



Ford P552
Truck Bed Lamp Assemble
and
Test Machine

Proposal 4292 Rev. E

Unless otherwise agreed to in writing, all concepts and information contained within this proposal are to remain confidential between Federal Mogul and Alliance Automation, LLC.

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Proposal Specifications

This proposal is based upon the following information supplied by the customer:

Specification, Drawing, CAD Model	Rev #	Rev Date
Truck Bed Lamp Assemble and Test Machine – Word Document	0	3/27/17
Email correspondence	A	4/20/17
Meeting at Customers Site – Clarification of Quotation	B	5/5/17
Email from Customer – NG Tote Dimensions	B	5/8/17
Meeting with Alliance (Chet Wenninger & Browning Sheehan) and [REDACTED] to review options for Gasket Application	C	5/19/17

1.0 RFQ SUMMARY

[REDACTED] has requested the following requirements for the Lamp Assemble and Test for the P558 Ford Truck Bed Lamp.

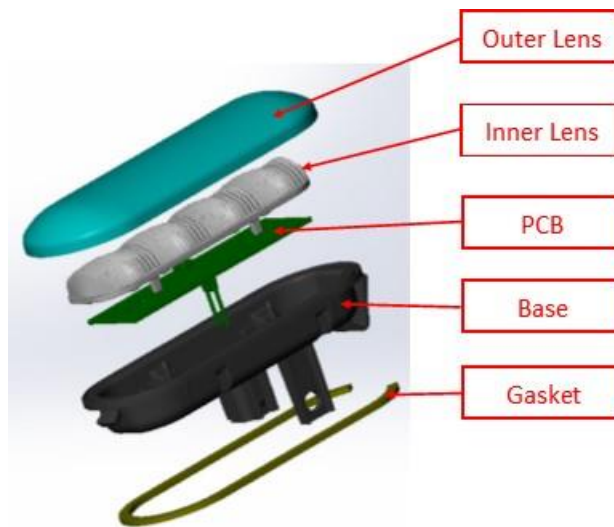
Truck Bed Lamp Information:

- 1.1 Material: N/A
- 1.2 Truck Bed Lamp Assembly Weight: N/A
- 1.3 Part Size:
 - Truck Bed Lamp Assembly: 51.9mm x 128.9mm x 56mm
 - Base: 38.52mm x 120.51mm x 45mm
 - PCB: 27mm x 88mm x 26.3mm
 - Outer Lens: 51.95mm x 128.95mm x 14mm
 - Inner Lens: 32.46mm x 107.35mm x 15mm
 - Gasket: 23.2mm x 119.4mm x 2mm
- 1.4 Tray Sizes:
 - PCB Tray: TBD
 - Inner Lens: TBD
 - Outer Lens: TBD
- 1.5 Tote Sizes:
 - Base Tote = 11" x 16.5" x 6"
 - PCB Tote = 18" x 24"
 - Inner Lens Tote = 11" x 16.5" x 6"
 - Outer Lens Tote = 18" x 24"
 - Finished Goods Tote = 13" x 21" x 6" (40 Part Capacity)
 - NG Tote = 8" x 15" x 7"
- 1.6 Machine Capacity
 - Annual Production Volume = 1.3 million

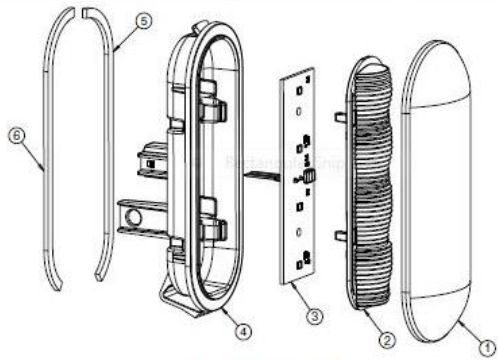
- Days Worked Per Year = 250 Days
- Days per Week = 5 Days
- Hours Per Day = 24 Hours (3 Shifts)
- Machine Efficiency Rating = 95%
- Part to Part Cycle Time = 10 seconds or Less
- Equipment Life: 50,000 Hours
- Machine Caused Scrap Rate: 1%
- Allowable System Scrap Rate: 1%

