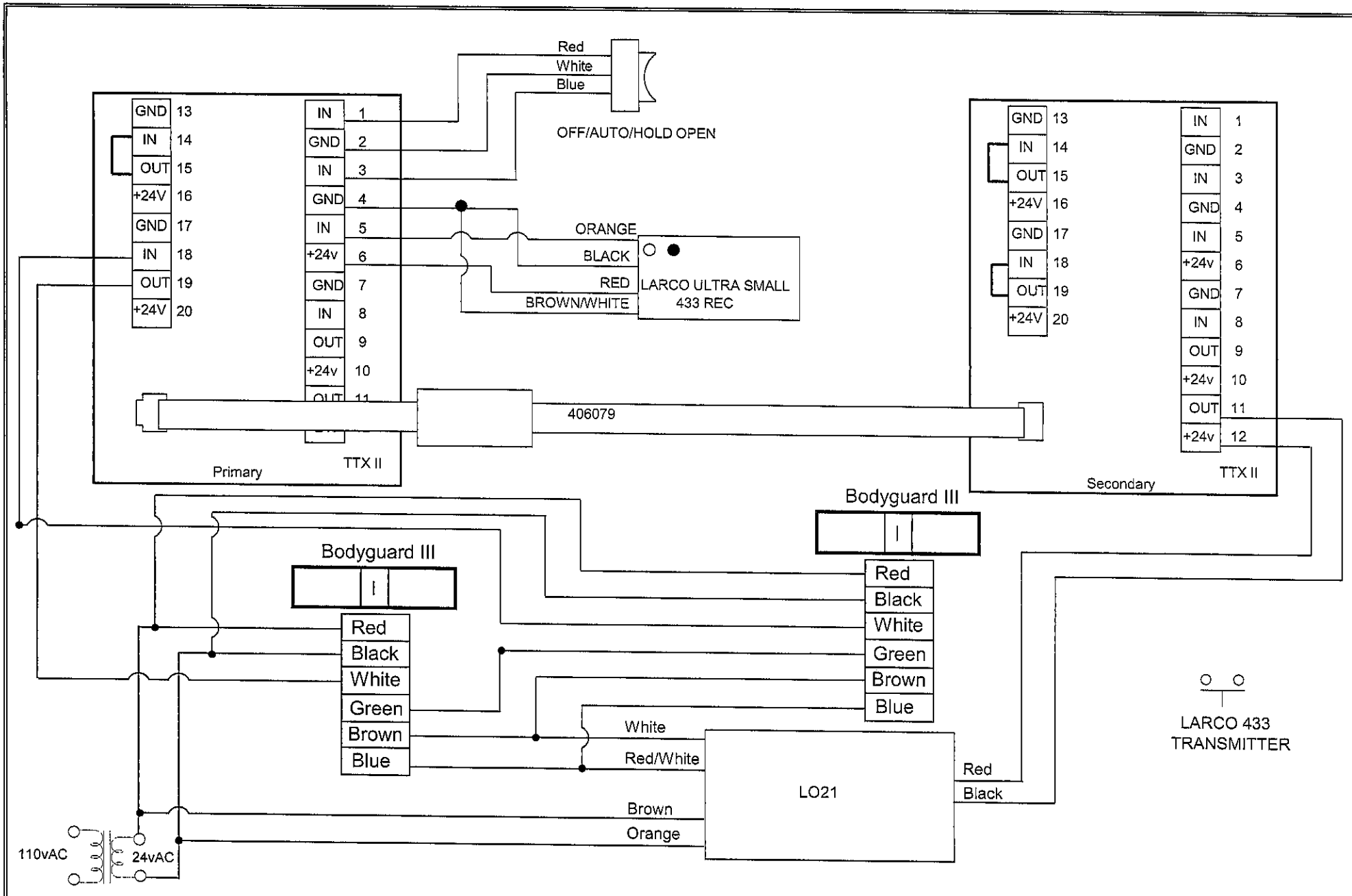
Title:	TTXII PAIR WITH LARCO 433 WIRELESS RECEIVER AND TRANSMITTER
Dwg. by:	Beto Rendon
Date:	2-12-09
DWG NO:	22N



Note:

See programming matrix on page 25 and programming procedure on page 30.
Set Bodyguard to relay 2 - NC.

