1.0 Reference and Address			
Report Number	100642964CHI-002	Original Issued: 13-Jul-2012	Revised: 20-Sep-2017
Standard(s)	Garage Equipment [UL 201:2015 Ed.3] Information Technology Equipment Safety Part 1: General Requirements (R2016) >Valid without technical revision: 01Jan2022< [CSA C22.2#60950-1:2007 Ed.2+A1;A2]		

Applicant	Hunter Engineering Company	Manufacturer 1	**Hunter Engineering Company**
Address	11250 Hunter Drive Bridgeton, MO 63044	Address	11250 Hunter Drive Bridgeton, MO 63044
Country	USA	Country	USA
Contact	Mr. Robert Bruce	Contact	Mr. Robert Bruce
Phone	(314) 716-0443	Phone	(314) 716-0443
FAX	(314) 716-1442	FAX	(314) 716-1442
Email	rrbruce@hunter.com	Email	rrbruce@hunter.com
Manufacturer 2	**Hunter Engineering Company**	Manufacturer 3	**Hunter Engineering Company**
Address	P.O. Box 819 2489 Raymond-Clinton Road Raymond, MS 39145	Address	33814 Hwy 12 Durant, MS 39063
Country	USA	Country	USA
Contact	Mr. Eric Stover	Contact	Mr. Eric Stover
Phone	(601) 857-8883	Phone	(662) 653-3194
FAX	NA	FAX	NA
Email	NA	Email	NA

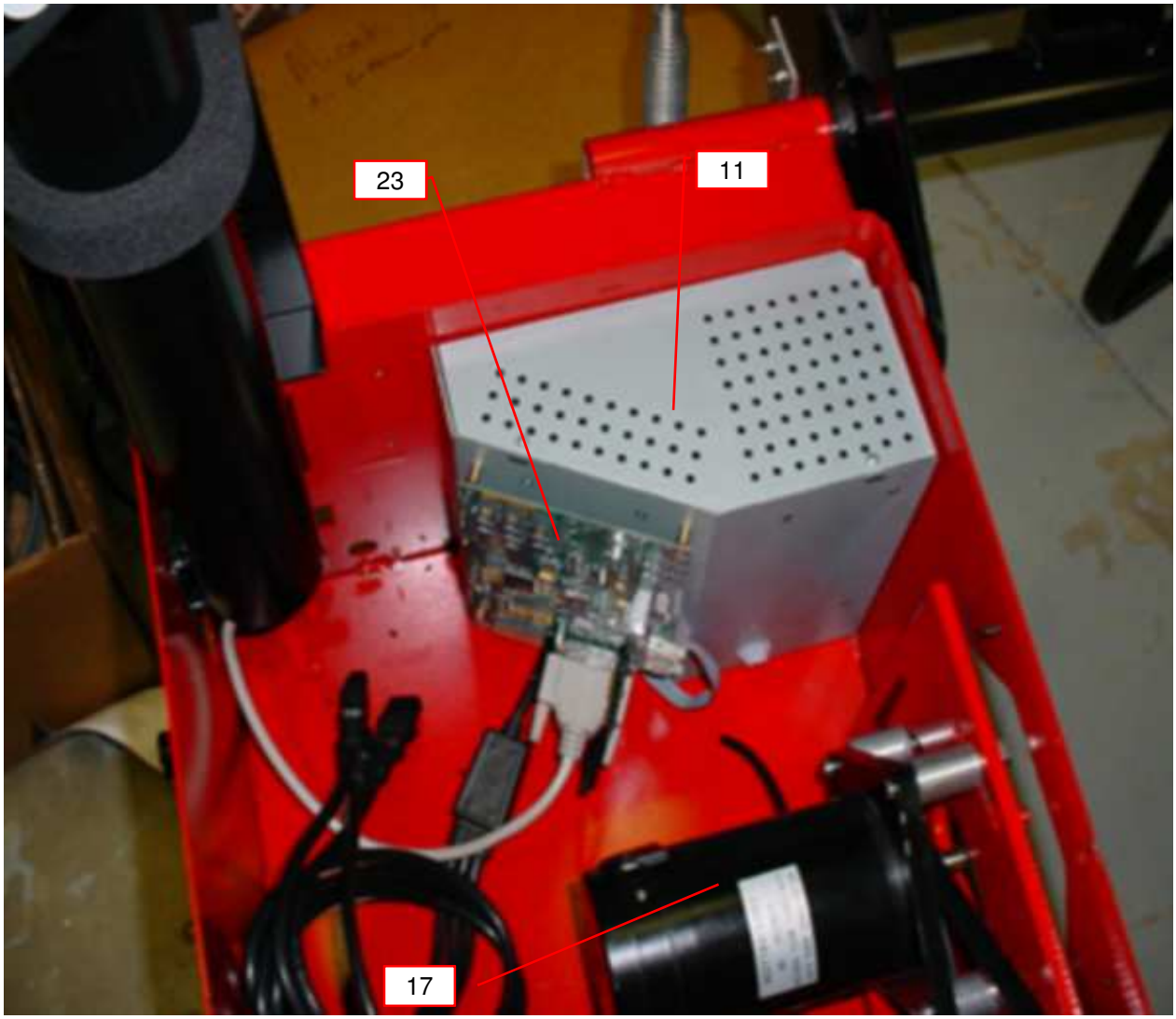
2.0 Product Description	
Product	Wheel Balancer
Brand name	NA
Description	The products covered by this report are wheel balancers intended to accommodate a recommended maximum weight wheel of 150lb and up to 43 inch rims. The electronic circuitry controls the wheel spinning cycle of 5 to 19 seconds with a maximum spin rate factory set of 150 cycles per second. They are floor mounted, cord and plug connected to the source of supply.
Models	RFT followed by xx; followed by yy; may be followed by numbers SWT followed by xx; followed by yy; may be followed by numbers RFE followed by xx; followed by yy; may be followed by numbers
Model Similarity	Where xxyyy may be any number or letter; may or may not be followed by other numbers to account for minor options not related to safety. Model SWTxxyyy is similar to model RFTxxyyy except for a smaller motor and SWT does not include the load roller feature which is standard on RFT. Model RFExxyyy is similar to model RFTxxyyy, except that it uses a laser measurement system, whereas the RFTxxyyy has two electronic dataset arms. For models RFTxxyyy and SWTxxyyy xx = 00,01,02..etc. (represents machine options such as wheel lift, printer, TDC, autoclamp, quicknut, etc.) yyy = null or up to three letters (For example: GM = General Motors, SRS = Sears, DRE = Ford) When yyy = null, it represents the standard Hunter product offering with the standard Hunter red paint and decals.
Ratings	230V, 10A, 60Hz
Other Ratings	NA

3.0 Product Photographs

Photo 1 - Overall View of Model RFTxxyyy

3.0 Product Photographs

Photo 2 - Internal View of the Electrical Compartment



3.0 Product Photographs

Photo 3 - Sparkle Power Supply (SPI180LE)

3.0 Product Photographs

Photo 4 - Enhance Power Supply (ENP-2322B)

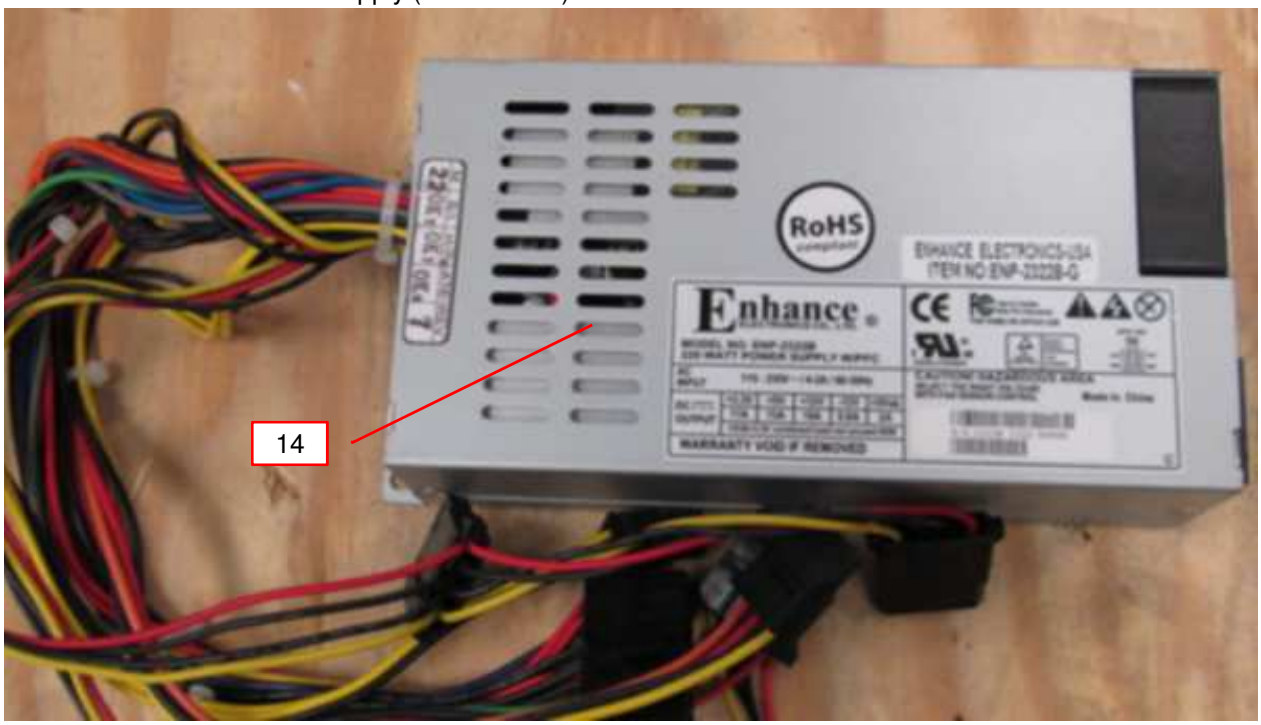
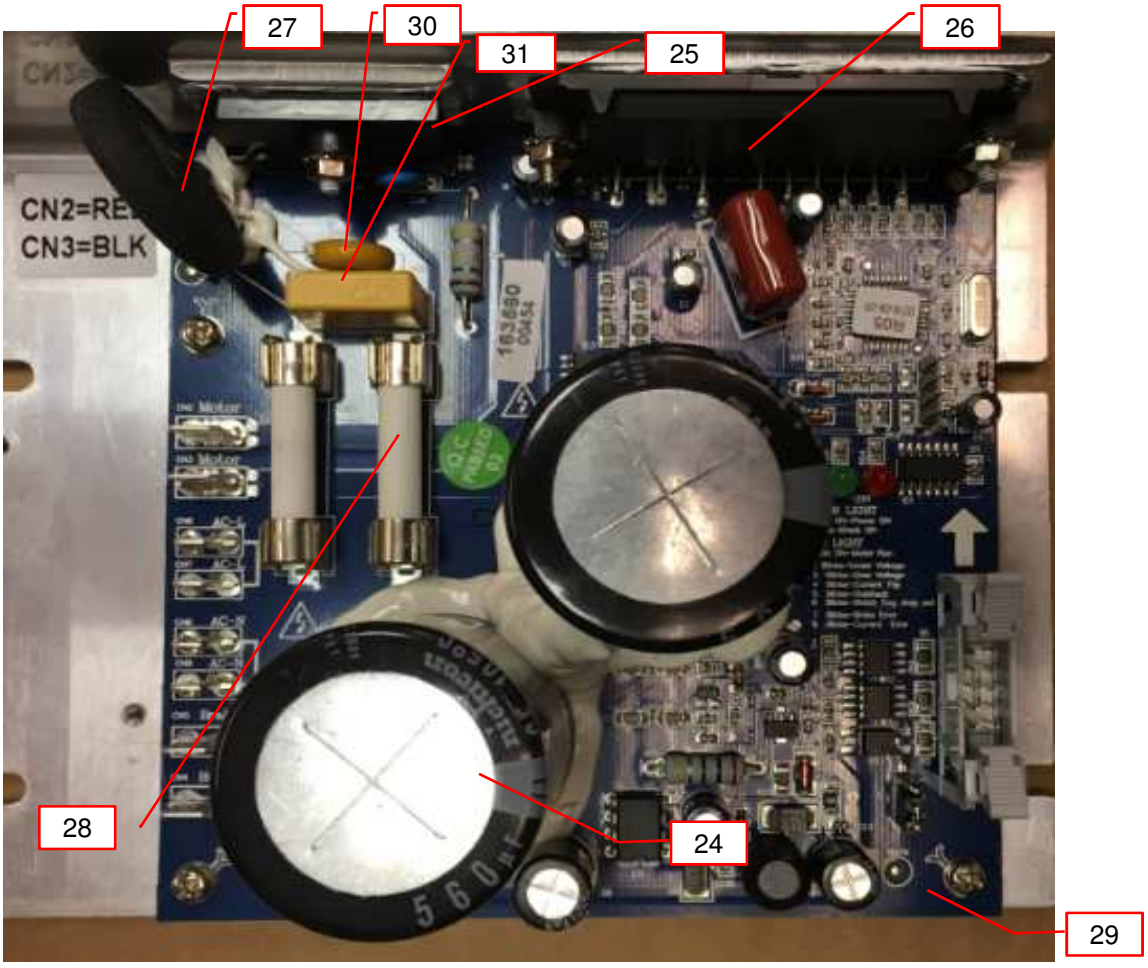


Photo 5 - Motor Drive (Alternate)



