

2302 Positioners

User Manual



User Manual

PN: 1723280

July, 2021

Rev A

ETS-Lindgren Inc. reserves the right to make changes to any products herein to improve functioning or design. Although the information in this document has been carefully reviewed and is believed to be reliable, ETS-Lindgren does not assume any liability arising out of the application or use of any product or circuit described herein; nor does it convey any license under its patent rights nor the rights of others. All trademarks are the property of their respective owners.

© Copyright 2021 written permission from ETS-Lindgren Inc. All Rights Reserved. No part of this document may be copied by any means without written permission from ETS-Lindgren Inc.

Trademarks used in this document: *ETS-Lindgren* logo is a registered trademark of ETS-Lindgren, Inc.

Revision Record

MANUAL, 2302 | Part # 1723280 Rev A

Revision	Description	Date
A	Initial Release	July, 2021

TABLE OF CONTENTS




NOTES, CAUTIONS AND WARNINGS	5
SAFETY INFORMATION	6
INTRODUCTION	7
Standard Configuration	7
2302 Positioner Assembly	7
2302-001.	8
2302-002	8
2302-003	8
ETS-Lindgren Product Information Bulletin.	8
MAINTENANCE	9
Maintenance Recommendations	9
Replacement Parts	9
Service Procedures	9
Safety Precautions	9
SPECIFICATIONS	10
Electrical Requirements for 2302s	10
2302-001.	10
Physical Specifications	10
2302-002	10
Physical Specifications	10
2302-003	10
Physical Specifications	10
INSTALLATION	11
Pre-Installation Tasks	11
Positioner Installation	11
2302 Positioner Assembly	11
Securing the Base Plate	11
Leveling the Fixture	12
OPERATION	13
Pre-Operational Tasks	13
Laser Fixture (002 & 003)	13

DRAWINGS

14

2302-001	14
2302-002	15
2302-003	16

NOTES, CAUTIONS AND WARNINGS









	Note: Denotes helpful information intended to provide tips for better use of the product.
	CAUTION: Denotes a hazard. Failure to follow instructions could result in minor personal injury and/or property damage. Included text gives proper procedures.
	WARNING: Denotes a hazard. Failure to follow instructions could result in SEVERE personal injury and/or property damage. Included text gives proper procedures.

*All notes, cautions, and warnings will be located on the left column area of the page.



See the ETS-Lindgren **Product Information Bulletin** for safety, regulatory, and other product marking information

SAFETY INFORMATION

	<p>Refer to Manual: When product is marked with this symbol, see the instruction manual for additional information. Manuals are available for download at ETS-Lindgren.com, or contact ETS-Lindgren Customer Service.</p>
	<p>High Voltage: Indicates presence of hazardous voltage. Unsafe practice could result in severe personal injury or death.</p>
	<p>Protective Earth Ground (Safety Ground): Indicates protective earth terminal. You should provide uninterruptible safety earth ground from the main power source to the product input wiring terminals, power cord, or supplied power cord set.</p> <p>Before power is applied to this instrument, ground it properly through the protective conductor of the AC power cable to a power source provided with the protective earth contact. Any interruption of the protective (grounding) conductor, inside or outside the instrument, or disconnection of the protective earth terminal could result in personal injury.</p>
	<p>Warning: HEAVY OBJECT. Unassisted lifting can cause injury. Mechanical assistance is required.</p>
	<p>Laser Warning: Denotes a laser (class 2) is part of the operating system of the device.</p>
	<p>Before servicing: contact ETS-Lindgren – servicing (or modifying) the unit by yourself may void your warranty. If you attempt to service the unit by yourself, disconnect all electrical power before starting. There are voltages at many points in the instrument which could, if contacted, cause personal injury. Only trained service personnel should perform adjustments and/or service procedures upon this instrument. Capacitors inside this instrument may still be CHARGED even when instrument is disconnected from its power source.</p>
	<p>Only qualified personnel should operate (or service) this equipment.</p>
	<p>NEVER ROCK OR TILT: Tipping or rocking may cause serious injury or death.</p>



Note:

See the ETS-Lindgren *Product Information Bulletin* for safety, regulatory, and other product marking information.



Note:

ETS-Lindgren may substitute a similar or new part number with the same functionality for another part number. Contact ETS-Lindgren for questions about part numbers and ordering parts.