Title:	TTXII PAIR WITH LO21, BODYGUARD AND 433 WIRELESS RECEIVER.
Dwg. by:	Beto Rendon
Date:	2-13-09
DWG NO:	220



Note:

See programming matrix on page 25 and programming procedure on page 30.
Set both Bodyguards to relay 2 - NC.

Title:	TTXII DOUBLE EGRESS PAIR WITH LO21, BODYGUARDS AND 433 WIRELESS RECEIVER.
Dwg. by:	Beto Rendon
Date:	2-13-09
DWG NO:	22P

7 Commissioning of the Automatic System

Requirements

- The sensors, safety facilities and operating devices are professionally installed, connected and preset.
- The operator is mounted professionally and the linkage is attached.
- The linkage and the internal end stop are adjusted and coordinated.
- The mains cable is expertly laid and connected.
- The system is switched on and the door is in the closed position.
- The point LED at the digital display is illuminated

7.1 Commissioning with "Teach-In General"

⚠ During commissioning and in particular during "Teach-In" no people or items may be present in the swing area of the door!

1) With the door in the closed position and the rocker switch set to Auto, simultaneously press the Yellow and Blue buttons for 2 seconds. (No number will be displayed)
2) Immediately press the Yellow button until a solid 0 is displayed. (Function Teach-In is now active)
3) Press the Blue button and the 0 will start to flash (operator is now ready to be taught in)

⚠ 4) While 0 is flashing physically open the door at a fast rate, hold open for the desired time delay and allow door to spring close. Immediately activate operator by Push-N-Go or activating device wired into 4 and 5.
5) While the door is opening you will see a flashing 1, when the door reaches full open you will see a flashing 2, while the door is closing a flashing 3 and then the display will go back to a solid LED.

⚠ Teach-In is now complete and the operator can be operated, if a slower opening speed is desired use Function 8 to govern the speed.

Remember to adjust door opening speed in respect to ANSI 156.19 and / or any other local codes.

7.2 Programming Procedure

(See table in section 7.4)

The TTXII operator possesses many useful features and parameters. These can be programmed through 2 keys and a digital display as follows:

- Push simultaneously the yellow and the blue key → programming mode is active. (No number is visible on the digital display yet).
- Select the desired (FUNCTION) with the yellow key, number display lit on not flashing.
- Press the blue key to confirm and enter the (PARAMETER) adjustments, number display starts flashing.
- Modify the parameter with the yellow key as desired. With "Teach-In" functions 0/0 ... 0/9 execute the door motion manually.
- For storage of the adjusted parameter, press the blue key again. With the "Teach-In" functions 0/0, 0/2, 0/5 and 0/7 trigger a trial opening (see point 5, section 7.1)

The procedure is thus complete and the 1st number (function) is displayed again.

If no action takes place for 5 s during programming, the procedure is aborted without effect. (Return to functions or leaving programming mode). Exceptions are the parameters of the "Teach-In" function, which can be cancelled by pressing the blue key with flashing 0, as long as the door has not been moved.
The input and outputs are inactive as long as the control system is in the programming mode.

7.3 Programming Examples

Program the desired functions now in sequence in accordance with the programming table. The individual functions are described in section 7.4.

Check the programming options immediately after they are set!

Example 1

Changing the opening time delay to 1.2 s.

- Read values from the programming table.
- Push simultaneously the yellow and the blue key → programming mode is active. (No number is visible on the digital display yet).
- Press the yellow key several times until the number 3 appears on the display → Number 3 is lit (FUNCTION)
- Press the blue key once for confirmation of the choice → Number 0, or the value programmed last, flashes (PARAMETER)
- Press the yellow key several times until the number 3 appears → Number 3 flashes (PARAMETER)
- Press the blue key once for storage of the adjusted value → Number 3 is lit (FUNCTION)

Example 2

Examination of the last programmed value of the release angle for the function "Push and Go".