3.0 Product Photographs

Photo 6 - Overall View of Model RFTxxyyy

3.0 Product Photographs

Photo 7 - View of Inner Laser Assembly

3.0 Product Photographs

Photo 8 - View of Outer Laser Assembly

4.0 Critical Components						
Photo #	Item no.1	Name	Manufacturer/ trademark[2]	Type / model[2]	Technical data and securement means	Mark(s) of conformity [3]
1, 6	1	Outer Enclosure	Various	Various	Constructed from painted steel, 0.09 inch thick with overall dimensions of 29-3/4 by 25 by 24-1/2 inches.	NR
1, 6	2	Weight Tray	Various	Various	Minimum HB flame rated	cURus
1, 6	3	Pegs	Various	Various	Minimum HB flame rated, 50°C	cURus
1, 6	4	Display Enclosure	Various	Various	Minimum HB flame rated, mounted on top of a 3 inch diameter, 0.08 inch thick, painted steel post that is 23 inches from top edge of the main enclosure	cURus
1	5	Power Cord (Not Shown)	Various	Various	SO, SOW or STOW; 14/3 AWG with Listed 10 A, NEMA 6-20P attachment plug; 6-15 ft. long.	cCSAus; or cULus; or UL, CSA
1	6	Strain Relief (Not Shown)	Various	Various	Clamp strain relief secured by lock washer and nut in hole. Hole and type sized per strain relief manufacturer's instructions	cURus
			Heyco	Various	Compression fit, rated for type of cord and AWG used, mounted in hole per strain relief manufacturer's instructions	cURus
1	7	Pressure Regulator (Not Shown)	Norgren	R44-272-RNLA	Factory set at 90 psi, with tamper-proof adjustment.	cCSAus, cULus
			Monnier Inc./Airman	111-3000/B1900-084	Factory set at 90 psi, with tamper-proof adjustment.	cCSAus, cULus
			Airman Inc.	1900-144	Tested for use at 175psi	cCSAus, cULus
			Parker	14E17B13VC	Rated Pmax 250 psi (tested for use at 175 psi)	cCSAus, cULus
			Wilkerson	BO8-02-FK00	Tested for use at 175psi	cCSAus, cULus
			Norgren	R44-274-RNKA	Factory set at 60psi, with a tamper-proof adjustment	cCSAus, cULus
			Monnier Inc./Airman	111-3000/B1900-083	Same as above	cCSAus, cULus
1	8	Wheel Guard (Not Shown)	Various	Various	Frame constructed from steel tube, 0.07in thick, 1.5in diameter. Covered with Recognized plastic, flame rated minimum HB	cURus
1	9	Guard Switch (Not Shown)	Various	Various	Reed switch, located in SELV and Limited Energy circuit	NR
1	10	Hall Effect Sensors (Not Shown)	Various	Various	Located in SELV and Limited Energy Circuit	NR

4.0 Critical Components						
Photo #	Item no.1	Name	Manufacturer/ trademark[2]	Type / model[2]	Technical data and securement means	Mark(s) of conformity [3]
2	11	Inner Enclosure	Various	Various	Constructed from painted steel, 0.09 inch thick with overall dimension of 10-1/4 inches by 5 inches by 9-3/4 inches, with perforated holes, 3/16 inch in diameter. Openings in the bottom of the area are not more than 0.08 inch by 0.08 inch and not less than 0.02 inch between holes. Openings in the top are not more than 5 mm in any dimension.	NR
2	12	Switch (Not Shown)	Various	Various	DPST, rated minimum 230V, 6A	cURus
2	13	Optional EMI Filter (Not Shown)	Corcom	6VSK1	Input rated 6A, 120/250Vac, 50-60Hz (Output rated 12Vdc, 1.5A)	cURus
3, 4	14	Power Supply	Artesyn	NAL25-7608	(Not Shown) Input rated 100-240Vac, 1-0.5A, 50/60Hz (Output rated 12Vdc, 1.5A and 5Vdc, 5A)	cURus
			Enhance	ENP-2322B	Input rated 115-230Vac, 4-2A, 60-50Hz (Output rated 17A @3.3Vdc, 13A @5Vdc, 16A @12Vdc, 0.8A @-12Vdc and 2A @5Vdc(sb))	
			Sparkle	SPI180LE	Input rated 100-240Vac, 4-2A, 60-50Hz (Output 14A @3.3Vdc (ORG), 16A @5Vdc (RED), 14A @12Vdc (YEL), 2A @5Vdc(sb) (PURP), 0.5A @-12Vdc (BLUE)	
2	15	Cable (Not Shown)	Various	Various	24AWG, 90°C, located in SELV and Limited Energy Circuit	cURus
2	16	Motor Drive (Not Shown)	Minarex	232-205-2	Rated 230V, provides overload and overcurrent protection	cCSAus, cULus
			Gold Corolla (SHENZHEN GCE CO., LTD)	COR581X (X represents the revision number, letter or number and letter combination of the board)	I/P: 230V, 6A O/P 0-230V, 3A, 720W. Provides overload and overcurrent protection	See 5.0

4.0 Critical Components						
Photo #	Item no.1	Name	Manufacturer/ trademark[2]	Type / model[2]	Technical data and securement means	Mark(s) of conformity [3]
2	17	Motor	Leeson	C42D110C1B	Rated 0.37kW, 2.2 A, 240Vdc, 1200RPM, Class F insulation	cURus
			Shandong Xianghe Group Co., Ltd Bashan Micro Motor Factory	124ZYT105/H2 (129-213-2)	Rated 0.37kW, 2.2 A, 240Vdc, 1200RPM, Class F insulation (not shown in the photo)	See 5.0
			Lesson	C42D17FC27B	Rated 1/4hp; 180V, 1.4A, 1750RPM; Present in model SWTxxyy (not shown in photo)	cURus
2	18	Optional Fuseholder/Fuse (Not Shown)	Various	Various	Rated minimum 12V, 2A (typical is Bussman)	cURus
2	19	Switch (Not Shown)	Various	Various	SPST, rated 12V, 0.1A minimum, located in SELV and Limited Energy Circuit, typical is Cherry	cURus
2	20	Air Manifold Assembly (Not Shown)	Various	01-0399-Aluminum	3 by 1-1/2 by 1-1/2in. Contains three 1/2in. and three 3/8in. threaded air passageways. Provided with two solenoid valves, SMC Inc., described below, pressure regulator and manifold regulator, SMC Inc., Part No. ARM1000	NR
			Various	01-0399A-Aluminum	2 by 1-1/2 by 1-1/2in. Contains two 1/2in. and two 3/8 in. threaded air passageways. Provided with one solenoid valve, SMC Inc., described below, pressure regulator and manifold regulator, SMC Inc., Part No. ARM1000. (Used on Model GSP9712+ only)	NR
2	21	Solenoid Valve (Not Shown)	Parker Hannifin Corp	3121B	Followed by an arbitrary alphanumeric suffix, rated 12Vdc, 100psi	cURus
			SMC	VQ21151R-6LO	Rated 12Vdc, 0.7Mpa	cURus
2	22	Pneumatic Tubing (Not Shown)	MCMASTER	5112K13	Rated 180 PSI	NR
2	23	Control PWB Material	Various	Various	Flame rated minimum V-1, located in SELV and Limited Energy Circuit	cURus
5	24	Motor Drive Capacitor	Nichon	QS	450V, 560µF, 105°C	NR
5	25	Motor Drive IGBT Module	HongLiang	KBJ2506	600V, 25A, 150°C	UR
5	26	Integrated Power Hybrid IC	International Rectifier	IRAMX16UP60B	600V, 16A,150°C	UR

4.0 Critical Components						
Photo #	Item no.1	Name	Manufacturer/ trademark[2]	Type / model[2]	Technical data and securement means	Mark(s) of conformity [3]
5	27	Motor Drive NTC Thermistor	Ametherm	MS22 10008-A	680V max, 8.00A, 194°C	UR
				AS32 10015	680V max, 15.00A, 185°C	UR
				MS32 10015	680V max, 15.00A, 224°C	UR
5	28	Motor Drive Fuse	NingLi	65TS	250V, 10A, time delay	cURus
5	29	Motor Drive PWB Material	Shenzhen Heng Bao Shi PCB CO LTD	BF-5	V-0, 130°C	UR
5	30	Motor Drive Varistor	FengHua	10K561	350Vac, 0.4W	cURus
5	31	Motor Drive Film Capacitor	Ultra Tech Xiphi Enterprise Co Ltd	HQX	275Vac, 0.0047µF, 100°C	cURus
6	32	USB Cable for Laser Assembly (Not Shown)	Various	Various	20AWG power conductors and 28AWG (minimum) signal conductors; insulation is rated 30V, 80°C (typical), and VW-1. Two provided, one for each laser assembly.	UL, CSA; or cULus; or cCSAus
7, 8	33	Laser Diode for Laser Assembly (Not Shown)	Diode Laser Concepts, Inc.	E31DB0-0001	668nm, 35mW maximum; 135mA (maximum) operating current, 2.8V (maximum) operating voltage. CDRH Class IIIb laser product. Evaluated under 102455542BOX-001.	NR
7, 8	34	Housing Cover and Shield Material for Laser Assembly	Various	Various	Black, 30% glass filled nylon. The laser assembly is located in a 5V and 0.5A circuit which does not have a risk of electric shock or fire (SELV and less than 15W). Flame ratings and material properties are not considered. Refer to Illustrations 10 and 11 for housing cover drawings showing dimensions. Refer to Illustrations 12 and 13 for shield drawings showing dimensions.	NR; or cURus; or UR, CSA
7, 8	35	Housing Body Material for Laser Assembly (Not Shown)	Various	Various	Black, polyphenylene sulfide (PPS). The laser assembly is located in a 5V and 0.5A circuit which does not have a risk of electric shock or fire (SELV and less than 15W). Flame ratings and material properties are not considered. Refer to Illustrations 14 and 15 for body drawings showing dimensions.	NR; or cURus; or UR, CSA

4.0 Critical Components						
Photo #	Item no.1	Name	Manufacturer/ trademark[2]	Type / model[2]	Technical data and securement means	Mark(s) of conformity [3]
7, 8	36	PWB Material Used for Laser Assembly (Not Shown)	Various	Various	FR4 type, two layers. The laser assembly is located in a 5V and 0.5A circuit which does not have a risk of electric shock or fire (SELV and less than 15W). Flame ratings and material properties are not considered.	NR; or cURus; or UR, CSA
7, 8	37	Gasket Material for Laser Assembly (Not Shown)	Various	Various	Opaque silicone, 50 Shore A durometer. Refer to Illustration 16 for gasket drawing showing dimensions.	NR; or cURus; or UR, CSA
7, 8	38	Lens Sleeve Material for Laser Assembly (Not Shown)	Various	Various	2011-T3 or 6061-T6 aluminum. Refer to Illustration 17 for lens sleeve drawing showing dimensions.	NR
7, 8	39	Lens for Laser Assembly (Not Shown)	Various	Various	4.5mm, F/5.0, with 650nm filter	NR

NOTES:

1) Not all item numbers are indicated (called out) in the photos, as their location is obvious.

2) “Various“ means any type, from any manufacturer that complies with the "Technical data and securement means" and meets the "Mark(s) of conformity" can be used.

3) Indicates specific marks to be verified, which assures the agreed level of surveillance for the component. "NR" - indicates Unlisted and only visual examination is necessary. "See 5.0" indicates Unlisted components or assemblies to be evaluated periodically refer to section 5.0 for details.

5.0 Critical Unlisted CEC Components

SUBASSEMBLY

Photo #	Item no.	Name	Manufacturer/Trademark	Type / model
2	16	Motor Drive	Gold Corolla (SHENZHEN GCE CO., LTD)	COR581X (X represents the revision number, letter or number and letter combination of the board)

Electrical Rating: I/P: 230V, 6A O/P 0-230V, 3A, 720W | Insulation class N/A

Component Standard used: UL 508C, CSA C22.2 #14

COMPONENTS LIST

Photo #	Item no.	Photo #	Item no.	Photo #	Item no.
5	27	5	30	5	33
5	28	5	31		
5	29	5	32		

VERIFICATION PROCESS

Frequency: **Annual** | Test Site: **CEC** | Number of samples to test: **1**

Test Name	Test Parameters
Verify Construction	Per the component descriptions noted above

5.0 Critical Unlisted CEC Components

INSULATED COIL

Photo #	Item no.	Name	Manufacturer/Trademark	Type / model
2	17	Motor	Shandong Xianghe Group Co., Ltd Boshan Micro Motor Factory	124ZYT105/H2 (129-213-2)

Electrical Rating: 0.37kW, 2.2 A, 240Vdc, 1200RPM — Insulation class F

Component Standard used: UL 1004-1, CSA C22.2 #100

MATERIALS LIST (refer to illustration 4 for assembly drawing)

Component	Manufacturer	Type/model	Dimensions/thickness/assembly information
Bobbin	Shandong Pengtai Stock Co Ltd	QZY-2/180	0.55mm^2 enamel copper wire, UL file: E166187
Slot liners	Wujiang Insulated Material Factory	ET-90	134mm x 6.5mm x 1mm, Class 155 (F); UL file: E228349 \ E233623
Between secondaries	Wujiang Insulated Material Factory	ET-90	Class 155 (F); UL file: E228349 \ E233623
Varnish, potting compound, etc.	Wujiang Insulated Material Factory	ET-90	Class 155 (F); UL File: E228349 \ E233623
Brush holder	Zhejiang Jiamin Plastic Co Ltd	PF2A2-141	HB, 150°C. UL File: E231508
Housing /shroud	Bazhou Wangcun Pressed Steel Factory	Steel No.10	Overall dimensions: 124mm x 200mm x 5.5mm
Insulation system	Shandong Xianghe Group Co Ltd	BW155F	Class 155 (F) insulation system, complying with UL 1446. UL File: E310164
Grounding means	Shanghai Die Ye Electrical Wire & Cable Co Ltd	Various	AWM 1015, 18AWG, UL File: E212446

WINDING(S) RESISTANCE

Winding Designation	Wire Size (mm^2)	Wire Type	Turns	Volts	Amps	DC resistance (Ω) +/- 10%:
Rotor Windings	0.55 mm^2	QZY-2/180	19	240	2.2	8.72 ± 0.872

VERIFICATION PROCESS

Frequency: **Annual** | Test Site: **CEC** | Number of samples to test: **1**

Test Name	Test Parameters		
Winding resistance	See resistance per winding above.		
Dielectric Strength	Apply voltage Between	Test Voltage	Test Time
	Primary to core	1480Vac	60

6.0 Critical Features

Recognized Component - A component part, which has been previously evaluated by an accredited certification body with restrictions and must be evaluated as part of the basic product considering the restrictions as specified by the Conditions of Acceptability.