Only qualified personnel should operate (or service) this equipment. If you have any questions concerning maintenance, contact ETS-Lindgren Technical Support. Warranty may be voided if housing is opened.

CAUTION

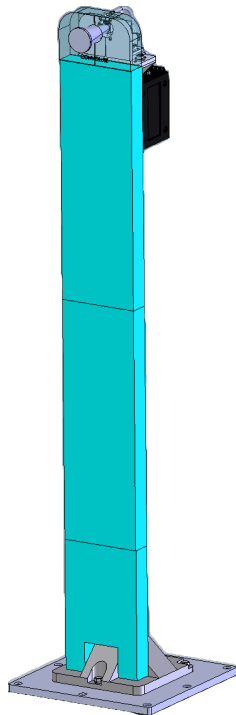
Before performing any maintenance, read the safety information in the ETS-Lindgren *Product Information Bulletin* included with your shipment.

INTRODUCTION

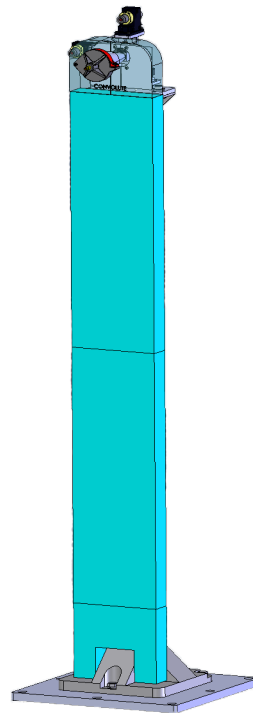
The ETS-Lindgren's 2302 Type Positioners (Columns) are designed to perform automated 3-dimensional pattern measurements. The positioner is a vertical support column that will accommodate its respective antenna.

There are three types of 2302 positioners available. Each have varying heights, capabilities, absorber, and antenna types and are equipped with an XY alignment capabilities that allow for fine adjustment of antennas.

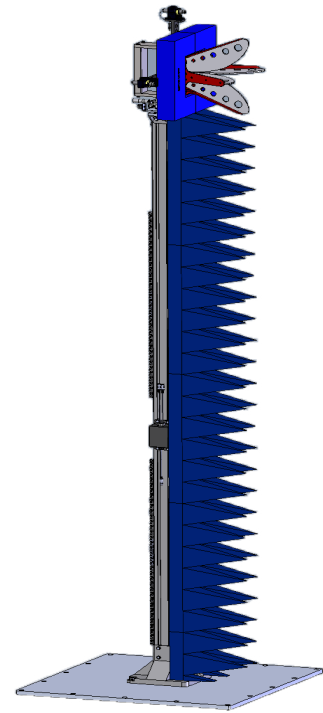
Images not to scale



2302-001



2302-002



2302-003

Standard Configuration

- Model 2302 Assembly
- 1723531 User Manual available in PDF

2302 Positioner Assembly

- Vertical column
- Absorber to cover the positioner
- Laser for aligning system (002, 003)
- Antenna/Horn (sold separately)



Note:

See the ETS-Lindgren *Product Information Bulletin* for safety, regulatory, and other product marking information.

2302-001

- 66.0" Centerline Column
- 1722996 Horn

2302-002

- 60.0" Centerline Column
- 1722996 Horn

2302-003

- 114.0" Centerline Column
- 3164-08 Antenna

ETS-Lindgren Product Information Bulletin

See the ETS-Lindgren *Product Information Bulletin* included with your shipment for the following:

- Safety, regulatory, and other product marking information
- Steps to receive your shipment
- Steps to return a component for service
- ETS-Lindgren calibration service
- ETS-Lindgren contact information

WARNING

Before assembling, installing, or connecting any components, follow the safety information in the ETS-Lindgren Product Information Bulletin included with your shipment.

WARNING



High Voltage:
Unsafe practice could result in severe personal injury or death.



Note:
Contact ETS-Lindgren Technical Support for assistance with replacement parts.

CAUTION



Disconnect the power before proceeding with recommended maintenance. Do not perform any maintenance while the positioner is operating.