- Push simultaneously the yellow and the blue key → programming mode is active. (No number is visible on the digital display yet).
- Press the yellow key several times until the number 1 appears on the display → Number 1 is lit (FUNCTION)
- Press the blue key once for confirmation of the choice → The last programmed value is now displayed and is flashing

The value associated with the displayed number can be inferred from the programming table.

Example 3

Factory reset

- With closed door: push simultaneously the yellow and the blue key → programming mode is active. (No number is visible on the digital display yet).
- Press the yellow key several times until the number 9 appears on the display → Number 9 is lit (FUNCTION)
- Press the blue key once for confirmation of the choice → Number 0 flashes (PARAMETER)
- Press the yellow key once → Number 1 flashes (PARAMETER)
- Press the blue key once to execute the factory reset

TTX II Programming Table (V1.2 and up Software)

Teach-in Programming Steps: FUNCTION 0, PARAMETER 0 & FUNCTION 0, PARAMETER 5

1. Press and hold Blue and Yellow buttons for 2 seconds
2. Immediately press Yellow button to select FUNCTION / solid "0"
3. Immediately press Blue button to confirm PARAMETER / flashing "0"
4. Manually open door to set open speed, open position, hold open time and closing speed
5. Activate door within 2 seconds after the door has completely closed (0 should be flashing) via activating device (input 4 - 5) or Push n Go to save settings

Program steps: FUNCTIONS 1-9,

1. Press and hold Blue and Yellow buttons for 2 seconds.
2. Immediately press Yellow button to select FUNCTION / solid number (by step pressing Yellow button solid number will change).
3. Immediately press blue button to confirm PARAMETER / flashing number.
4. Press Yellow button to select PARAMETER / flashing number (by step pressing Yellow button flashing number will change).
5. Press Blue button to confirm and display will go back to FUNCTION / solid number that was changed for a moment then go out and return to a solid LED.

SOLID NUMBERS (FUNCTION)

FLASHING NUMBERS (PARAMETER)

	0	1	2	3	4	5	6	7	8	9
	0..4 General Teach-In 5..9 Key Switch ■	Push & Go*	Safety Device - Pull / Swing; Safety Device - Push / Approach; Safety Device - (Bodyguard); Reverse on Obstruction Open/Close	Opening Time Delay (Electric Strike / Maglock Delay)	Time Control; Step Control; Door CLOSED Status; Door OPEN Status - (LO21); Electric Strike - Fail Secure; Electric Strike, Mag Lock - Fail Safe	Latch / Close Check Angle*	Latch / Close Check Speed	Opening Force / Reversing Sensitivity	Opening and Closing Speed Adjustment	Reset, Special Functions
0	**motion control****	1.2°	x x x	0.2 s	x x x	12°	8	max	**off**	
1	opening speed	off	x x	0.4 s	x x x	4°	fast	max.	max.	Factory Reset
2	open position**	0.3°	x x x	0.8 s	x x x	8°	↓ close check speed ↓	↓ Force / Sensitivity ↓	↓ Opening and Closing Speed governor (overrides teach-in) ↓	Primary / Secondary
3	hold-open time	0.5°	x x x	1.2 s	x x x	12°				
4	closing speed	1.2°	x	1.6 s	x x x	16°				
5	motion control**■	2.4°	x x	2.0 s	x x x	20°				
6	opening speed ■	4.8°	X = Function active	2.4 s	x x x	24°				
7	open position**■	9.5°	No X = Function not active	2.8 s	x x x	28°				Delay On / Off
8	hold-open time ■	14.4°		3.2 s	X = Function active	32°				
9	closing speed ■	19.3°		3.6 s	No X = Function not active	36°	slow	min.	min.	