Listed Component - A component part, which has been previously Listed or Certified by an accredited Certification Organization with no restrictions and is used in the intended application within its ratings.

Unlisted Component - A part that has not been previously evaluated to the appropriate designated component standard. It may also be a Listed or Recognized component that is being used outside of its evaluated Listing or component recognition.

Critical Features/Components - An essential part, material, subassembly, system, software, or accessory of a product that has a direct bearing on the product's conformance to applicable requirements of the product standard.

Construction Details - For specific construction details, reference should be made to the photographs and descriptions. All dimensions are approximate unless specified as exact or within a tolerance. In addition to the specific construction details described in this Report, the following general requirements also apply.

1. Spacing - In primary circuits, 3/32 in minimum spacing are maintained through air and over surfaces of insulating material between current-carrying parts of opposite polarity and between current-carrying parts and dead-metal parts.

   Note to inspector: verify spacings between traces on the PWB in the primary circuit inside the box on Illustration No. 4. Verify the physical spacings between the mounted parts.

2. Mechanical Assembly - Components such as switches, fuse holders, connectors, wiring terminals and display lamps are mounted and prevented from shifting or rotating by the use of lock washers, star washers, or other mounting format that prevents turning of the component.

3. Corrosion Protection - All ferrous metal parts are protected against corrosion by painting, plating or the equivalent.

4. Grounding - All exposed dead-metal parts and all dead-metal parts within the enclosure that are exposed to contact during any servicing operation are to be connected to the grounding lead of the power supply cord. The internal ground conductor is secured to welded stud with self-locking dedicated nut.

5. Internal Wiring - Internal wiring is routed away from sharp or moving parts. Internal wiring leads terminating in soldered connections are made mechanically secure prior to soldering. Recognized separable (quick disconnect) connectors of the positive detent type, closed loop connectors, or other types specifically described in the text of this report are also acceptable as internal wiring terminals. At points where internal wiring passes through metal walls or partitions, the wiring insulation is protected against abrasion or damage by plastic bushings or grommets. All wiring in the primary and motor circuit is minimum 18 AWG, with a minimum rating of VW-1, 300V, 75°C.

6. Accessibility of Live Parts - All uninsulated live parts in primary circuitry are housed within a metal enclosure constructed with no openings other than those specifically described in the construction details.

7. Markings – The product is marked on a Recognized labeling system as follows:
   - manufacturer's name,
   - model number, refer to product covered.
   - date of manufacturer (serial #)
   - electrical ratings (volts, current, Hz), refer to electrical ratings.

   Main ground stud is marked with a ground symbol in a circle (IEC 417, No. 5019).

   Please see the instruction manual for the proper selection of the power supply cord or plug.

6.0 Critical Features
8. Cautionary Markings - “CAUTION”, “WARNING”, or “DANGER” are not less than 2.8 mm (7/64 inch) high. Letter size requirement for other cautionary wording is a minimum of 1.6mm high. The following are required: • “WARNING” and the following or equivalent: “Risk Of Explosion. This Equipment Has Internal Arcing Or Sparking Parts Which Should Not Be Exposed To Flammable Vapors. It Should Not Be Located In A Recessed Area Or Below Floor Level.” Where visible. ("Risqué d'explosion. Cet équipement a un arc électrique interne ou des parties d'allumage qui ne devrait pas être exposé à des vapeurs inflammables. Il ne faut pas situé dans une zone en creux ou en dessous du niveau du sol") or equivalent. • “CAUTION” and the following or equivalent: “For Continued Protection Against Risk Of Fire, Replace Only With Same Type 10 A, 250 V” ("Pour une protection continue contre les risques d'incendie, ne remplacez avec le même type 10 A, 250 V") or equivalent located adjacent to the fuse holder. • “Refer Replacement To Qualified Service Personnel ” ("Confier le remplacement à un technicien qualifié") or equivalent. • "Maximum wheel weight of 150 pounds." Or equivalent. Visible to the operator. • "No user serviceable parts inside is marked on the electrical enclosure." Or equivalent. • “DO NOT USE BELOW GARAGE FLOOR OR GRADE LEVEL.” (“NE PAS UTILISER À UN NIVEAU INFÉRIEUR À CELUI DU PLANCHER DU GARAGE OU DU SOL.”) Or equivalent.
9. Installation, Operating and Safety Instructions - Instructions for installation and use of this product are provided by the manufacturer. Refer to Illustration No(s). 1-3 for details. Instruction manual shall contain complete instructions concerning the proper selection and installation of detachable power supply cords and plugs to be used with cord connected equipment.

7.0 Illustrations

Illustration No. 1 - Manual Information

1. Getting Started

1.1 Introduction

This manual provides operation instructions and information required to operate the GSP9200. Read and become familiar with the contents of this manual prior to operating the GSP9200.

The owner of the GSP9200 is solely responsible for arranging technical training. The GSP9200 is to be operated only by a qualified trained technician. Maintaining records of personnel trained is solely the responsibility of the owner and management.

"References"

This manual assumes that you are already familiar with the basics of tire balancing. The first section provides the basic information needed to operate the GSP9200. The following sections contain detailed information about equipment operation and procedures. *"Italics"* are used to refer to specific parts of this manual that provide additional information or explanation. For example, *Refer to "Equipment Components," page 9.* These references should be read for additional information to the instructions being presented.

1.2 For Your Safety

Hazard Definitions

Watch for these symbols:

⚠ **CAUTION:**	Hazards or unsafe practices, which could result in minor personal injury or product or property damage.
⚠ **WARNING:**	**Hazards or unsafe practices, which could result in severe personal injury or death.**
⚠ **DANGER:**	**Immediate hazards, which will result in severe personal injury or death.**

These symbols identify situations that could be detrimental to your safety and/or cause equipment damage.

IMPORTANT SAFETY INSTRUCTIONS

When using your garage equipment, basic safety precautions should always be followed, including the following:

Read all instructions before operating the GSP9200.

Read and follow the instructions and warnings provided in the service, operation and specification documents of the products with which this GSP9200 is used (i.e., automobile manufacturers, tire manufacturers etc.).

Do not operate equipment with a damaged cord or equipment that has been dropped or damaged until a Hunter Service Representative has examined it.

7.0 Illustrations

Illustration No. 2 - Manual Information

Always unplug equipment from electrical outlet when not in use. Never use the cord to pull the plug from the outlet. Grasp plug and pull to disconnect.

If an extension cord is necessary, a cord with a current rating equal to or more than that of the equipment should be used. Cords rated for less current than the equipment may overheat. Care should be taken to arrange the cord so that it will not be tripped over or pulled.

Verify that the electrical supply circuit and the receptacle are properly grounded.

To reduce the risk of electrical shock, do not use on wet surfaces or expose to rain.

Verify the appropriate electrical supply circuit is the same voltage and amperage ratings as marked on the balancer before operating.

⚠ WARNING: DO NOT ALTER THE ELECTRICAL PLUG. Plugging the electrical plug into an unsuitable supply circuit will damage the equipment and may result in personal injury.

To reduce the risk of fire, do not operate equipment near open containers of flammable liquids (gasoline).

Read and follow all caution and warning labels affixed to your equipment and tools. Misuse of this equipment can cause personal injury and shorten the life of the balancer.

Keep all instructions permanently with the unit.

Keep all decals, labels, and notices clean and visible.

To prevent accidents and/or damage to the balancer, use only Hunter GSP9200 Series Vibration Control System recommended accessories.

Use equipment only as described in this manual.

Never stand on the balancer.

Wear non-slip safety footwear when operating the balancer.

Keep hair, loose clothing, neckties, jewelry, fingers, and all parts of body away from all moving parts.

Do not place any tools, weights, or other objects on the safety hood while operating the balancer.

ALWAYS WEAR OSHA APPROVED SAFETY GLASSES. Eyeglasses that have only impact resistant lenses are NOT safety glasses.

Keep the safety hood and its safety interlock system in good working order.

Verify that the wheel is mounted properly and that the wing nut is firmly tightened before spinning the wheel.

The safety hood must be closed before pressing the green "START" key, located on the right front corner of the console, to spin the wheel.

Hood Autostart will cause the balancer shaft to spin automatically upon hood closure. For the next Autostart, the safety hood has to be lifted to the full up position and then closed.

Raise safety hood only after wheel has come to a complete stop. If safety hood is raised before the spin is completed, the weight values will not be displayed.

Do not let cord hang over any edge or contact fan blades or hot manifolds.

The red "STOP" key, located on the right front corner of the CRT assembly, can be used for emergency stops.

⚠ DANGER: Never reach under the hood while the balancer is performing a runout measurement or balance spin.

SAVE THESE INSTRUCTIONS.

7.0 Illustrations

Illustration No. 3 - Manual Information

Electrical

The GSP9200 is manufactured to operate at a specific voltage and amperage rating.

Make sure that the appropriate electrical supply circuit is of the same voltage and amperage ratings as marked on the balancer.

> ⚠ **WARNING: DO NOT ALTER THE ELECTRICAL PLUG. Plugging the electrical plug into an unsuitable supply circuit will damage the equipment.**

Make sure that the electrical supply circuit and the appropriate receptacle is installed with proper grounding.

To prevent the possibility of electrical shock injury or damage to the equipment when servicing the balancer, power must be disconnected by removing the power cord from the electrical power outlet.

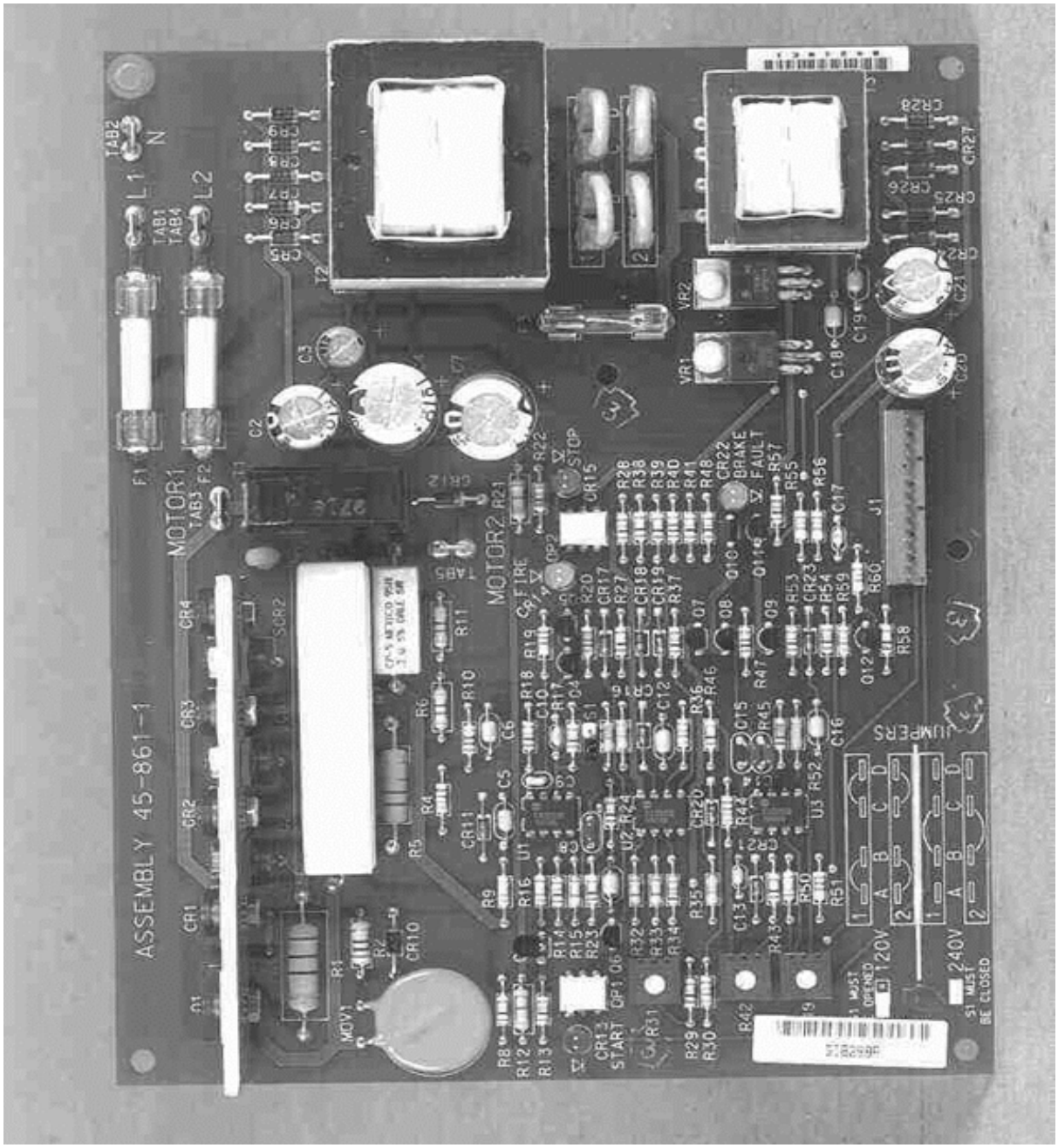
After servicing, be sure the balancer ON/OFF switch is in the "O" (off) position before plugging the power cord into the electrical power outlet.

This device is rated as Class A for radiated emissions.

In the event of radio interference, the display read out may flicker - this is normal.