MAINTENANCE

Before installing any components, follow the safety information in the ETS-Lindgren Product Information Bulletin included with your shipment. If you have any questions concerning maintenance, contact ETS-Lindgren Customer Service.

Maintenance Recommendations

- Periodically review absorber and cables for wear
- Place positioner away from busy traffic areas and walkways
- Level out antenna when relocating

Replacement Parts

Following are the part numbers for ordering replacement parts for the 2302 positioner:

Replacement Parts	
Part Description	Part Number
25mm screws	930799
2302-001	
Antenna (Horn)	1722996
Cables	1724650
Absorber Panels	1723115, 1723116, 1723144
2302-002	
Antenna (Horn)	1722996
Absorber Panels	1723115, 1723116, 1739013
Laser	1701921
2302-003	
Antenna	3164-08
Absorber Panels	1742668, 1742567, 1742669
Laser	1701921

Service Procedures

For the steps to return a system or system component to ETS-Lindgren for service, see the Product Information Bulletin included with your shipment.

Safety Precautions

Keep eyes clear from lasers. Avoid leaning or hanging from column to prevent damage to device and/or person.

SPECIFICATIONS

Electrical Requirements for 2302s

Single Phase, 200-240VAC and 10A max.

2302-001

Physical Specifications

Centerline Height:	167.64 cm (66.0 in)
Width:	40.64 cm (16.0 in)
Depth:	40.64 cm (16.0 in)

2302-002

Physical Specifications

Centerline Height:	152.4 cm (60.0 in)
Width:	40.64 cm (16.0 in)
Depth:	40.64 cm (16.0 in)

2302-003

Physical Specifications

Centerline Height:	289.56 cm (114.0 in)
Width:	91.44 cm (36in)
Depth:	91.44 cm (36in)

WARNING

Before assembling, installing, or connecting any components, follow the safety information in the ETS-Lindgren Product Information Bulletin included with your shipment.

CAUTION

Other than during installation, do not touch absorber. Skin oils and other debris can damage and discolor the foam.

WARNING



HEAVY OBJECT:

Unassisted lifting can cause injury. Mechanical assistance is required.



NEVER ROCK OR TILT:

Tipping or rocking may cause serious injury or death.

INSTALLATION

Pre-Installation Tasks

Pre-planning is essential for successful installation. Discuss requirements with your sales representative and request dimensional drawings prior to construction of your site.

Positioner Installation

Proper installation of the 2302 Positioner unit directly affects performance of the positioning system as well as the accuracy of the test results.

2302 Positioner Assembly

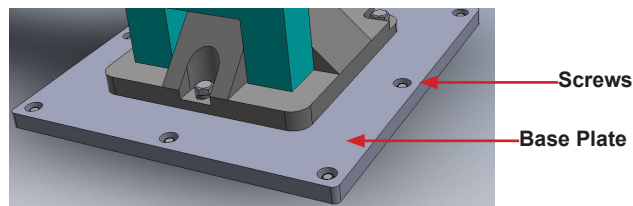
- Vertical column
- Absorber to cover the positioner
- Laser for aligning system (002, 003)
- Antenna/Horn (sold separately)

Securing the Base Plate

Key Reminders:

- Be sure to secure column properly to prevent any tipping or movement.
- Ensure that drilling only occurs on aluminum panel flooring.
- Do not use any screws other than 25mm length screws.
- Note a power drill is needed for securing screws.

1. Uncrate all parts. Check all parts for any shipping damage.
2. Mark off desired area in chamber to ensure a clear area is available to assemble the positioner unit safely.
3. Align base plate in chamber according to markings.
4. Gather all included self-drilling screws.
5. With a power drill, use screws to mount the plate to chamber floor.
6. Vacuum any debris left from drilling.



WARNING



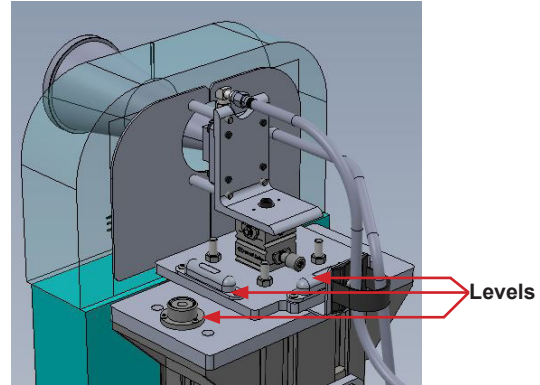
Denotes a laser (class 2) is part of the operating system of the device.