Factory Settings

See section 7.6

See Page 30

■ = Key Switch

Inputs: Access Control / Push Plate when Push & Go and dedicated push plate mode of operation is seperate from one another

* All angular data is related to the drive shaft, NOT the door leaf

**During initial test opening, the safety device in the opening direction is turned off

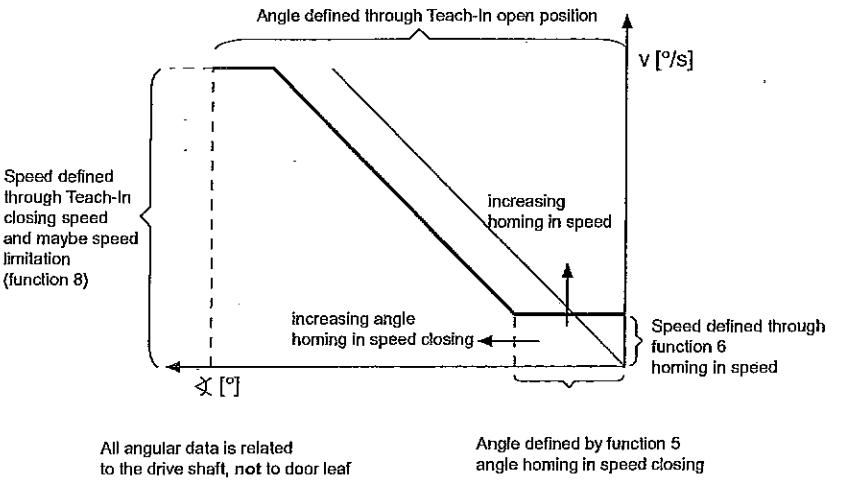
7.4.1 Programmable Functions

Function		Para-meter	Description of Function
0	**Teach-In General**	0	Automatic teaching procedure for adjustment of the operational behaviour: Opening and closing speed, open position, hold-open time, disabling angle for safety device in opening direction The behaviour applies to opening through activators, key switches and Push-and-Go. The fitter must carry out "Teach-In General" for each system!
		1	The opening speed of "Teach-In General" is changed.
		2	The open position of "Teach-In General" is changed. Caution: The disabling angle for the safety facility in opening direction is thereby registered anew.
		3	The hold-open time of "Teach-In General" is changed (max. 100 minutes).
		4	The closing speed of "Teach-In General" is changed (max. 100 minutes).
0	**Teach-In key switch**	5	Optional automatic teaching procedure for establishing another operational behaviour during opening with the key switch (terminal 7–8): Opening and closing speed, open position, hold-open time. Caution: The disabling angle for the safety facility in opening direction is thereby registered anew.
		6	Only the opening speed of the Teach-In key switch is changed
		7	Only the open position of the Teach-In key switch is changed Caution: The disabling angle for the safety facility in opening direction is thereby registered anew. The disabling angle applies to all opening motions.
		8	Only the hold-open time of the Teach-In key switch is changed (max. 100 minutes)
		9	Only the closing speed of the Teach-In key switch is changed
1	**Push-and-Go**	0	"Push-and-Go" is switched on. On an attempt to open the door manually the door opens automatically in accordance with "Teach-In General". The preadjusted release angle at the drive shaft is 1.2 °.
		1	Push-and-Go is switched off. No motor-driven opening takes place on an attempt to open the door manually. The door closes in a controlled manner as soon as it is released.
		2...9	Push-and-Go is switched on. The door opens automatically in accordance with "Teach-In General" on an attempt to open the door manually. The release angle for Push and Go is adjustable from 0.3 ° to 19.3 °, measured at the shaft of the drive unit.
2	**Safety devices with reversing** (see Chapter 5 Basic Functions)	0	Safety devices in Pull / Swing and Push / Approach side activated. (door mounted sensors) Reverse on Obstruction On.
		2	Safety device Bodyguard and Message Door Open / Opening active.
	Safety devices with-out reversing (see Chapter 5 Basic Functions)	3	Safety device in Pull / Swing and Push / Approach side. (door mounted sensors) Reverse on Obstruction Off.
		4	Safety Device Pull / Swing (door mounted sensor).
		5	Safety Device Bodyguard and Message Door Open / Opening active.
3	**Opening time delay**	1 ... 9	After an opening command, the door lock is unlocked immediately. The motor is only started on completion of the opening time delay so that the door has sufficient time to unlock. The opening time delay is adjustable from 0.2 to 3.6 s.
4	**Special functions**	0...7	In this adjustment menu, 3 different functions can be selected in combination according to the specifications in the programming table: 1. Sequencing according to time or step control 2. Door lock current-free unlocked or current-free locked 3. Feedback of door state: „door closed" or „door open"
5	Latch / Close Check Angle	1...9	The angle homing in speed closing of the door on closing can be adjusted between 4 ° and 36 °. From this position onward, the adjustable damping becomes effective. (0 = standard value 12 °)
6	Latch / Close Check Speed	1...9	The homing in speed closing is effective from angle homing in speed closing and is thus dependent on this setting. The homing in speed can be adjusted between a minimum, e.g. end stop for door lock, and maximum homing in speed for softly driving to the final position. (0 = standard value with medium homing in speed)
7	Opening Force / Rev. Sensitivity	0...9	Default setting is 0. Parameter 0 is lowest sensitivity which results in maximum opening force. Parameter 9 is highest sensitivity which results in minimum opening force.