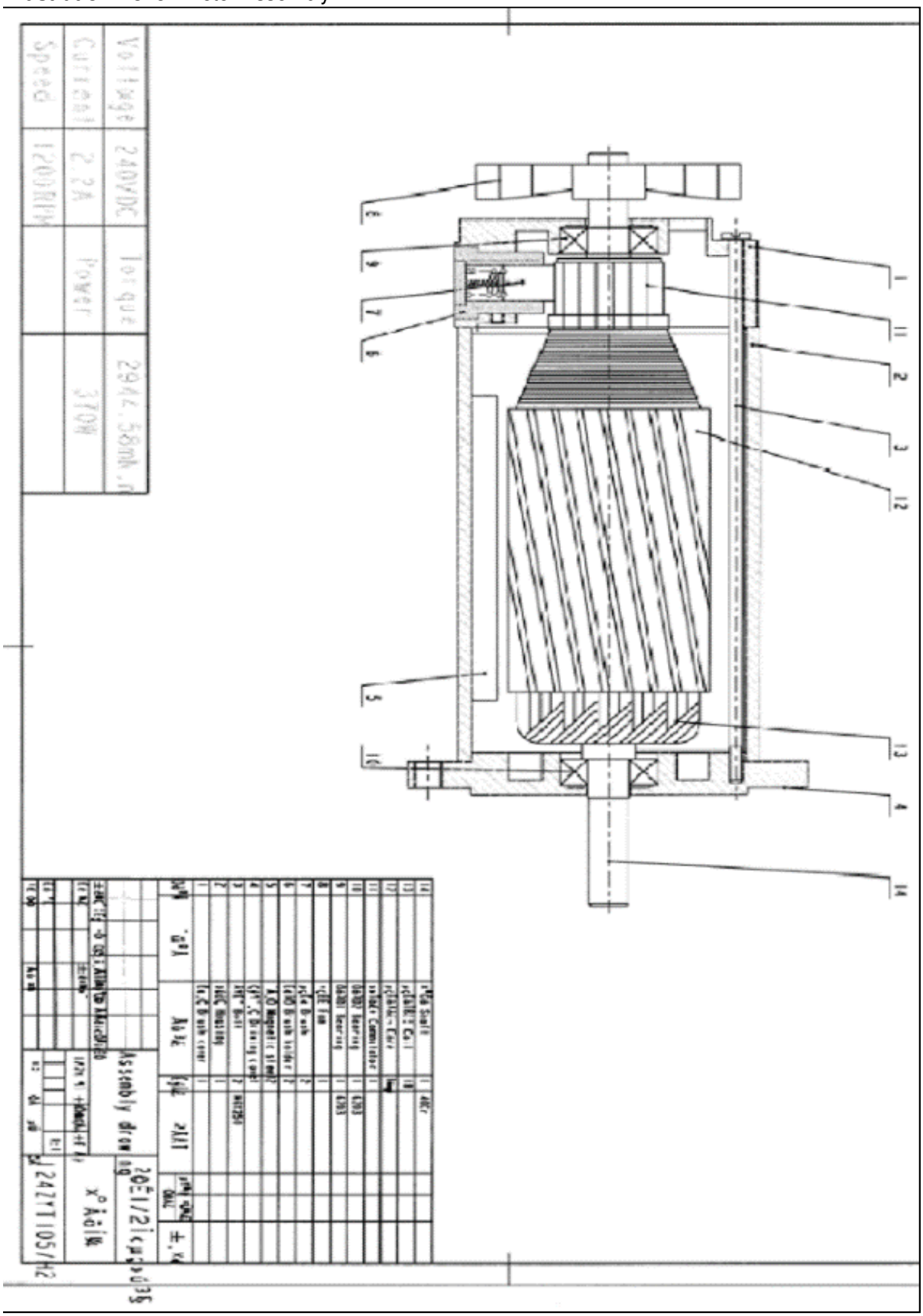
7.0 Illustrations

Illustration No. 4 - Photo of Power Supply/Controller



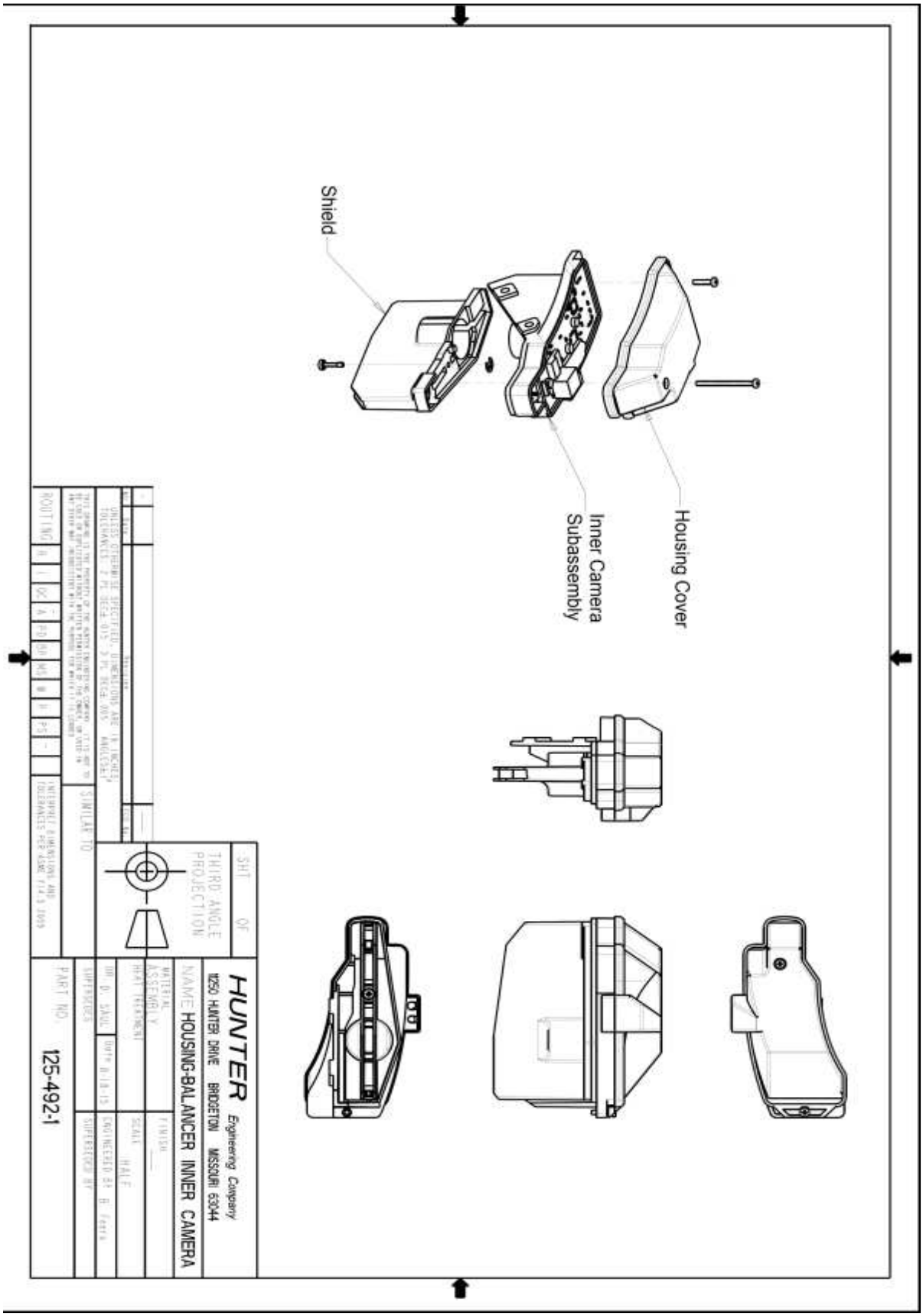
7.0 Illustrations

Illustration No. 5 - Motor Assembly



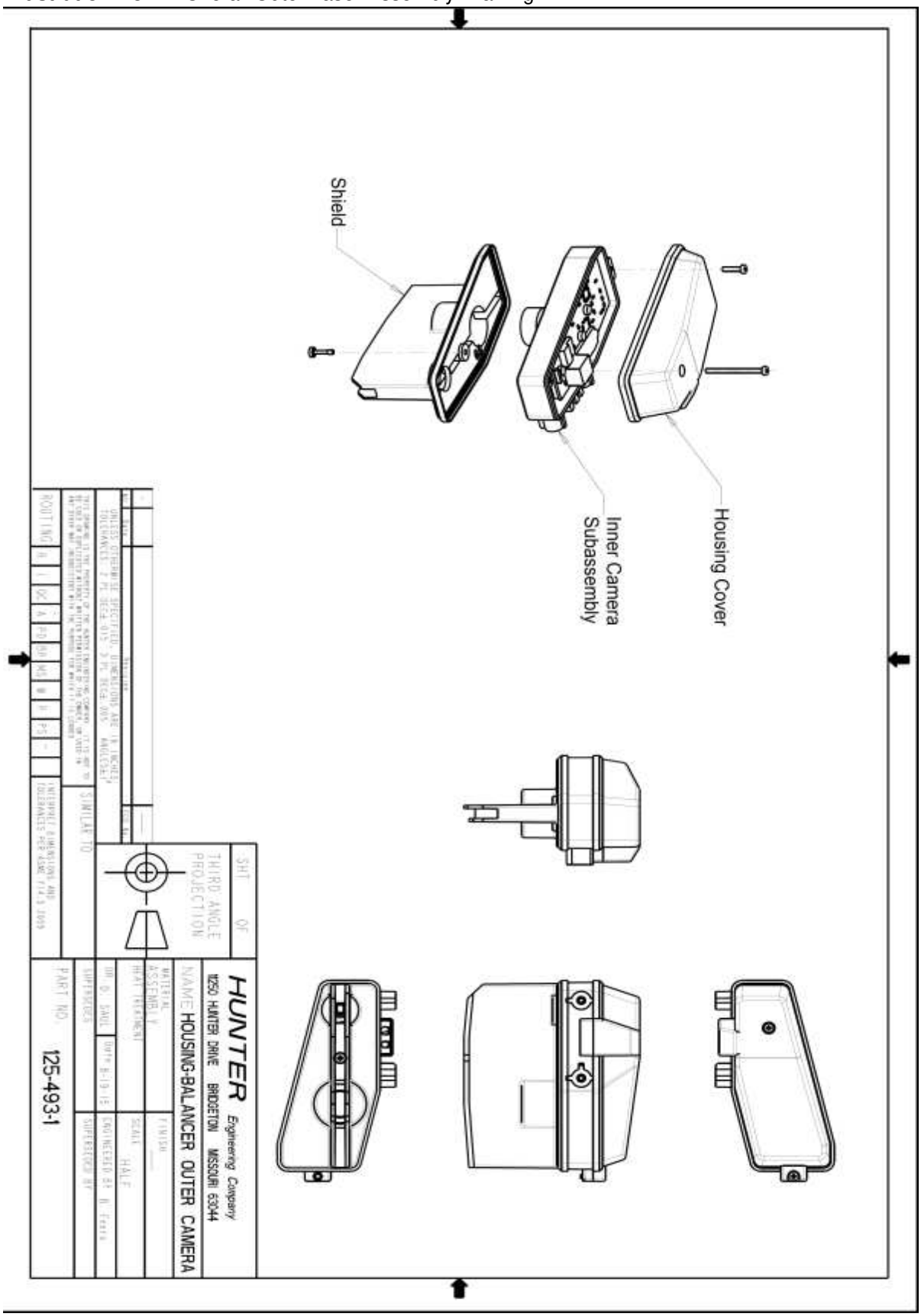
7.0 Illustrations

Illustration No. 6 - Overall Inner Laser Assembly Drawing



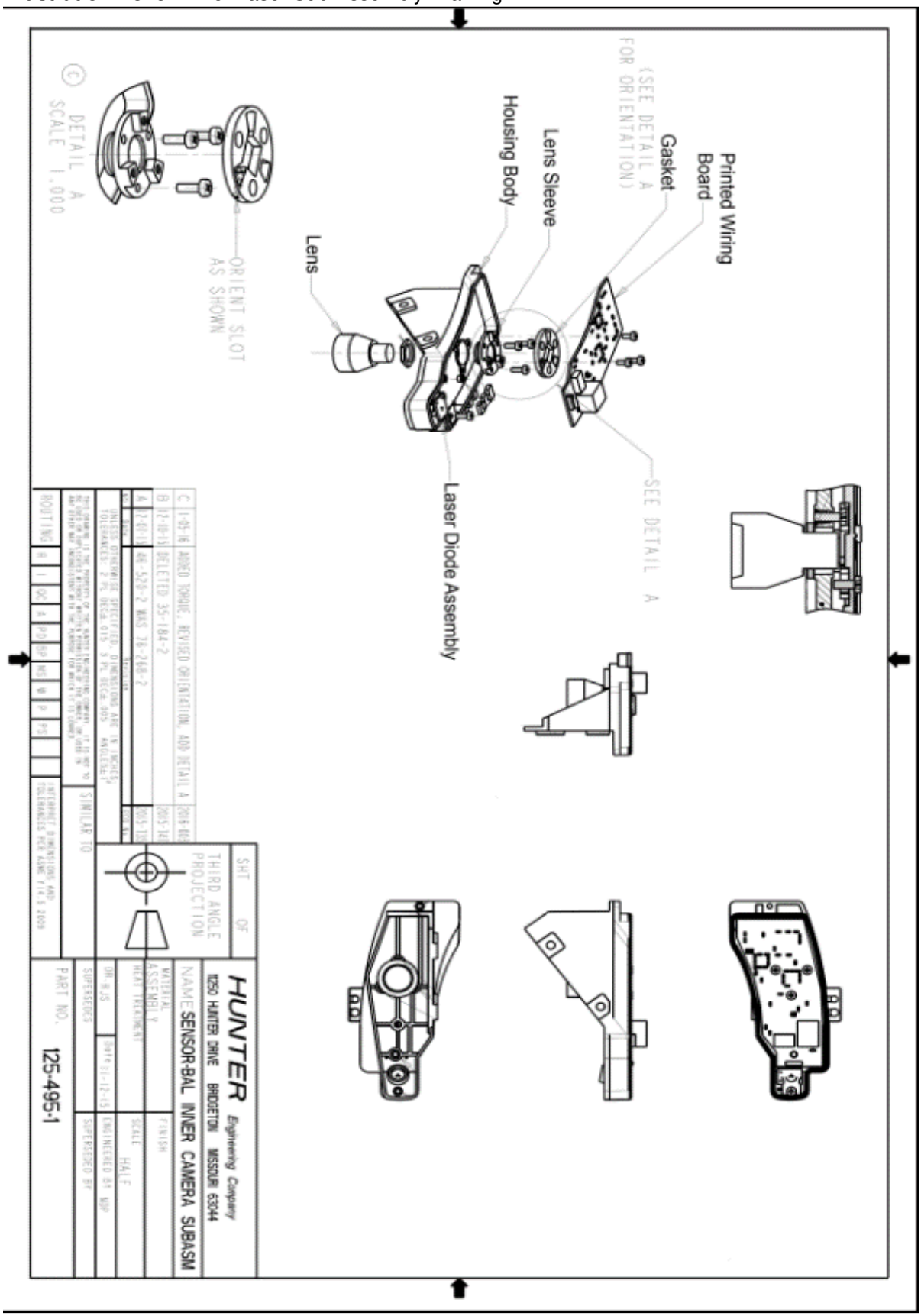
7.0 Illustrations

Illustration No. 7 - Overall Outer Laser Assembly Drawing



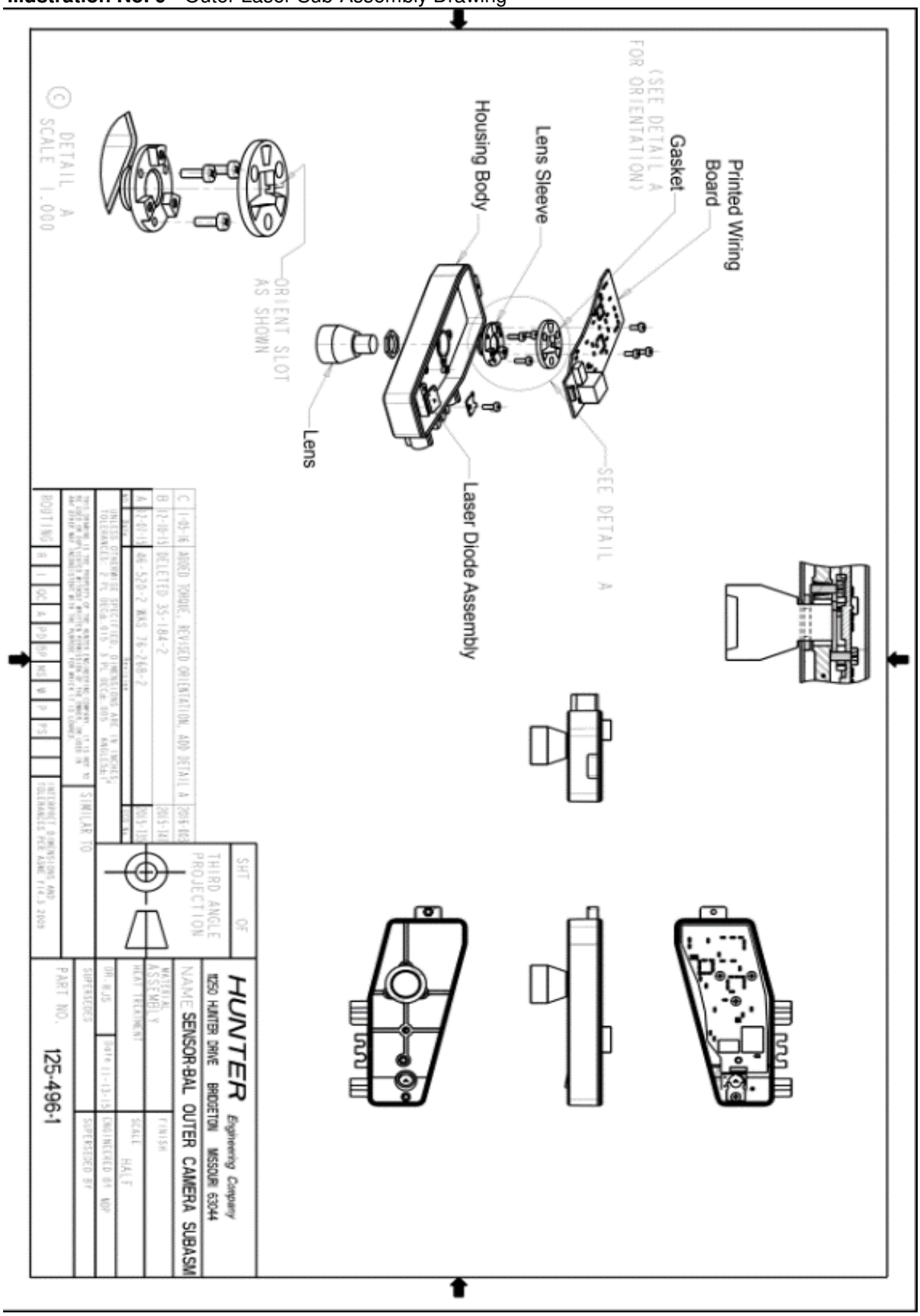
7.0 Illustrations

Illustration No. 8 - Inner Laser Sub-Assembly Drawing



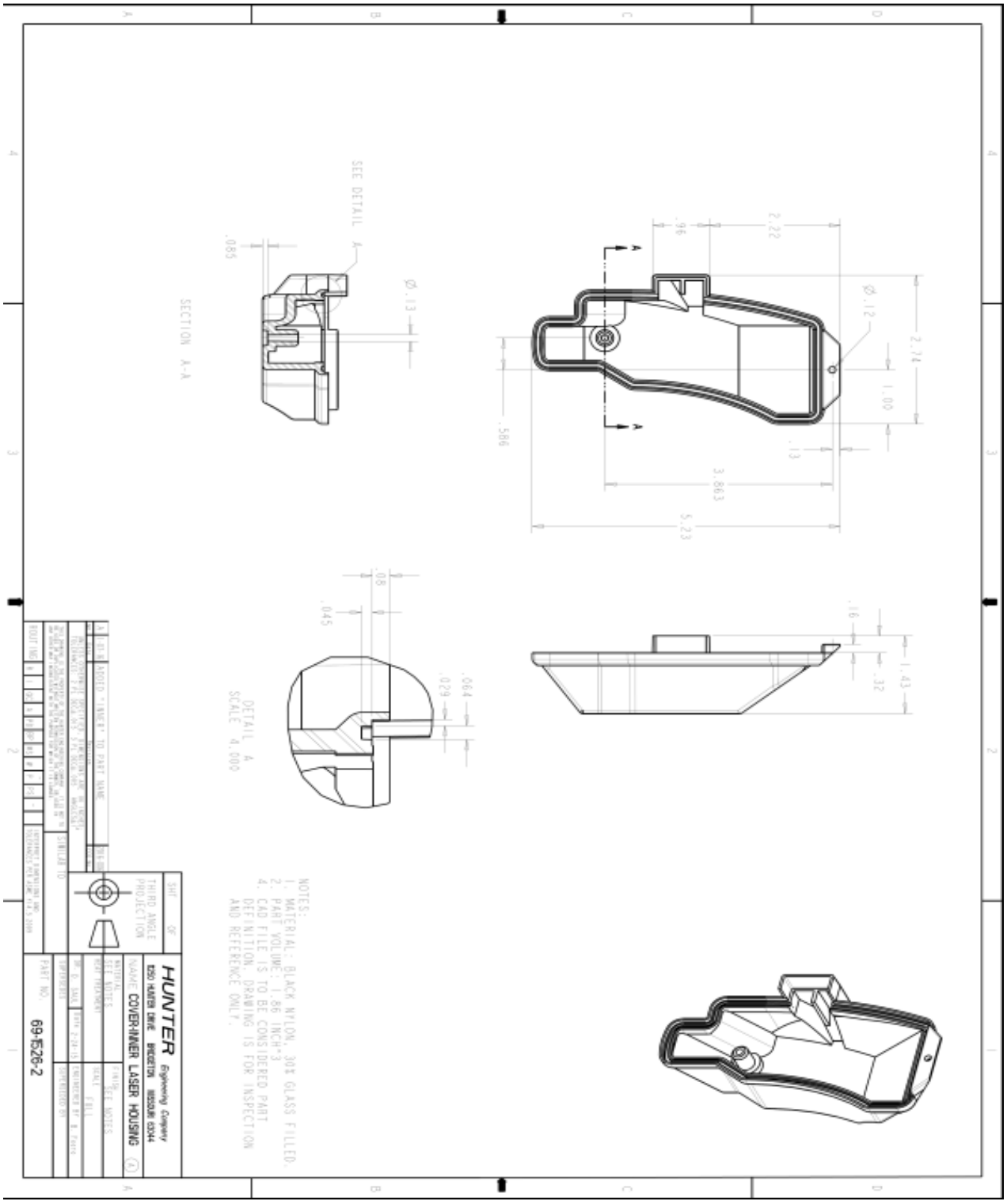
7.0 Illustrations

Illustration No. 9 - Outer Laser Sub-Assembly Drawing



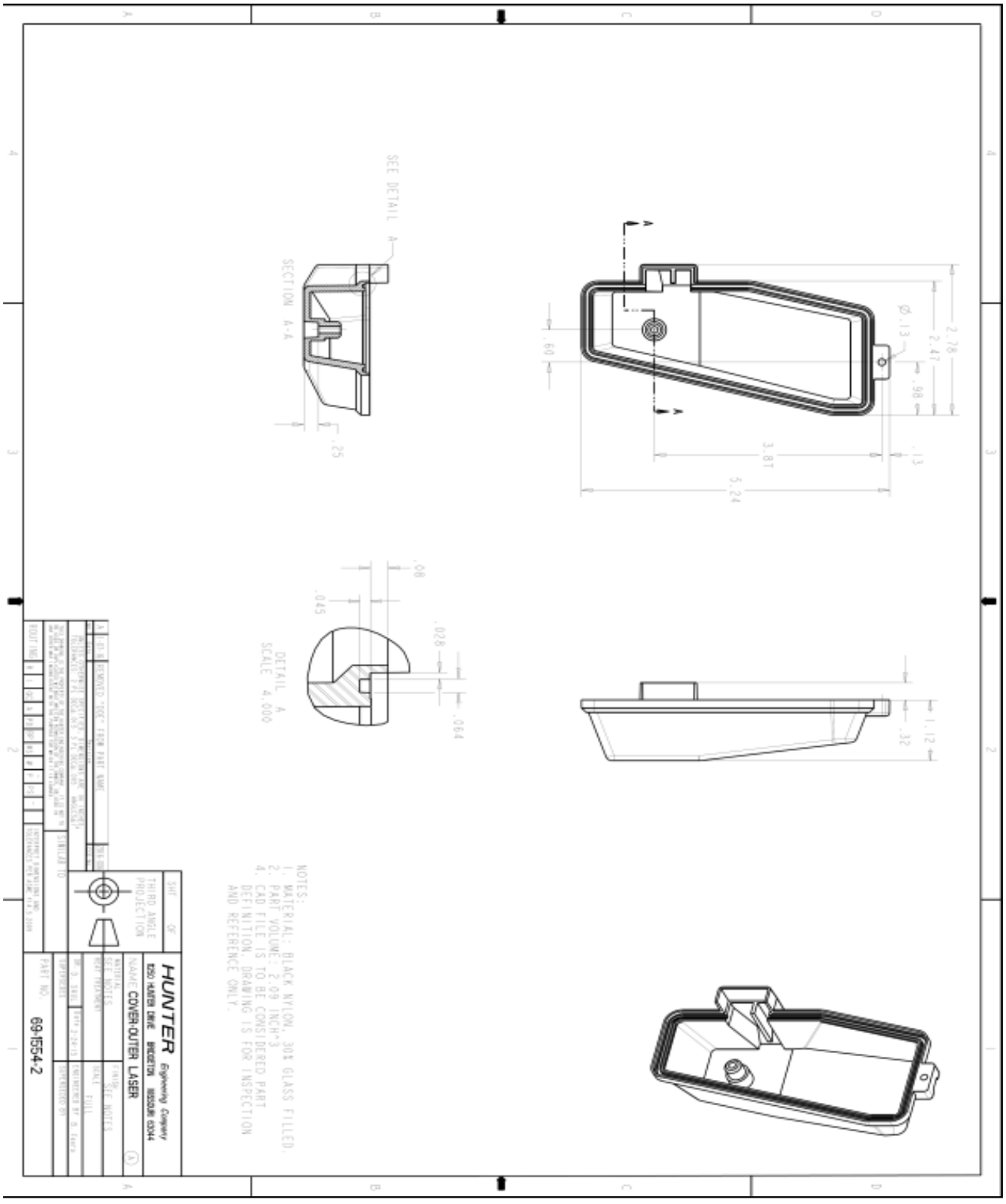
7.0 Illustrations

Illustration No. 10 - Inner Laser Assembly Housing Drawing



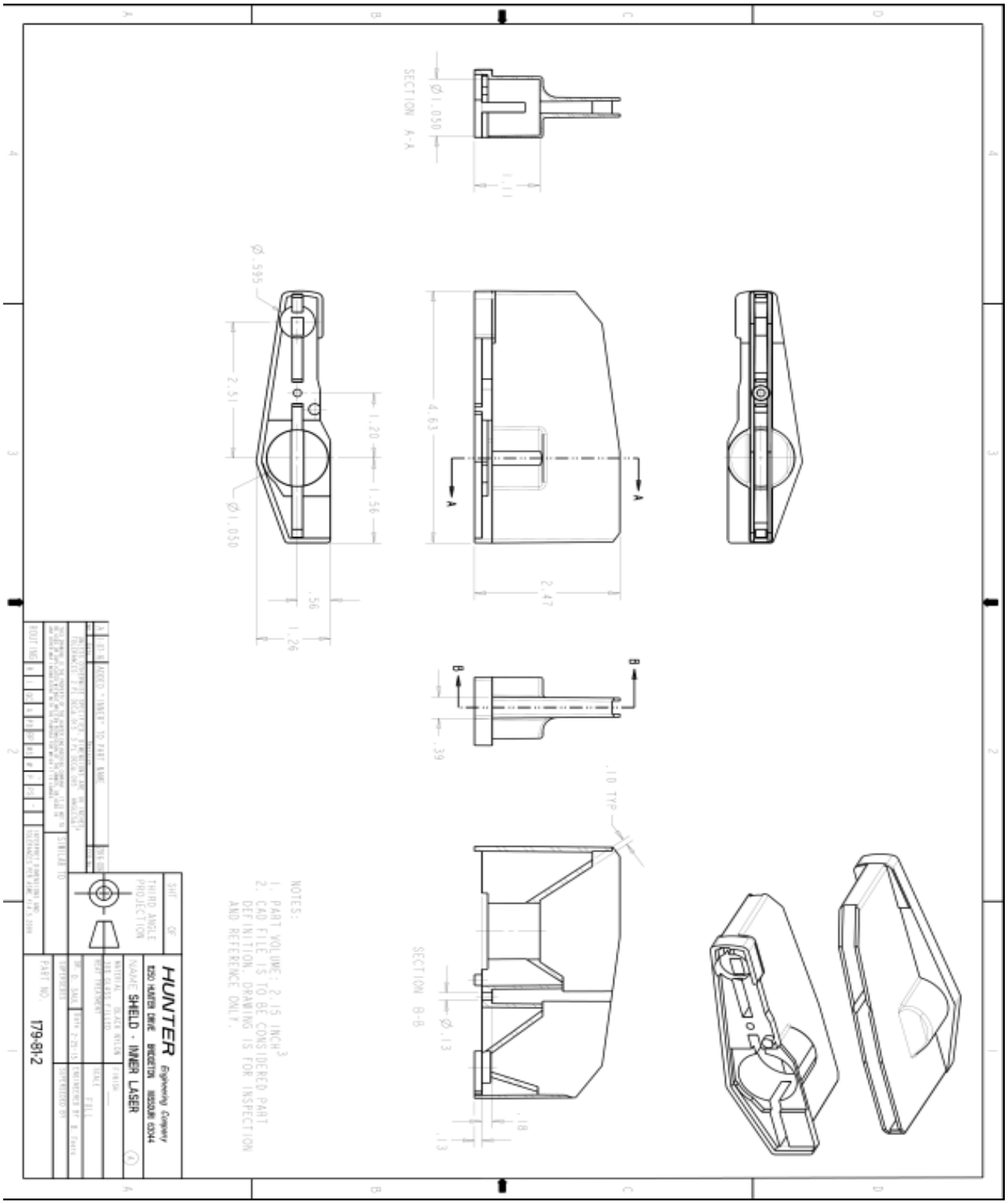
7.0 Illustrations

Illustration No. 11 - Outer Laser Assembly Housing Drawing



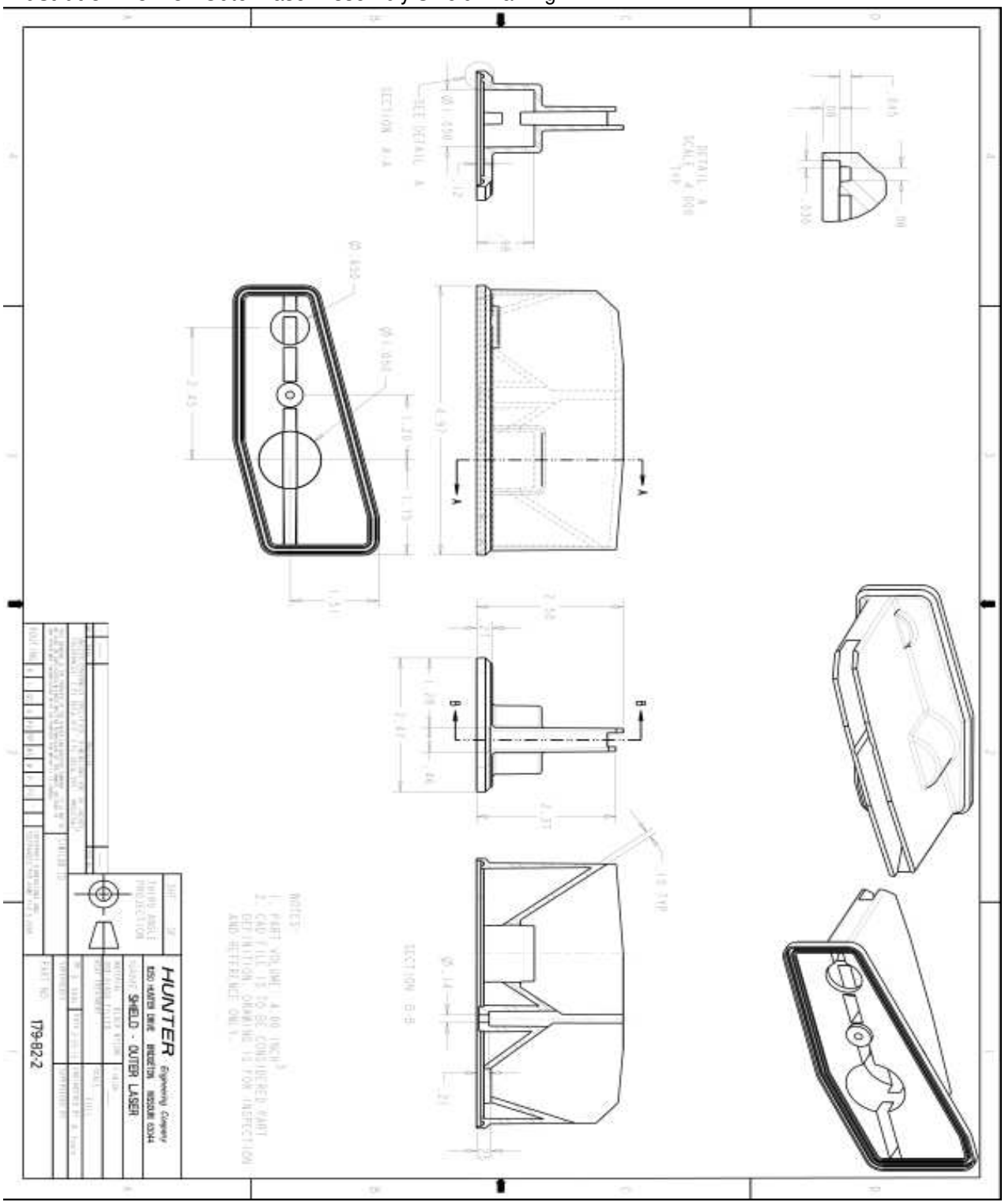
7.0 Illustrations

Illustration No. 12 - Inner Laser Assembly Shield Drawing



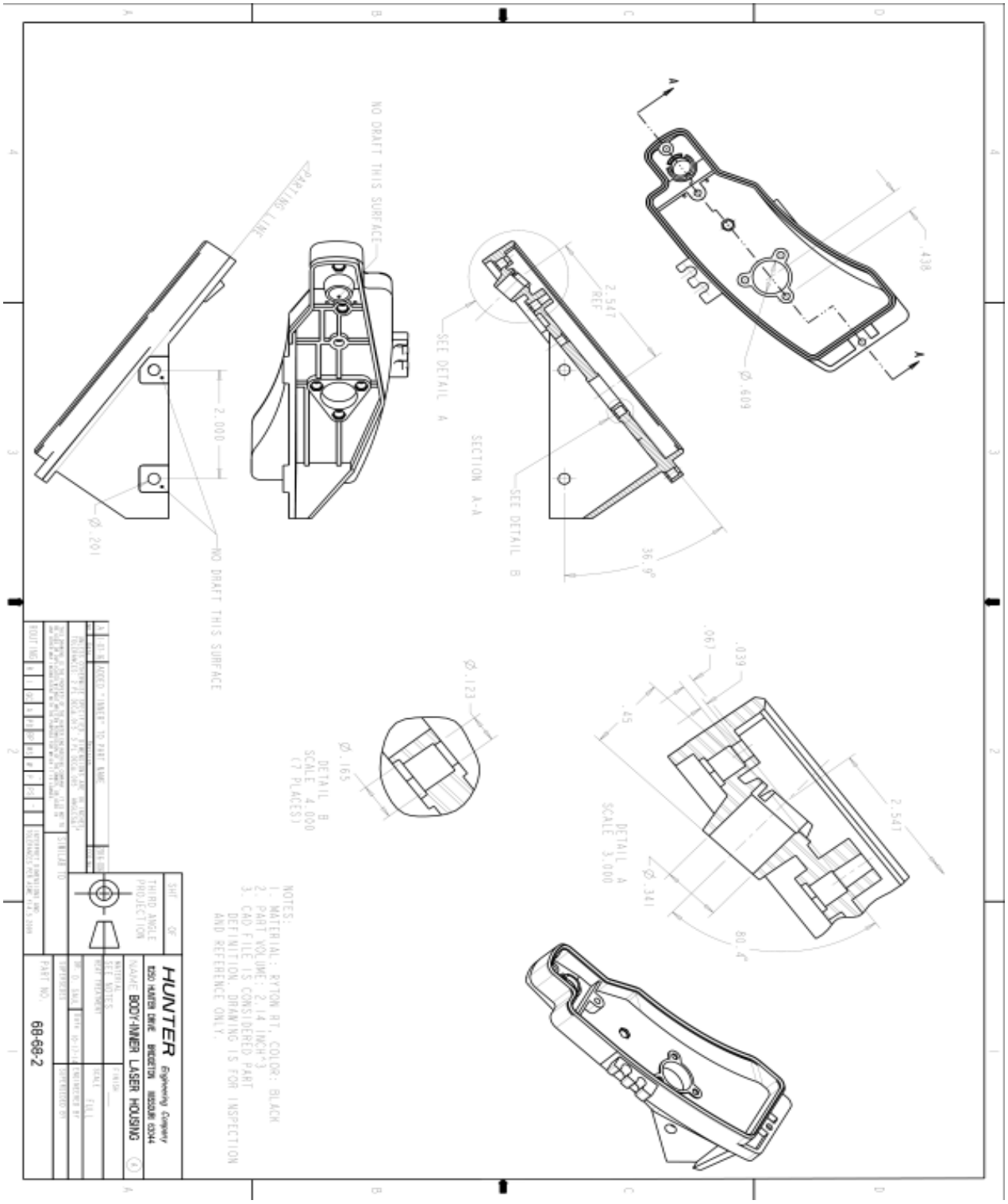
7.0 Illustrations

Illustration No. 13 - Outer Laser Assembly Shield Drawing



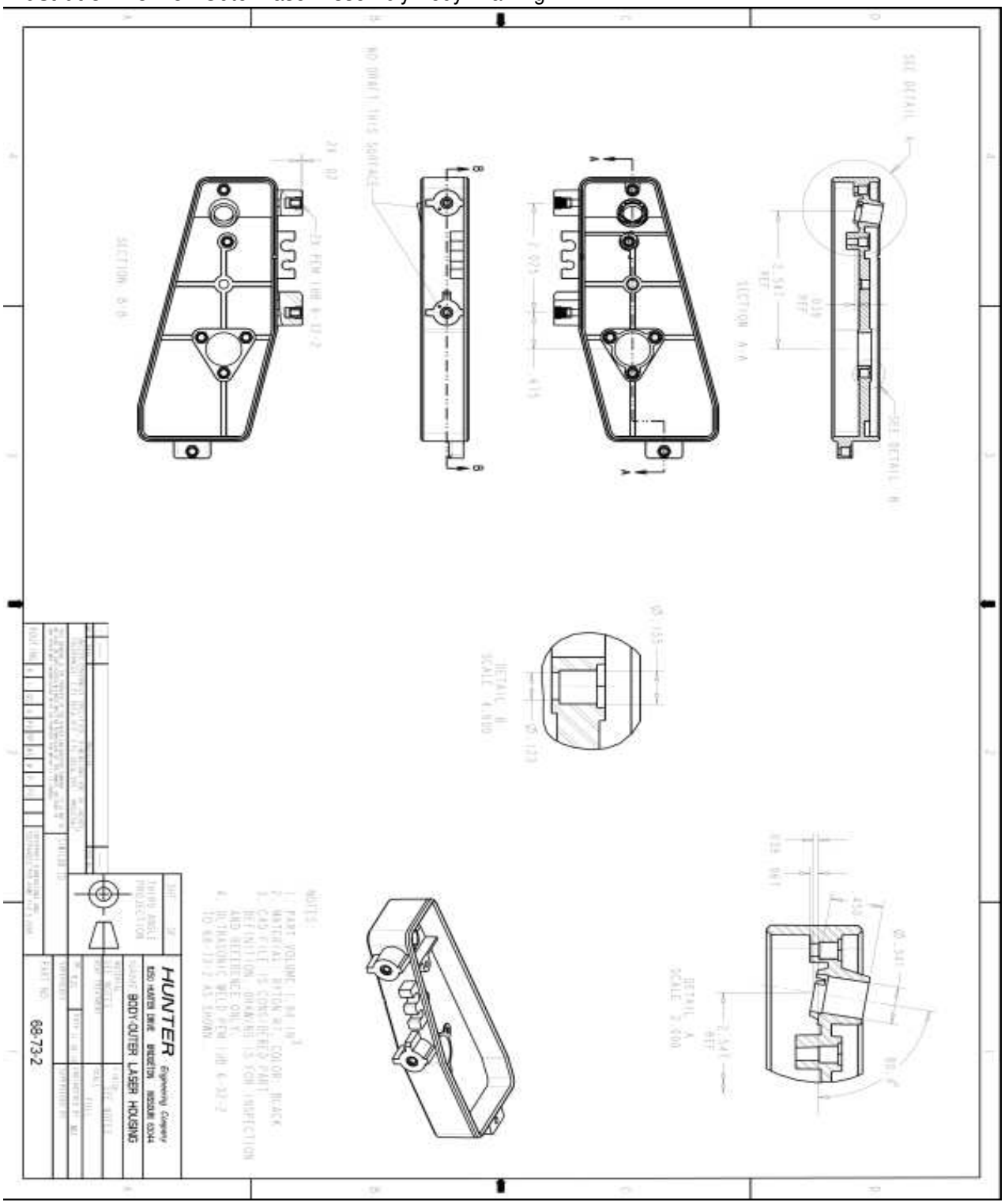
7.0 Illustrations

Illustration No. 14 - Inner Laser Assembly Body Drawing



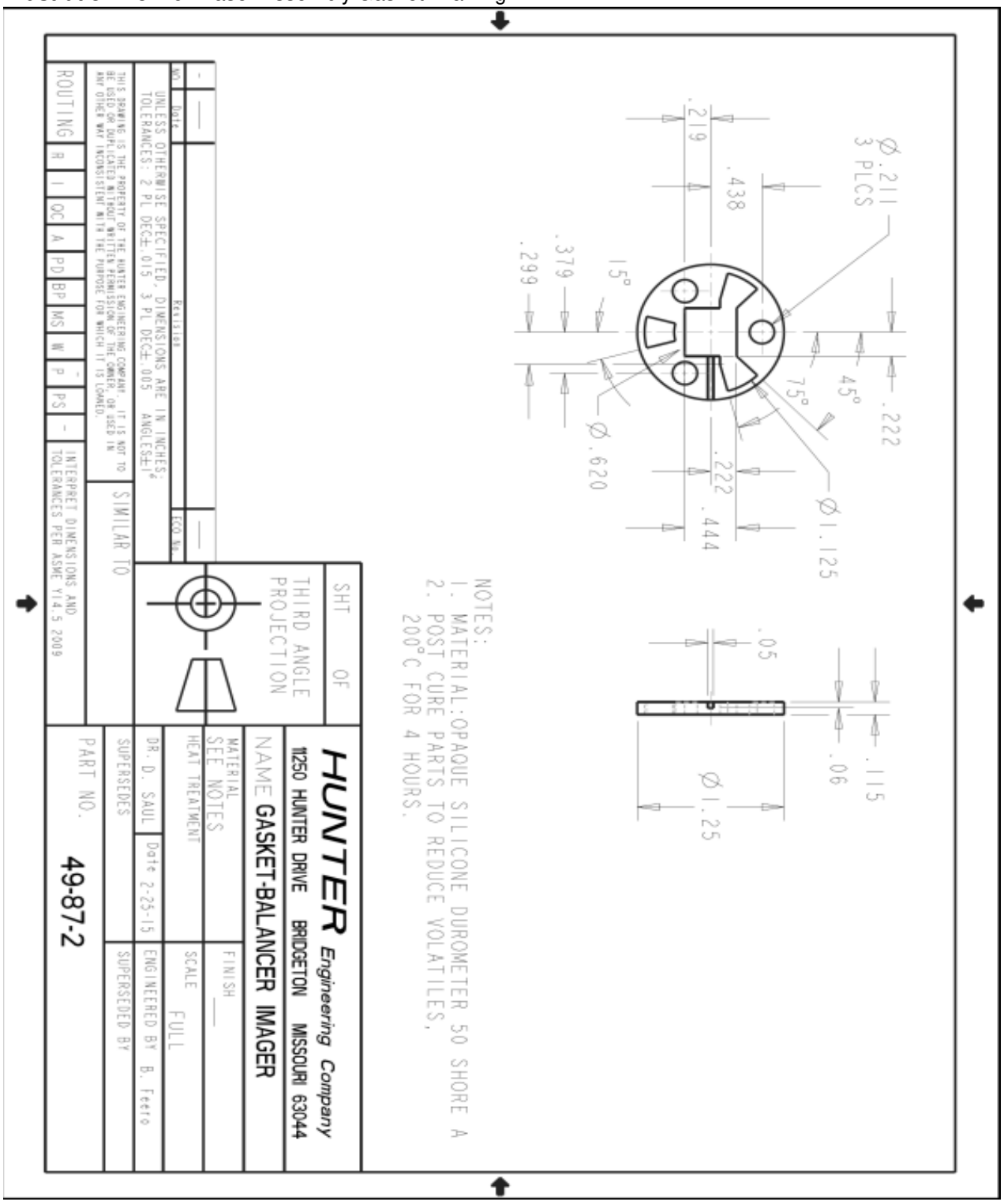
7.0 Illustrations

Illustration No. 15 - Outer Laser Assembly Body Drawing



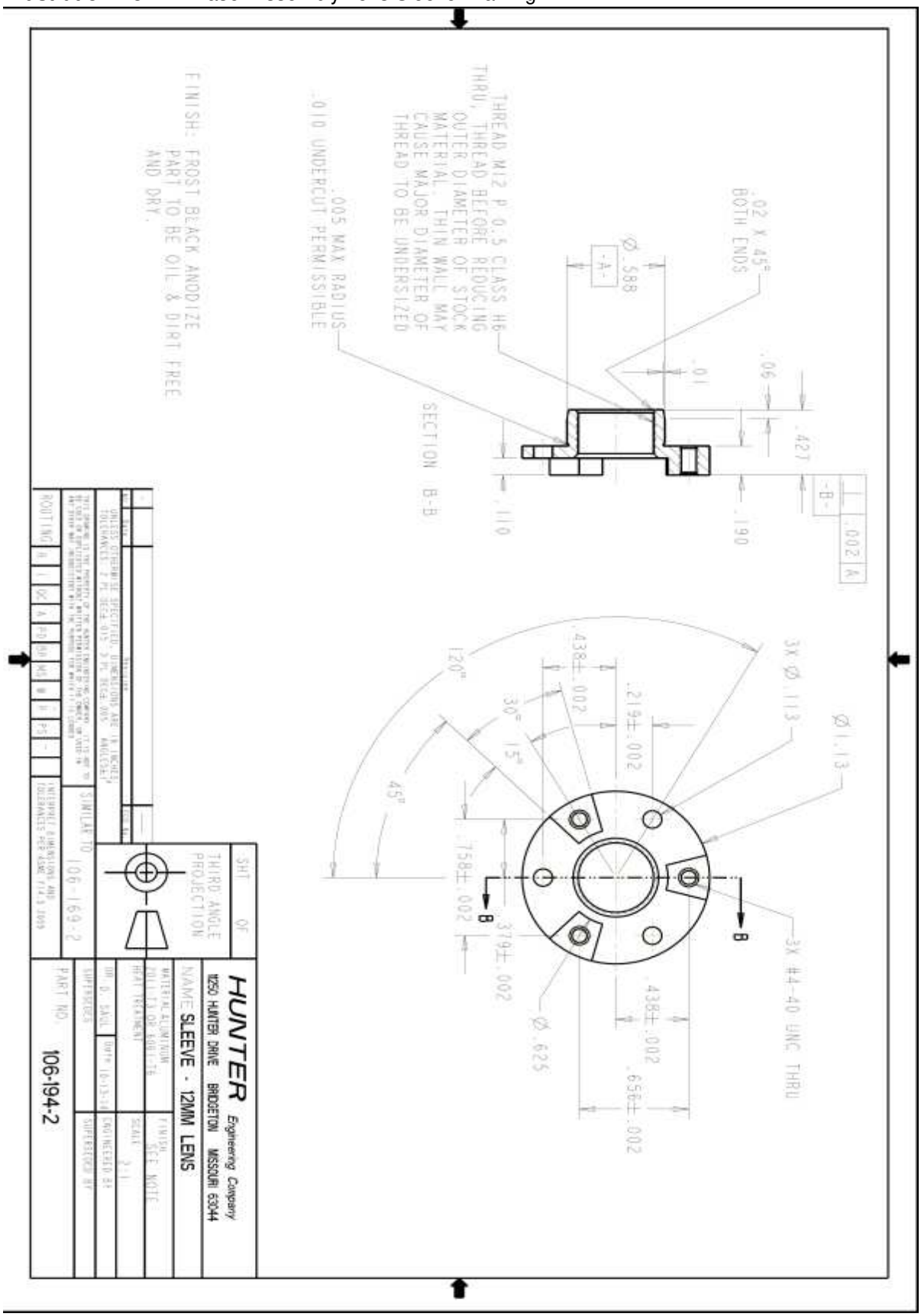
7.0 Illustrations

Illustration No. 16 - Laser Assembly Gasket Drawing



7.0 Illustrations

Illustration No. 17 - Laser Assembly Lens Sleeve Drawing



8.0 Test Summary					
Evaluation Period	7/9/2012 - 7/12/2012			Project No.	G100642964
Sample Rec. Date	3-Apr-2012	Condition	Production	Sample ID.	CHI1204031111-001
Test Location	Intertek Location: 545 E Algonquin Road, Suite F, Arlington Heights, IL 60005, USA				