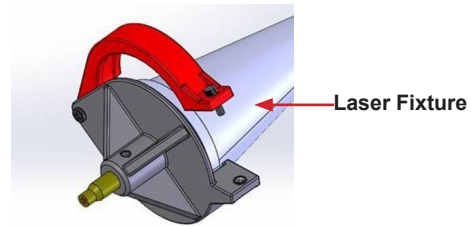
Only qualified personnel should operate (or service) this equipment. If you have any questions concerning maintenance, contact ETS-Lindgren Technical Support. Warranty may be voided if housing is opened.

Leveling the Fixture

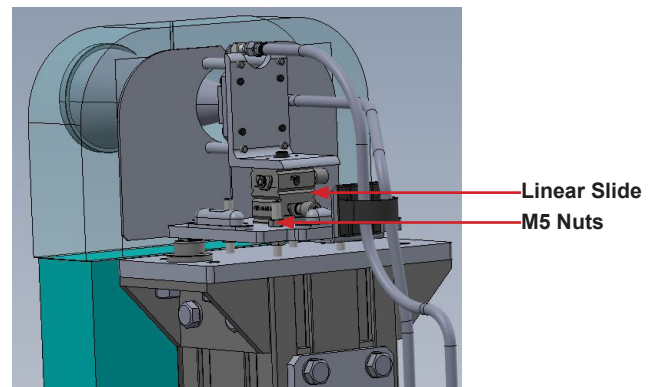
1. Once secured to the chamber floor, use the three levels to level the fixture.



2. Place the laser fixture (001 exempt) on the end of the antenna/horn and secure the fixture by using the thumb screw.



3. Adjust vertically by using the M5 nuts, and adjust horizontally by using the linear slide.





Only qualified personnel should operate (or service) this equipment. If you have any questions concerning maintenance, contact ETS-Lindgren Technical Support. Warranty may be voided if housing is opened.



High Voltage:
Unsafe practice could result in severe personal injury or death.



Denotes a laser (class 2) is part of the operating system of the device.

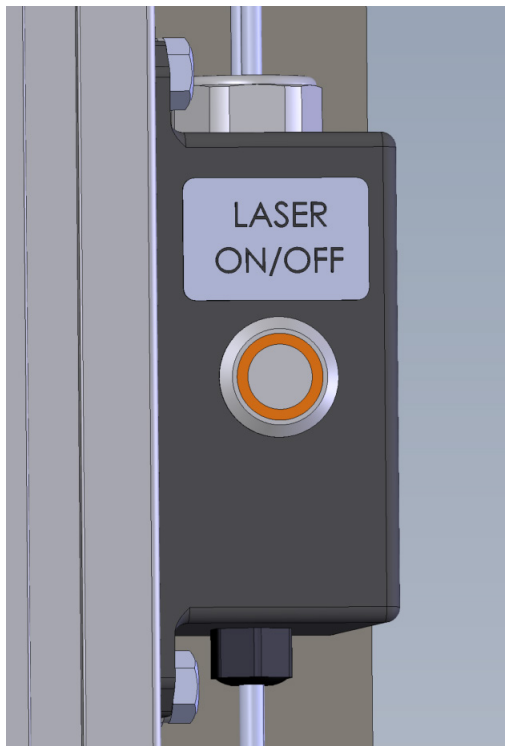
OPERATION

Pre-Operational Tasks

- Verify that the power line is properly connected to the column assembly
- Verify fixture(s) are secured to the column assembly

Laser Fixture (002 & 003)

To activate laser on column, first locate the on/off button and press to switch between desired positions.



DRAWINGS

2302-001

ECN	REV	DESCRIPTION	DATE	APPROVED	WHW
	B	ADD 17246681724697 DEL 1728287	8/24/20		

REVISIONS

REV	DESCRIPTION	DATE	APPROVED	WHW
B	ADD 17246681724697 DEL 1728287	8/24/20		

ENGINEERING NOTE:
 DURING A LIFE MEASURE, VERIFY A CENTERLINE OF ANTENNA IS WITHIN 0.005" OF CENTERLINE OF ANTENNA MOUNTING LEVEL.
 ORIGINAL MANUFACTURER'S CALIBRATION PAPER WORK FOR THIS ANTENNA IS TO BE MAINTAINED.