Function		Para-meter	Description of Function
8	**Speed Adjustment (Governor)**	0...9	When performing the "Teach-In General" open door fast then adjust speed with this function. The highest speed possible will be the speed you open door if you open door at 2 in per second the fastest it will open when set to 1 will be 2 in per second.
9	**Factory Reset**	1	With the factory reset, all programming changes made are reset to the default values specified at the factory. The CLOSED position must be redefined. The system must be re-commissioned in accordance with section 7.1, Commissioning With "Teach-In General".
	Primary / Secondary	2	Module 406079 used to link simultaneous or double egress paired operators, see section 7.6 for □ setup.
	Time delay between operators	7	Secondary operator will open .5 seconds slower than primary operator as default. Set both operators to function 9 parameter 7 if you would like both operators to open with out a delay of each other.

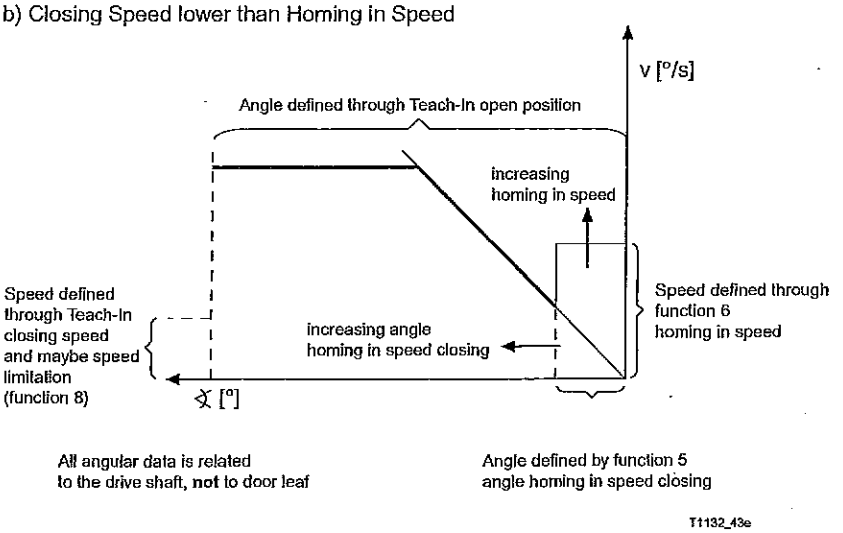
7.4.2 Effect of Homing in Speed and Angle for Homing in Speed Closing

a) Closing Speed higher than Homing in Speed



T1132_42e

b) Closing Speed lower than Homing in Speed



T1132_43e

7.5 Low Energy Applications

The TORMAX TTXII operator must be adjusted to comply with the following standards DIN V 18650 in Europe or ANSI A156.19 in the USA regarding low energy requirements. In order to comply with these standards, among other things, certain adjustments on the control system are necessary.