1.7 Product Matrix

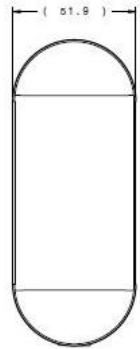
- Truck Bed Lamp Assembly



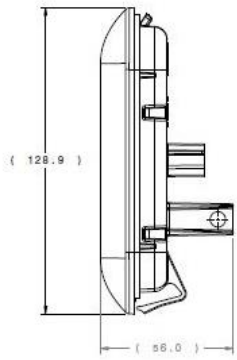
REVISIONS			
ZONE	REV	DESCRIPTION	DATE
A	ECH14427	INITIAL RELEASE	03/15/17
			R RMD005



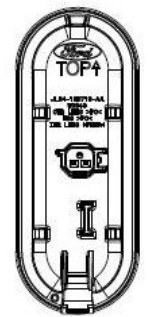
EXPLODED VIEW



FRONT VIEW



SIDE VIEW



REAR VIEW

NOTES:

- PART MATES TO MOLEX CONNECTOR 340620022.
- ITEM 1 AND 4 ATTACHMENT METHOD IS VIBRATION, ITEM 3 AND 4 ATTACHMENT METHOD IS HEATSTAKING.
- PRODUCT MUST BE CHECKED 100% FOR PRESENCE OF LIGHT AND CURRENT.
CURRENT: 164mA +/- 15
LIGHT OUTPUT: COLOR WHITE, COLOR TEMP 5000K
LUMENS/INTENSITY 160 lm (40 lm/LED)

ELECTRONICALLY CONTROLLED DOCUMENT. PLEASE VERIFY REVISION LEVEL BEFORE USE.

ITEM	QTY	P/N	DESCRIPTION	DRAWING NO.	NOTE
6	1	314114	GASKET RH	314114	
5	1	314115	GASKET LH	314115	
4	1	270082	HOUSING	270082	
3	1	600061	PCBA	600061	
2	1	250117	INNER LENS	250117	
1	1	250118	OUTER LENS	250118	

GENERAL SYMBOLS:

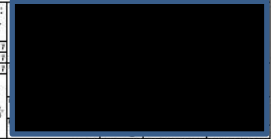
- MANUFACTURING CRITICAL
- CUSTOMER CRITICAL
- DANN S. SCHNEPP 02/17/17
- CHK L. SINDORAL 02/17/17
- APP R RMD005 02/17/17