ITEM NO.	QTY	DESCRIPTION
1	1	COLUMN BASE ASSEMBLY
2	1	15.00" UNIF. EPOXY URETHANE RESIN
3	24	ANGLE BRKT. 4.00 X 2.00 X 0.0625
4	2	ROLL PIN 1/16 X 1.5 X 1/16 SS
5	2	WASHER 1/2 LOCK WASHER
6	4	SCREW 1/4 X 1.00 X 1/8 SS
7	15	SCREW 1/4 X 1.00 X 1/8 SS
8	4	SCREW 1/4 X 1.00 X 1/8 SS
9	4	SCREW 1/4 X 1.00 X 1/8 SS
10	4	SCREW 1/4 X 1.00 X 1/8 SS
11	4	WASHER 1/2
12	4	WASHER 1/2
13	10	BOLT 1/4 X 1.00 X 1/8 SS
14	20	BOLT 1/4 X 1.00 X 1/8 SS
15	20	WASHER 1/2
16	20	WASHER 1/2
17	9	BOLT M10 X 1.50 X 1.50 SS
18	4	BOLT M10 X 1.50 X 1.50 SS
19	4	WASHER 1/2
20	4	WASHER 1/2
21	2	WIRING CONDUIT 1/2" DIA
22	2	SCREW 1/4 X 1.00 X 1/8 SS
23	1	LEVEL HORZ. SURFACE MOUNTING
24	1	LEVEL HORZ. SURFACE MOUNTING
25	3	SCREW 1/4 X 1.00 X 1/8 SS
26	1	ANT. PLATE ANTENNA POSITIONER
27	1	COLUMN 2302-001 ANTENNA POS
28	1	HORN GUARD 1/2" DIA 18" LONG
29	1	COLUMN TOP PLATE 2302-001
30	1	Y PLATE 2302-001 ANT POSITIONER
31	1	ANGLE SUPPT. 2302-001 ANTENNA
32	1	SCREW 1/4 X 1.00 X 1/8 SS
33	4	SPACER 1/4 X 2.00 X 1.00 X 1.00
34	2	ANTENNA ASSEMBLY 2302-001
35	1	ANTENNA POSITIONER
36	1	COLUMN ASSEMBLY 2302-001
37	2	ABSORBER COLUMN 2302-001
38	1	ABSORBER COLUMN 2302-001
39	1	ABSORBER COLUMN 2302-001
40	1	WIRE MESH PLATE 2302-001
41	1	ANGLE SUPPT. 2302-001
42	1	LEVEL CIRCULAR MOUNTING DIA
43	2	CABLE RF 50 OHM 1/2" DIA
44	2	ADAPTER FOR 1/2" DIA
45	2	LEVEL CIRCULAR MOUNTING DIA
46	2	LEVEL CIRCULAR MOUNTING DIA

UNLESS OTHERWISE SPECIFIED:
 DIMENSIONS ARE IN INCHES
 TOLERANCES ARE:
 X.XXX ± .002
 X.XX ± .005

PROPERTY INFORMATION:
 TITLE: ASSY 2302-001 ANT POSITIONER, 66" CL
 DATE: 7/17/2020
 INITIALS: [Blank]
 DRAWING: [Blank]
 ENGINEERING: [Blank]
 WHW: [Blank]

ETSI NO.: [Blank] **FINISH:** [Blank] **SCALE:** 1 OF 1

DO NOT SCALE DRAWING

2302-002

REVISIONS

ECN	REV	DESCRIPTION	DATE	APPROVED
*	A	INITIAL RELEASE	1/16/21	WSW

ENGINEERING NOTES:

- 1) USING A TIRE MEASURE, VERIFY THE CENTERING OF ANTENNA POSITIONER AND ANTENNA, USING THE FOLLOWING LEVELS.
- 2) VERIFY ALL LASERS POWER UP AND WORK PROPERLY.