This concerns the settings:

– Angle homing in speed closing

– homing in speed

– Opening force limitation

– Speed limitation,

i.e. the function 5–8 in the programming table.

Refer to ANSI 156.19 standard for proper adjustments / functions and local codes.

7.6 Double-leaf doors

2 TTXII operators can be linked together for double-leaf (Simultaneous / Double Egress Pairs) by using the 406079 (primary / secondary) module.

See directions in this section.

Electrical Connections

As described in Chapter 6, the following instructions also apply:

- Always operate both units directly connected to the same power supply (L1, N, PE). Both units must have the same earth potential!
- So that data can be exchanged between the two control units, both RS232 interfaces (16) are linked with a special (cable loom) adapter.

* The Off / Auto / Open switch must be connected to the primary operator.

Commissioning the automatic system

Pre-requirement

- Both assemblies are mechanically ready for operation and capable of functioning individually.
- The safety systems and activators ◆ are connected and fully functional.
  Exception: Bodyguard may only be connected and programmed after commissioning the drive.

Keep the swing path of both doors clear to avoid any injury. □
Before programming both doors must be completely closed.

The commissioning process is not essentially different from that for a swing door with only one leaf but instead of commissioning using "Teach-In General ", as described in Section 7.1, the procedure is extended:

Procedure

406079 Primary / Secondary module

*** Control must be SW version V1.4 or above ***

*** Perform preload as specified in manual including the Factory Reset (solid 9 flashing1) to both operators.**
*** Designate Primary operator and set to (solid 9 flashing 2) and immediately perform the Teach-In.**
*** Teach-In the Secondary operator (solid 0 flashing 0). Note: While teaching-in the Secondary operator the Primary operator will move to the open position, keep swing area clear.**
*** Configure both operators to (solid 9 flashing 7), this will turn off the factory delay.**
Note: if this Configuration is not performed the Secondary operator will have a 2 sec delay upon opening
*** Configure both operators for desired function (Bodyguard, Step Control, Push n Go, ect).**
*** Configure both operators to same (solid 8 flashing #), this will govern the opening and closing speeds of both operators.**
*** Wire in sensors.**
*** Activate and both operators will operate simultaneously.**

Comments on the programming table

No.	Function	Comments
0	Teach-In	The hold open time is determined by the Primary operator for both operators.□ When the Secondary operator is put threw a teach-in the □ Primary operator will open to keep door panels from □ interfering with each other.
1	Push-and-Go	Separately adjustable on Primary and Secondary
2	Safety devices	Door mounted sensors on swing side are inhibited at different angles.
3	Opening time delay	Separately adjustable on Primary and Secondary
4	Time / step control, message, lock type	Time / step control adjustable on Primary only. The message and □ lock type can be adjusted separately on Primary and Secondary
5	Angle for closing homing-in speed	□ □ Separately adjustable on Primary and Secondary
6	Homing-in speed	
7	Opening force restriction	
8	Speed restriction	
9	Factoryreset double-leaf doors	Factory reset only applies to the respective unit and not both.

Note: For Double-Leaf doors with out the 406079 module the □ below requirements must be met to prevent crosstalk.

When wiring 2 operators together as a simultaneous pair without a 406079 module you must use a DPDT relay to isolate the activation and safety signals to prevent crosstalk between operators (all adjustments, General Teach-In, ect must be made to each operator). A DPDT 3 position On-Off-HO switch must also be used.
DPDT relays can be purchased threw Tormax as part # 111165.