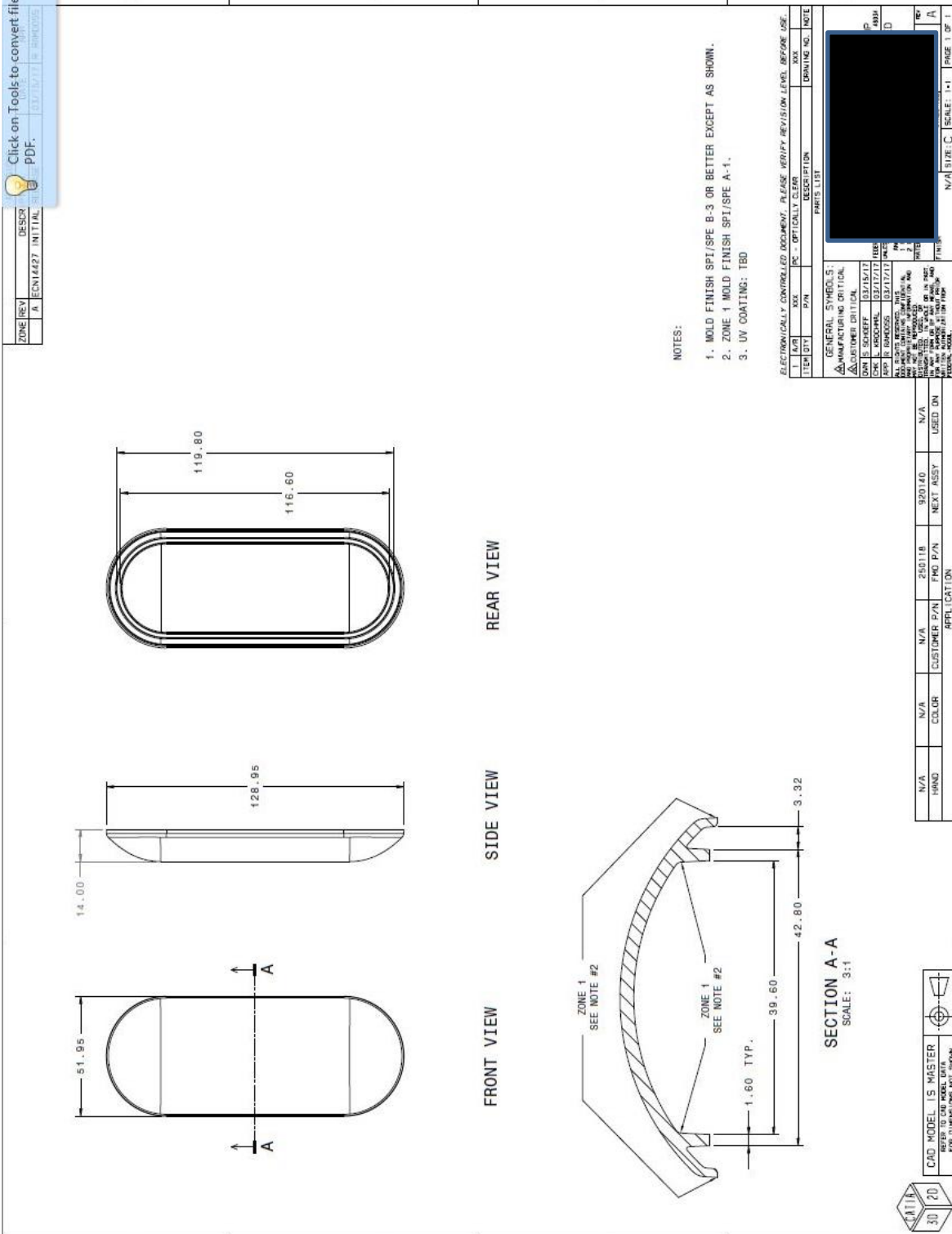
CAD MODEL IS MASTER
REFER TO CAD MODEL DATA
FOR DIMENSIONS, FIT, FINISH



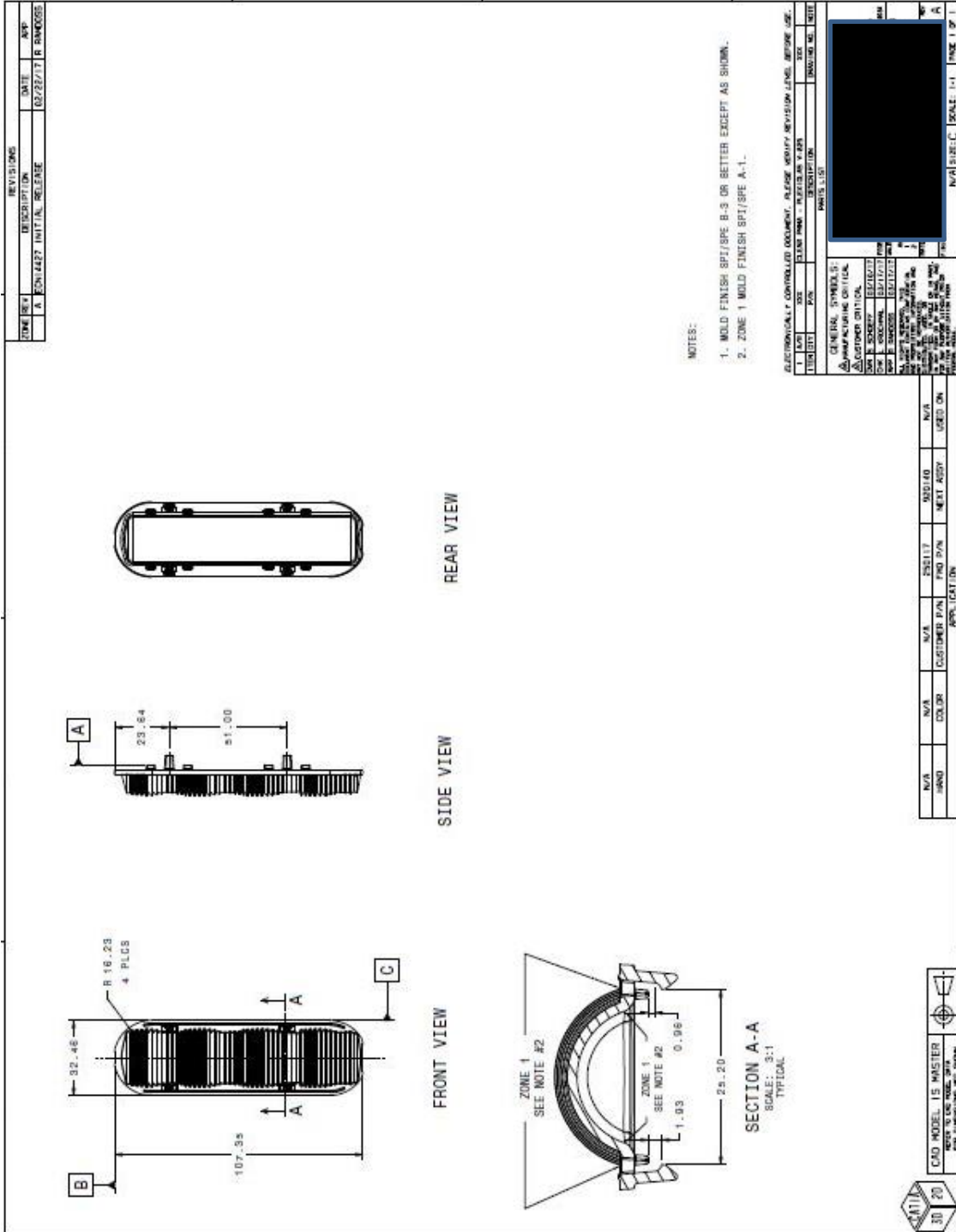
N/A	N/A	JL34-130719-AA	520140	920140	N/A
HAND	COLOR	CUSTOMER P/N	FND P/N	NEXT ASSY	USED ON
					APPLICATION