PROPRIETARY INFORMATION

ETS INC. FINISH: NONE
 DATE: 1/15/21
 DRAWING: INITIAL
 ENGINEERING: WSW

ASSY. 2302-002 ANT POSITIONER, 60°CL

SCALE: NONE
 REV: 1739007
 SHEET 1 OF 1

ETS LINDGREN
 An ESCO Technologies Company

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	1179364	COLUMN BASE ANGLE 3700 CAL	1
2	891367	SCREW M6 X 1.0 X 10.0	2
3	891367	SCREW M6 X 1.0 X 10.0	2
4	891367	SCREW M6 X 1.0 X 10.0	2
5	910243	SCREW M6 X 1.0 X 10.0	2
6	910243	SCREW M6 X 1.0 X 10.0	2
7	910243	SCREW M6 X 1.0 X 10.0	2
8	910243	SCREW M6 X 1.0 X 10.0	2
9	910243	SCREW M6 X 1.0 X 10.0	2
10	910243	SCREW M6 X 1.0 X 10.0	2
11	910243	SCREW M6 X 1.0 X 10.0	2
12	910243	SCREW M6 X 1.0 X 10.0	2
13	910243	SCREW M6 X 1.0 X 10.0	2
14	910243	SCREW M6 X 1.0 X 10.0	2
15	910243	SCREW M6 X 1.0 X 10.0	2
16	910243	SCREW M6 X 1.0 X 10.0	2
17	910243	SCREW M6 X 1.0 X 10.0	2
18	910243	SCREW M6 X 1.0 X 10.0	2
19	910243	SCREW M6 X 1.0 X 10.0	2
20	910243	SCREW M6 X 1.0 X 10.0	2
21	910243	SCREW M6 X 1.0 X 10.0	2
22	910243	SCREW M6 X 1.0 X 10.0	2
23	1739350	CABLE MOUNT FEEDABLE	2
24	1739350	CABLE MOUNT FEEDABLE	2
25	1739350	CABLE MOUNT FEEDABLE	2
26	1739350	CABLE MOUNT FEEDABLE	2
27	171443	LEVELING SLIDE 1.5 X 3.0MM	1
28	171455	LEVELING SLIDE 1.5 X 3.0MM	2
29	1739350	CABLE MOUNT FEEDABLE	2
30	1739350	CABLE MOUNT FEEDABLE	2
31	1739350	CABLE MOUNT FEEDABLE	2
32	1739350	CABLE MOUNT FEEDABLE	2
33	1739350	CABLE MOUNT FEEDABLE	2
34	1739350	CABLE MOUNT FEEDABLE	2
35	1721103	SPACER 1/2" COIL 1/4" DIA 1/2"	4
36	1721103	SPACER 1/2" COIL 1/4" DIA 1/2"	4
37	1721103	SPACER 1/2" COIL 1/4" DIA 1/2"	4
38	1721115	ADAPTER 1/2" DIA 1/4" DIA 1/2"	2
39	1721115	ADAPTER 1/2" DIA 1/4" DIA 1/2"	2
40	1721115	ADAPTER 1/2" DIA 1/4" DIA 1/2"	2
41	1721115	ADAPTER 1/2" DIA 1/4" DIA 1/2"	2
42	1721115	ADAPTER 1/2" DIA 1/4" DIA 1/2"	2
43	1721115	ADAPTER 1/2" DIA 1/4" DIA 1/2"	2
44	1721115	ADAPTER 1/2" DIA 1/4" DIA 1/2"	2
45	1721115	ADAPTER 1/2" DIA 1/4" DIA 1/2"	2
46	1721115	ADAPTER 1/2" DIA 1/4" DIA 1/2"	2
47	1721115	ADAPTER 1/2" DIA 1/4" DIA 1/2"	2
48	1721115	ADAPTER 1/2" DIA 1/4" DIA 1/2"	2
49	1721115	ADAPTER 1/2" DIA 1/4" DIA 1/2"	2
50	1721115	ADAPTER 1/2" DIA 1/4" DIA 1/2"	2
51	1721115	ADAPTER 1/2" DIA 1/4" DIA 1/2"	2

2302-003

REVISIONS

ECN	REV	DESCRIPTION	DATE	APPROVED
*	A	INITIAL RELEASE	06/12/21	JRC

ENGINEERING NOTE:

- 1) USING A LINE COLUMN AND A LINE COLUMN OF ANTENNA USING LEVEL.
- 2) VERIFY ALL LASERS POWER UP AND WORK PROPERLY.