Test Procedure	Testing Lab				

Determination of the result includes consideration of measurement uncertainty from the test equipment and methods. The product was tested as indicated below with results in conformance to the relevant test criteria.

The following tests were performed under UL Report E50417, Vol. 3, Sec. 12, test records 1 through 12

Test Description	UL 201	CSA 68	
Permanence of Marking Test	74	--	
Input	51	6.4	
Strength of Enclosure	71	6.12	
Leakage Current	48	6.10	
Starting Current	50	6.3	
Ground Continuity	54	4.18	
Normal Temperature	52	6.5	
Dielectric Withstand	55	6.6	
Stability	57	6.11	
Strain Relief	60	6.13.1	
Interlock Switch	62	6.9	
Transformer Abnormal Operation	28.5.4	--	
Abnormal Operations	65	--	
Energy Hazard	64	--	
Hydrostatic Pressure	63	6.17	
Secondary Motor Running Overload Test for DC Motors	Annex C	--	
Locked-Rotor Overload Test for DC Motors in Secondary Circuits	Annex C	--	
Test Description	CSA 60950-1		
Capacitance Discharge	2.1.1.7		

The following tests were performed by Intertek during previous listing report # 3094286CHI-001 for RFxxyyy model

Test Description	UL 201		
Input	51		
Normal Temperature	52		
Maximum Load	53		
Dielectric Voltage Withstand (Dielectric Strength)	55		
Abnormal Operation (Abnormal Temperature)	65		
Motor (Locked Rotor & Overload)	Annex C		

The following tests were performed by Intertek on model RFTxxyyy with alternate power supplies Sparkle SPI180LE and Enhance ENP-2322

Test Description	UL 201	CSA 60950-1	
Input		1.6	
Temperature	48	4.5	
Leakage Current	48	5.1	
Dielectric	55	5.2	

8.0 Test Summary

Evaluation Period	06/24/2013 - 06/26/2013			Project No.	G100901469, G100901454 & G100901502
Sample Rec. Date	24-Jun-2013	Condition	Production	Sample ID.	N/A
Test Location	Hunter Engineering Company: 11250 Hunter Drive, Bridgeton, MO 63044				
Test Procedure	Testing at Manufacturers Premises				