8 Service

8.1 Product Modifications

Drive Unit

From drive unit serial number	Description of the update
58468	The motor temperature is reduced again by additional heat extraction from the motor to the casing. The door can now be held open up to an ambient temperature of 35°.

Control Unit

From control unit serial number	Description of the update
0034061xxx	The control unit is defined switched off on only slight overloading of the 24V DC power supply.

Documentation on the Softwareversion

Software Version	Installation on site Version		Operating instructions Version	
D61-030228	T-1132	03.03	T-1134	03.03
D61-040818	T-1132	8.04	T-1134	8.04

Software Update

V1.4 and up

Title	Description of the update
Primary /□ Secondary	Double-leaf doors can be linked together via the serial interface and configured via 9/2.
Push-and-Go	Push-and-Go is switched on as standard. Push-and-Go can be switched off via 1/1. Finer tuning is possible. Push-and-Go also reacts immediately to longer opening deceleration times.
Push-and-Close	If open doors are pushed towards closing direction for more than 16 °, they close automatically.
Reverse on □ Obstruction	Reverse on Obstruction is shut off the last 10 degrees to prevent □ ghosting. Reverse on Obstruction will reopen door and have □ same time delay as the Teach In.
Hold-open times	Now the longest hold-open time activated applies, not the last one.
Closing function	A current hold-open time can be interrupted via input 1 (OFF mode).
Teach-In open position	The open position indicated in the Teach-In is now operated more precisely.
Teach-In open movement	The speed profile indicated in the Teach-In is recorded over the whole opening angle and repeated during operation. The whole of the movement sequence during opening can therefore be optimally adjusted.
Teach-In procedure	If the Teach-In is incomplete, without an opening test, the movement parameters learned are no longer adopted.
Movement sequence	The controller has been improved.
Behaviour after restoration of power	If the door is not closed when the power is restored, it immediately closes automatically.
Start position: factory reset to zero	Now the movement's start position is reset not only during Teach-In but also on factory reset. The doors must always be closed when these functions are activated.
Force restriction	The increasing force during opening is compensated.
Reverse on Obstruction□ Reactivation Input □ (18-19)	When Reverse on Obstruction or Reactivation input (18-19) is activated the time delay □ of Teach In is recognized.

8.2 Trouble Shooting

Fault pattern	Cause
Door doesn't open	– Emergency off is pressed (→ point LED on the display is not lit anymore) – Safety device in opening direction is active or the cable is interrupted or jumper 14-15 is missing – The safety device for the swing area is active or the cable is interrupted or jumper 18–19 is missing – Operating mode OFF is active or the cable on 1 is short circuited against GND. – Mains supply is interrupted (→ point LED on the display is not lit anymore) – Power supply 24 V is overloaded (→ point LED on the display is not lit anymore) – Thermal motor protection was triggered (→ point LED on the display is not lit anymore) – Thermal protection transformer was triggered (→ point LED on the display is not lit anymore) – Door lock is blocked – Door lock or the cable is defective – Door lock is incorrectly programmed (function 4 current-free locked / current-free unlocked) – Lock delay is set too briefly (function 3) – Opening force is limited too much (function 7) or is inadequate for a door that is difficult to operate – Teach-In has not been carried out (factory reset!)
Door does not open completley	– Opening force is too strongly limited (function 7) or is inadequate for a door that is difficult to operate – The safety device in opening direction is triggered during the opening motion (disabling of „Teach-In General" or „Teach-In Key Switch"). – „Teach-In General" was not performed – Open position was set according to „Teach-In" – Internal open end-stop does not permit a larger opening – Irregularity in the opening-versus-force dependency or wind load – Mechanical obstruction
Door opens varyingly	– Varying preconditions through „Teach-In General" and „Teach-In Key Switch" – Irregularity in the opening-versus-force dependency or wind load
Door remains open	– Activator has maintained contact or the cable on 5 is short circuited against GND – Operating mode OPEN is active or cable on 3 is short circuited against GND – The safety device in closing direction is active or the cable is interrupted or jumper 18–19 is missing – The safety device for the swing area is active or the cable is interrupted or jumper 18–19 is missing
Door does not remain open in operating mode OPEN	– End stop incorrectly adjusted – Wind load too strong – Motor thermal protection triggered (temporarily only manual operation possible)
The safety device in opening direction does not react	– The safety device in opening direction was active during „"Teach-In General"" or „Teach-In Key Switch" – Short circuit in the cable to the safety sensor
Point LED goes out temporarily	– Temporary overload >0.75 A at the 24 VDC power supply. Power demand rises over 18 W, in particular when operating the door lock or the signal lamp Add a external transformer
Door slams shut	– Adjust Latch / Close Check angle and speed – Differential pressure in the building – Operator defective (position sensor, motor)
Irregular motion	– Operator defective (position sensor, control system, motor)
Door closes slowly	– Safety activator or cable defective, test of monitored safety devices negativ.
Double leaf-doors: Slave does not open	– Commissioning not complete, see chapter 7.6 – Cable connection RS232 disconnected, cable set not completely adopted. – At the "Slave" operating mode OFF active → see "door does not open" – Both drives not connected to the same ground
Double leaf-doors: Primary door stays open	– Cable connection RS232 disconnected → see "door stays open"
Door does not close all the way	- Output shaft has moved from home position (loosen output shaft, reset, tighten output shaft in home position, add external stop)
Display shows number but will not respond to adjustments	- Remove power, press yellow and blue button 5 times each, restore power, only a red LCD ⊓ indicator should be visable if not control damaged or defective and needs to be replaced.