- Outer Lens



- Inner Lens



- Lamp PCB

REV	DESCRIPTION	DATE	APP
A	CONCEPT INITIAL RELEASE	03/26/17	R. RAMMOSE

ITEM	QTY	DESIGNATOR	MANUFACTURER	PART NUMBER	DESCRIPTION
1	4	C1, C2, C3, C4	TDK	GRANDEXTA1010S0300A	CAP CER 10000PF 25V 249 0803
2	1	D1	VISHAY	STRIPES A111	DIODE GEN PURP 1KV 1A D0274AC
3	1	D2	VISHAY	SMC730A-E315A	TVS DIODE 28VWM 45.44V SMD
4	1	J1		643017	HEADERS, 2 PIN, SEE F-M DRAWING
5	4	LED1, LED2, LED3, LED4		450028	SEE F-M DRAWING
6	1	BT	VISHAY DALE	DR09080510R3M9A9P	RES SMD 10 OHM 5% 1/2W 0805
7	4	R3, R4, R5	VISHAY DALE	DR090803180A1NEA	RES SMD 18K OHM 5% 1/10W 0805
8	2	R6, R7	VISHAY DALE	DR090803180P3GA	RES SMD 11 OHM 1% 1/10W 0805
9	2	U1, U2	DIODES INC	SCR421UM6-7	LED DRIVER LINEAR PWM DIMMING SOT-28
10	1	PCB		450061	SEE F-M DRAWING

NOTES:

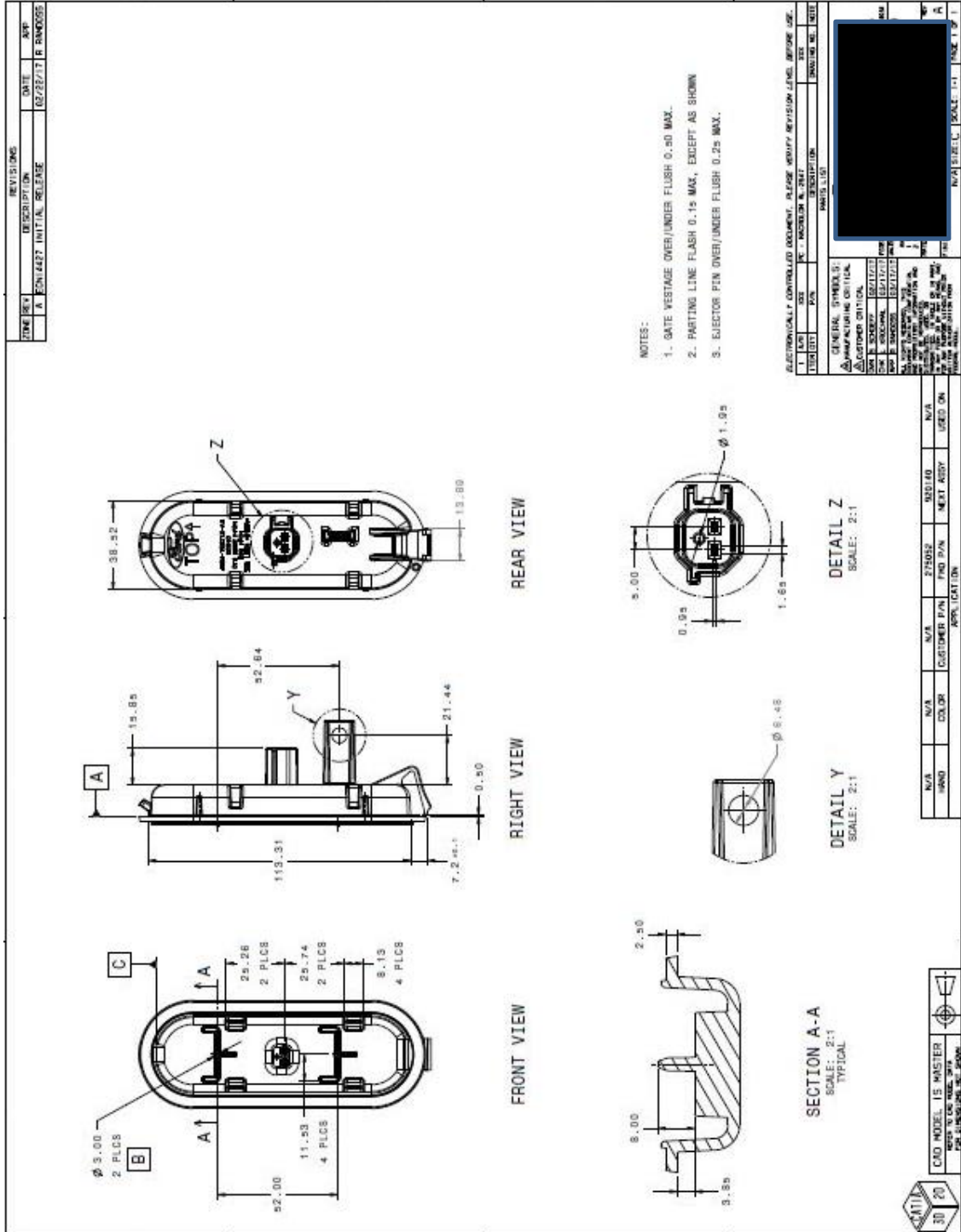
- HEADER TO BE FULLY SEATED AGAINST PCB
- BOARD TO CONFORM TO APPLICABLE IPC REQUIREMENTS FOR A CLASS III PCB
- EOL TESTING TO INCLUDE:
CURRENT: 164mA +/- 15%
LIGHT OUTPUT COLOR: WHITE, COLOR TEMP: 5000K
LUMENS/INTENSITY: 150 LM MINIMUM (37.5 lm/LED)
- 2D BAR CODE TO INCLUDE THE FOLLOWING INFORMATION:
DATE, REVISION
- F.M. ENGINEERING APPROVED EQUIVALENTS MAY BE USED.
- FINAL ASSEMBLY TO BE PACKAGED IN ESD PACKAGING APPROVED BY MANUFACTURING
- LEDS INFORMATION MUST BE SUPPLIED WITH PPAP
- MUST COMPLY WITH FORD ELECTRONICS MANUFACTURING REQUIREMENTS

ELECTRICALLY CONTROLLED DOCUMENT, PLEASE VERIFY REVISION LEVEL BEFORE USE.