Determination of the result includes consideration of measurement uncertainty from the test equipment and methods. The product was tested as indicated below with results in conformance to the relevant test criteria.

The following test was performed on the RFTxxyy model with the new alternate motor and drive installed. Also new model SWTxxyy is added to the report. Models SWT has identical construction and rating like RFT except it uses smaller motor.

Test Description	UL 201	CSA 60950-1	UL 1004-1
Input	51	1.6	--
Leakage Current	48	5.1	--
Temperature	52	4.5	31
Dielectric	55	5.2	36
Running overload test	C.3	B.4	--
Motor (Locked Rotor & Overload)	C.4	B.5	41

The following test was performed on new unlisted drive installed in the end product along with the alternate unlisted motor.

Test Description	UL 508C	CSA 14	
Temperature	40	6.2	
Dielectric	48	6.8	
Solid state overload protection	43.1	--	
Thermal memory retention test (shutdown)	43.3	--	
Thermal memory retention test (loss of power)	43.4	--	
Breakdown of components	55	--	

Evaluation Period	9/14/2015-9/15/2015	Project No.	G102273347

No testing was required for the revision update of Standard for Safety Garage Equipment (UL 201, 3rd Ed., issued 03/31/2015) Standard for Safety for Information Technology Equipment Safety Part 1: General Requirements (CSA C22.2 No. 60950-1, Issued:03/27/2007, R2012 + AMD 2 Issued: 10/14/2014)

Evaluation Period	04/14/2016 - 08/01/2016			Project No.	G102455542
Sample Rec. Date	14-Apr-2016	Condition	Production	Sample ID.	N/A
Test Location	Hunter Engineering Company: 11250 Hunter Drive, Bridgeton, MO 63044				
Test Procedure	Testing at Manufacturers Premises				

Determination of the result includes consideration of measurement uncertainty from the test equipment and methods. The product was tested as indicated below with results in conformance to the relevant test criteria.