9 Check List

After completion of installation and commissioning of the system, the following points are to be checked before handing the system over to the system operator:

Drive unit

- ❑ All screws tightened and secured
- ❑ Cable expertly routed, no brushing against moving parts
- ❑ Strain relief mounted for the mains cable
- ❑ OPEN end-stop correctly adjusted.

Safety Regulations

The door system must correspond to the valid, state-specific regulations.

- ❑ Dangerous jamming, wedging and shearing positions safeguarded or eliminated
- ❑ Safety facilities ◆ checked
- ❑ Operator complies with all applicable standards (ANSI 156.19, ect.)
- ❑ Emergency-off switch ◆ checked

Activators ◆

- ❑ Size of the detection field reasonably adjusted
- ❑ Action radius adequate
- ❑ The activators ◆ cannot be evaded by under-creeping
- ❑ Lateral sneaking up to the door not possible without detection
- ❑ Auxiliary activators (key switch ◆ etc..) are functioning

Functions

- ❑ The desired operating modes can be selected with the operating mode selector ◆
- ❑ Speeds and homing in speed are tuned
- ❑ Customer requests in accordance with contract order sheet checked
- ❑ Operation on power failure/power recovery checked

General Appearance

- ❑ Colour damages repaired, system cleaned
- ❑ Electrical cabling carried out professionally
- ❑ No abnormal noises
- ❑ Good motion control
- ❑ System labelled
  (Company name label with TORMAX support address

Handing Over to the System Operator

- ❑ Operating instructions supplied
- ❑ Duty and operation of the system explained
- ❑ Conduct in case of trouble explained (including possible interventions)
- ❑ Informed the system operator of his obligations
  - Regular checks in accordance with the operating instructions
  - Annual service obligation through TORMAX dealer
    (in accordance with national regulations)
- ❑ Service contract offered

TORMAX
AUTOMATIC

Your First Choice for Door Automation

TORMAX SLIDEDOOR

TORMAX SWINGDOOR

TORMAX FOLDDOOR

TORMAX REVOLVEDOOR

TORMAX SLIDEGATE

TORMAX BUILDING TECHNOLOGY

Manufacturer:

TORMAX
AUTOMATIC
11803 Starcrest Drive
San Antonio, Texas 78247
Phone: 888-685-3707
Fax: 210-494-5930
www.tormaxusa.com