UNLESS OTHERWISE SPECIFIED:

- FINISH: NONE
- DECIMALS: 2
- ANGLES: 0.5
- TOLERANCES: AS SHOWN

PROPERTY INFORMATION

DATE: 05/12/21

ENGINEERING: JRC

SCALE: NONE

DWG. NO.: 1742620

SHEET: 1 OF 2

REVISIONS

ECN	REV	DESCRIPTION	DATE	APPROVED
37	92132P	INITIAL RELEASE		
36	92132P	SCREW 1/4-20 X 1.75 IN. PHL. PAN. H. 30		
35	92079D	SCREW 1/4-20 X 1.75 IN. PHL. PAN. H. 30		
34	92079D	SCREW 1/4-20 X 1.75 IN. PHL. PAN. H. 30		
33	92079D	SCREW 1/4-20 X 1.75 IN. PHL. PAN. H. 30		
32	92079D	SCREW 1/4-20 X 1.75 IN. PHL. PAN. H. 30		
31	92079D	SCREW 1/4-20 X 1.75 IN. PHL. PAN. H. 30		
30	92079D	SCREW 1/4-20 X 1.75 IN. PHL. PAN. H. 30		
29	92079D	SCREW 1/4-20 X 1.75 IN. PHL. PAN. H. 30		
28	92079D	SCREW 1/4-20 X 1.75 IN. PHL. PAN. H. 30		
27	92079D	SCREW 1/4-20 X 1.75 IN. PHL. PAN. H. 30		
26	92079D	SCREW 1/4-20 X 1.75 IN. PHL. PAN. H. 30		
25	92079D	SCREW 1/4-20 X 1.75 IN. PHL. PAN. H. 30		
24	92079D	SCREW 1/4-20 X 1.75 IN. PHL. PAN. H. 30		
23	92079D	SCREW 1/4-20 X 1.75 IN. PHL. PAN. H. 30		
22	92079D	SCREW 1/4-20 X 1.75 IN. PHL. PAN. H. 30		
21	92079D	SCREW 1/4-20 X 1.75 IN. PHL. PAN. H. 30		
20	92079D	SCREW 1/4-20 X 1.75 IN. PHL. PAN. H. 30		
19	92079D	SCREW 1/4-20 X 1.75 IN. PHL. PAN. H. 30		
18	92079D	SCREW 1/4-20 X 1.75 IN. PHL. PAN. H. 30		
17	92079D	SCREW 1/4-20 X 1.75 IN. PHL. PAN. H. 30		
16	92079D	SCREW 1/4-20 X 1.75 IN. PHL. PAN. H. 30		
15	92079D	SCREW 1/4-20 X 1.75 IN. PHL. PAN. H. 30		
14	92079D	SCREW 1/4-20 X 1.75 IN. PHL. PAN. H. 30		
13	92079D	SCREW 1/4-20 X 1.75 IN. PHL. PAN. H. 30		
12	92079D	SCREW 1/4-20 X 1.75 IN. PHL. PAN. H. 30		
11	92079D	SCREW 1/4-20 X 1.75 IN. PHL. PAN. H. 30		
10	92079D	SCREW 1/4-20 X 1.75 IN. PHL. PAN. H. 30		
9	92079D	SCREW 1/4-20 X 1.75 IN. PHL. PAN. H. 30		
8	92079D	SCREW 1/4-20 X 1.75 IN. PHL. PAN. H. 30		
7	92079D	SCREW 1/4-20 X 1.75 IN. PHL. PAN. H. 30		
6	92079D	SCREW 1/4-20 X 1.75 IN. PHL. PAN. H. 30		
5	92079D	SCREW 1/4-20 X 1.75 IN. PHL. PAN. H. 30		
4	92079D	SCREW 1/4-20 X 1.75 IN. PHL. PAN. H. 30		
3	92079D	SCREW 1/4-20 X 1.75 IN. PHL. PAN. H. 30		
2	92079D	SCREW 1/4-20 X 1.75 IN. PHL. PAN. H. 30		
1	92079D	SCREW 1/4-20 X 1.75 IN. PHL. PAN. H. 30		