The following test was performed:

Test Description	UL 201	CSA 60950-1	
Temperature	52	4.5	

Evaluation Period	9/20/2017	Project No.	G103235274

Due to the previous testing performed and reported above no additional testing was necessary for Information Technology Equipment Safety Part 1: General Requirements (R2016) >Valid without technical revision: 01Jan2022< [CSA C22.2#60950-1:2007 Ed.2+A1;A2].

8.1 Signatures

A representative sample of the product covered by this report has been evaluated and found to comply with the applicable requirements of the standards indicated in Section 1.0.

Completed by:	Yuri Henriquez	Reviewed by:	Thomas Cabaj
Title:	Project Engineer	Title:	Senior Project Engineer
Signature:	Yuri Henriquez	Signature:	Tom Cabaj

9.0 Correlation Page For Multiple Listings	
The following products, which are identical to those identified in this report except for model number and Listee name, are authorized to bear the ETL label under provisions of the Intertek Multiple Listing Program.	
BASIC LISTEE	Hunter Engineering
Address	11250 Hunter Drive Bridgeton, MO 63044
Country	USA
Product	Wheel Balancer

MULTIPLE LISTEE 1	None
Address	
Country	
Brand Name	
ASSOCIATED MANUFACTURER	
Address	
Country	

MULTIPLE LISTEE 1 MODELS	BASIC LISTEE MODELS

MULTIPLE LISTEE 2	None
Address	
Country	
Brand Name	
ASSOCIATED MANUFACTURER	
Address	
Country	

MULTIPLE LISTEE 2 MODELS	BASIC LISTEE MODELS

MULTIPLE LISTEE 3	None
Address	
Country	
Brand Name	
ASSOCIATED MANUFACTURER	
Address	
Country	

MULTIPLE LISTEE 3 MODELS	BASIC LISTEE MODELS

10.0 General Information

The Applicant and Manufacturer have agreed to produce, test and label ETL Listed products in accordance with the requirements of this Report. The Manufacturer has also agreed to notify Intertek and to request authorization prior to using alternate parts, components or materials.

COMPONENTS

Components used shall be those itemized in this Intertek report covering the product, including any amendments and/or revisions.

LISTING MARK

The ETL Listing mark applied to the products shall either be separable in form, such as labels purchased from Intertek, or on a product nameplate or other media only as specifically authorized by Intertek. Use of the mark is subject to the control of Intertek.

The mark must include the following four items:

1) applicable country identifiers "US" and/or "C" or "US", "C" and "EU"
2) the word "Listed" or "Classified" or "Recognized Component" (whichever is appropriate)
3) a control number issue by Intertek
4) a product descriptor that identifies the standards used for certification. Example:

For US standards, the words, “Conforms to” shall appear with the standard number along with the word, “Standard” or “Std.” Example: “Conforms to ANSI/UL Std. XX.”

For Canadian standards, the words “Certified to CAN/CSA Standard CXX No. XX.” shall be used, or abbreviated, “Cert. to CAN/CSA Std. CXX No. XX.”

Can be used together when both standards are used.

Note: A facsimile must be submitted to Intertek, Attn: Follow-up Services for approval prior to use.
The facsimile need not have a control number. A control number will be issued after signed Certification Agreements have been received by the Follow-up Services office, approval of the facsimile of your proposed Listing Mark, satisfactory completion of the Listing Report, and scheduling of a factory assessment in your facility.

MANUFACTURING AND PRODUCTION TESTS

Manufacturing and Production Tests shall be performed as required in this Report.

FOLLOW-UP SERVICE

Periodic unannounced audits of the manufacturing facility (and any locations authorized to apply the mark) shall be scheduled by Intertek. An audit report shall be issued after each visit. Special attention will be given to the following:

1. Conformance of the manufactured product to the descriptions in this Report.
2. Conformance of the use of the ETL mark with the requirements of this Report and the Certification Agreement.
3. Manufacturing changes.
4. Performance of specified Manufacturing and Production Tests.

In the event that the Intertek representative identifies non-conformance(s) to any provision of this Report, the Applicant shall take one or more of the following actions:

1. Correct the non-conformance.
2. Remove the ETL Mark from non-conforming product.
3. Contact the issuing product safety evaluation center for instructions.

10.1 Evaluation of Unlisted Components

Because Unlisted Components are uncontrolled, and they do not fall under a third party follow up program, Intertek may require these components to be tested and/or evaluated at least once annually, more often for certain components, as part of the independent certification process. The Unlisted Components in Section 5.0 require testing and/or evaluation as indicated.

Note to Intertek Follow Up Inspector: The Component Evaluation Center, CEC, will notify you in writing when these components must be selected and sent to the CEC for re-evaluation

Ship the samples to:
Intertek Testing Services NA Inc.
ETL Component Evaluation Center
45000 Helm Street, Suite 150
Plymouth Twp., MI 48170 USA
Attn: Component Evaluation Center
Sample Disposition: Due to the destructive nature of the testing, all samples will be discarded at the conclusion of testing, unless the manufacturer specifically requests the return of the samples. The request for return must accompany the initial component shipment.

11.0 Manufacturing and Production Tests

The manufacturer agrees to conduct the following Manufacturing and Production Tests as specified:

Dielectric Voltage Withstand Test

Method

One hundred percent of production of the products covered by this Report shall be subjected to a routine production line dielectric withstand test.
The test shall be conducted on products, which are fully assembled. Prior to applying the test potential, all switches, contactors, relays, etc., should be closed so that all primary circuits are energized by the test potential. If all primary circuits cannot be tested at one time, then separate applications of the test potential shall be made.

The test voltage specified below shall be applied between primary circuits and accessible dead-metal parts. The test voltage may be gradually increased to the specified value but must be maintained at the specified value for one second or one minute as required.

Test Equipment

The test equipment shall incorporate a transformer with an essentially sinusoidal output, a means to indicate the The test equipment shall incorporate a voltmeter in the output circuit to indicate directly the applied test potential if the rated output of the test equipment is less than 500VA.
If the rated output of the test equipment is 500VA or more, the applied test potential may be indicated by either:
1 - a voltmeter in the primary circuit;
2 - a selector switch marked to indicate the test potential; or
3 - a marking in a readily visible location to indicate the test potential for test equipment having a single test potential output.
In cases 2 and 3, the test equipment shall include a lamp or other visual means to indicate that the test potential is present at the test equipment output. All test equipment shall be maintained in current calibration.

Products Requiring Dielectric Voltage Withstand Test:

Product	Test Voltage	Test Time
All products covered by this Report.	1000V	60 s
	or	
	1200V	1 s
Motor drive: Gold Corolla p/n COR581X	1700Vdc	1s

11.0 Manufacturing and Production Tests

Grounding Continuity Test

Method

Each product listed below shall be subjected to a test to determine that there is continuity between accessible dead-metal parts of the product and the grounding pin or blade of the attachment plug.
If all accessible dead metal is connected, only a single test need be performed. A visual or audible device (ohmmeter, buzzer, etc.) may be used to indicate grounding continuity.

Products Requiring Grounding Continuity Test:

All products covered by this Report.

Circuit Functionality Evaluation:

Prior to being shipped from the manufacturing facility, all solid state short circuit and motor overload protection circuitry shall be subjected to a procedure involving:
a) Identification of early production faults; and
b) Verification of functionality.

This identification and verification procedure is able to involve:
a) In-coming component screening;
b) A burn-in method that varies in conditions (such as duration, temperature, and similar conditions) throughout the design stages of the circuitry; or
c) Diagnostic test.

The specific identification and verification procedure used is able to necessitate that some aspects of this procedure be conducted on 100 percent of the applicable solid state short circuit or motor overload protection circuitry.

Products Requiring Circuit Functionality Evaluation:

Motor Drive: Gold corolla model No.COR581X (X represents the revision number, letter or number and letter combination of the board)

12.0 Revision Summary				
The following changes are in compliance with the declaration of Section 8.1:				
Date/ Proj # Site ID	Project Handler/ Reviewer	Section	Item	Description of Change
2-Jul-2013	N. Kulkarni	4	17	Added alternate motor manufacturer Shandong Xianghe Group Co., Ltd Boshan Micro Motor Factory
G100901469-CHI	B. Siuta	5		Added new CEC sheet for the motor.
		7	5	Added new Illustration for motor assembly
2-Jul-2013	N. Kulkarni	3	5	Added new photo for alternate motor drive.
G100901454-CHI	B. Siuta	4	16	Added alternate motor drive Gold Corolla model COR581A-8A
		4	24	Added new capacitor for the motor drive
		4	25	Added new IGBT Module for the motor drive
		4	26	Added new IC for the motor drive
		4	27	Added new Thermistor for the motor drive
		4	28	Added new Fuse for the motor drive
		4	29	Added new PCB for the motor drive
		4	30	Added new varistor for the motor drive
		4	31	Added new capacitor for the motor drive
		5		Added new CEC sheet for the motor drive
		11		Added Manufacturing test for the motor drive.
8-Jul-2013	N. Kulkarni	1		Updated the CSA standard to "CSA C22.2#60950-1 Issue: 03/27/2007 Ed:2 (R2012)"
G100901502-CHI	B. Siuta	2		Added new model SWTxxyy. It has identical ratings as that of RFTxxyy. Added following "(represents machine options such as wheel lift, printer, TDC, autoclamp, quicknut, etc.)" to the description for xx.
		4	17	Added Lesson motor model# C42D17FC27B
		8		Added new test summary
19-Feb-2015	Y. Henriquez	1	-	Removed Manufacturer: Hunter Engineering Company 306 Industrial Circle Union, MS 39365 Mr. Mike Nance (601) 774-5775
G102016087-CHI	R. Garcia			
15-Sep-2015	T. Wang	1	-	Changed standard from "UL 201, 2nd Ed. (issued 01/27/2005, revised 11/5/2009; CSA C22.2 #60950-1 Issue: 03/27/2007 Ed:2 (R2012)" to "UL 201, 3rd Ed., issued 03/31/2015; CSA C22.2 No. 60950-1, Issued: 03/27/2007, R2012 + AMD 2 Issued: 10/14/2014"
G102273347-CHI	R. Garcia	4, 5	16	Changed motor drive Gold Corolla part number from "COR581A-8A" to "COR581X (X represents the revision number, letter or number and letter combination of the board) "
		8	-	Added test summary for project G102273347
		11	-	Changed motor drive Gold Corolla part number from "COR581A-8A" to "COR581X (X represents the revision number, letter or number and letter combination of the board) "
		1	-	Changed applicant and manufacturer name from "Hunter Engineering" to "Hunter Engineering Company"
1-Aug-2016	B. Siuta	2	Mod	Added Model RFExxyyy
G102455542-CHI	R. Garcia	2	Mod Sim	Added "Model RFExxyyy is similar to model RFTxxyyy, except that it uses a laser measurement system, whereas the RFTxxyyy has two electronic dataset arms."
		3	6	Added Photo 6 - Overall View of Model RFTxxyyy
		3	7	Added Photo 7 - View of Inner Laser Assembly

12.0 Revision Summary				
The following changes are in compliance with the declaration of Section 8.1:				
Date/ Proj # Site ID	Project Handler/ Reviewer	Section	Item	Description of Change
		3	8	Added Photo 8 - View of Outer Laser Assembly
		4	1-4	Added photo 6 to photo # field
		4	27	Added alternate thermistor Ametherm AS32 10015.
		4	32	Added new component "USB Cable for Laser Assembly"
		4	33	Added new component "Laser Diode for Laser Assembly"
		4	34	Added new component "Housing Cover and Shield Material for Laser Assembly"
		4	35	Added new component "Housing Body Material for Laser Assembly"
		4	36	Added new component "PWB Material Used for Laser Assembly"
		4	37	Added new component "Gasket Material for Laser Assembly"
		4	38	Added new component "Lens Sleeve Material for Laser Assembly"
		4	39	Added new component "Lens for Laser Assembly"
		7	6	Added Illustration No. 6 - Overall Inner Laser Assembly Drawing
		7	7	Added Illustration No. 7 - Overall Outer Laser Assembly Drawing
		7	8	Added Illustration No. 8 - Inner Laser Sub-Assembly Drawing
		7	9	Added Illustration No. 9 - Outer Laser Sub-Assembly Drawing
		7	10	Added Illustration No. 10 - Inner Laser Assembly Housing Drawing
		7	11	Added Illustration No. 11 - Outer Laser Assembly Housing Drawing
		7	12	Added Illustration No. 12 - Inner Laser Assembly Shield Drawing
		7	13	Added Illustration No. 13 - Outer Laser Assembly Shield Drawing
		7	14	Added Illustration No. 14 - Inner Laser Assembly Body Drawing
		7	15	Added Illustration No. 15 - Outer Laser Assembly Body Drawing
		7	16	Added Illustration No. 16 - Laser Assembly Gasket Drawing
		7	17	Added Illustration No. 17 - Laser Assembly Lens Sleeve Drawing
		8	-	Added test clause numbers to tests performed under UL Report E50417, Vol. 3, Sec. 12, test records 1 through 12
		8	-	Added test summary for project G102455542

12.0 Revision Summary				
The following changes are in compliance with the declaration of Section 8.1:				
Date/ Proj # Site ID	Project Handler/ Reviewer	Section	Item	Description of Change
7-Dec-2016	B. Siuta	1	-	Changed Applicant information from: Mr. Steve Hassenfritz (314) 731-3020 ext. 351 (314) 731-9932 SHassenfritz@Hunter.com To: Mr. Robert Bruce (314) 716-0443 (314) 716-1442 rrbruce@hunter.com
G102455542-CHI	Y. Henriquez	1	-	Changed Manufacturer 1 information from: Mr. Steve Hassenfritz (314) 731-3020 ext. 351 (314) 731-9932 SHassenfritz@Hunter.com To: Mr. Robert Bruce (314) 716-0443 (314) 716-1442 rrbruce@hunter.com
20-Sep-2017	Y. Henriquez Y.H.	1	--	Updated standard format ***from*** "Standard for Safety Garage Equipment (UL 201, 3rd Ed., issued 03/31/2015)" ***to*** "Garage Equipment [UL 201:2015 Ed.3]"
G103235274CHI	T. Cabaj TC		--	Updated standard ***from*** "Standard for Safety for Information Technology Equipment Safety Part 1: General Requirements (CSA C22.2 No. 60950-1, Issued: 03/27/2007, R2012 + AMD 2 Issued: 10/14/2014)" ***to*** "Information Technology Equipment Safety Part 1: General Requirements (R2016) >Valid without technical revision: 01Jan2022< [CSA C22.2#60950-1:2007 Ed.2+A1;A2]"
		2	--	Updated Model format ***from*** "RFTxxyyy, SWTxxyyy, and RFExxyyy, where xxyyy may be any number or letter; may or may not be followed by other numbers to account for minor options not related to safety." ***to*** "RFT followed by xx; followed by yy; may be followed by numbers. SWT followed by xx; followed by yy; may be followed by numbers. RFE followed by xx; followed by yy; may be followed by numbers."
			--	Moved "Where xxyyy may be any number or letter; may or may not be followed by other numbers to account for minor options not related to safety." to Model Similarities
		3	5	Updated photo
		4	16	Added "(SHENZHEN GCE CO., LTD)" to Gold Corolla Manufacturer name
			27	Added "MS32 10015" alternate
		5	16	Corrected Photo reference from "5" to "2"
		8.0	--	Added evaluation summary
		8.1	--	Updated signatures