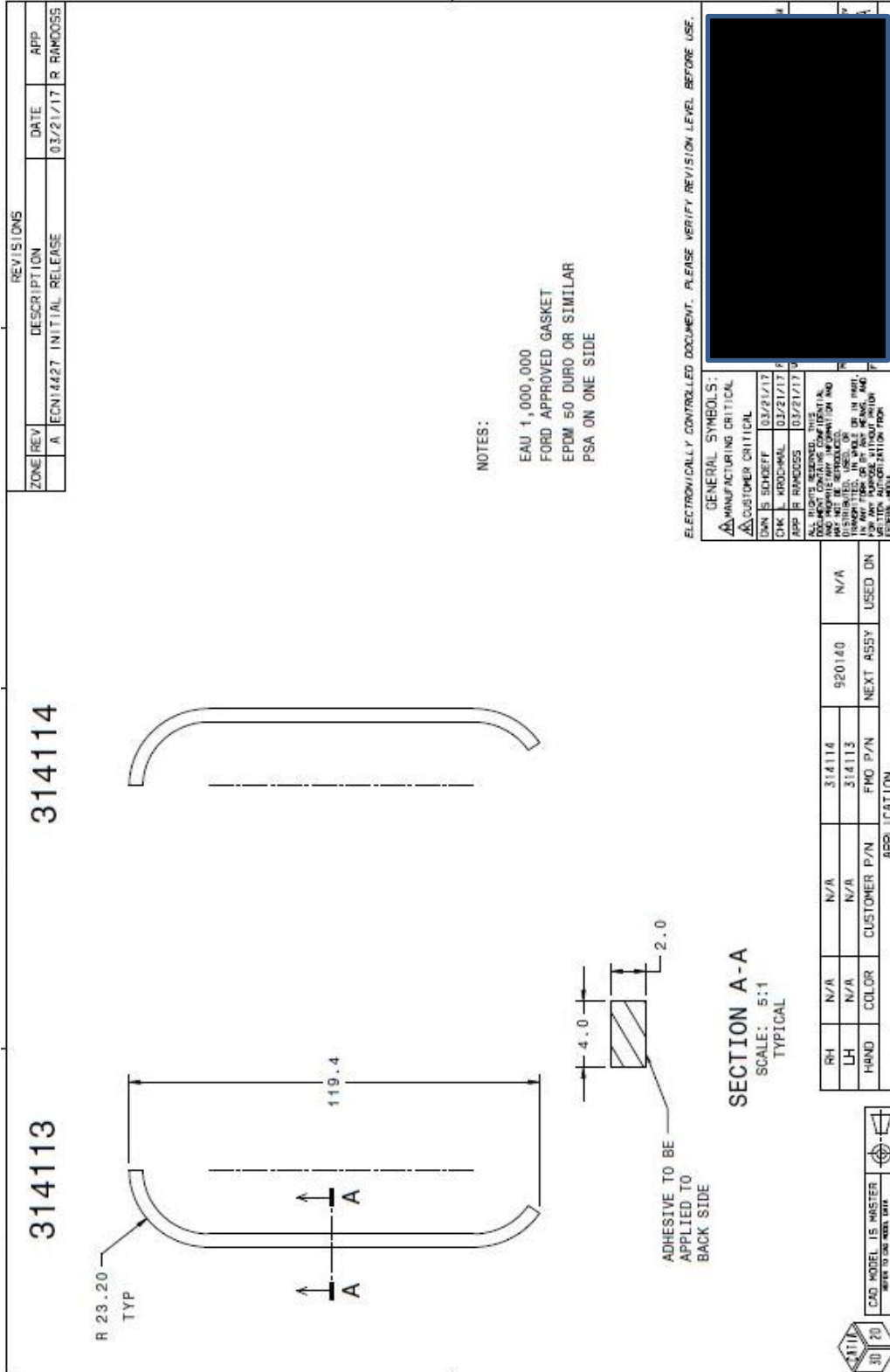
GENERAL SYMBOLS:
 MANUFACTURING CRITICAL
 CUSTOMER CRITICAL
 NOT TO SCALE
 NOT FOR CONSTRUCTION
 NOT FOR REFERENCE

REV	DATE	APP	SCALE	SHEET	TOTAL
A	03/26/17	R. RAMMOSE	1:1	1	1

- Lamp Housing



- Gasket Drawing



2.0 SYSTEM DESCRIPTION

2.1 Alliance Automation will provide [REDACTED] with a turn-key Ford P552 - Truck Bed Lamp Assemble and Test Machine. The cell components are provided in Section 3.0 and Section 4.0. The cell concept drawing is provided in Section 5.0.

2.2 Cycle Time:

- The cell will produce (1) Truck Bed Lamp Assembly approximately every 10 seconds or less at 95% machine efficiency.
- The estimated cycle time for the Dukane Vibration Welder is 30 seconds. To meet the goal of a 10 second machine cycle time, (4) Truck Lamp Assemblies will need to be welded at the same time. This will require staging areas before and after the welding process.

2.3 The Truck Bed Lamp Assembly will be tested at 1.0 psig pressure decay (1.5 psig Max).

2.4 The Truck Bed Lamp Assembly will be tested with 12VDC. Current limits are 164 mA +/- 15% mA, light color and intensity. [REDACTED] will supply the match standard.

2.5 The Date Code or Fail Code will be laser etched onto the back of the Housing. The Date Code will be WWYSDR (W = week of year, Y = year of decade, S = shift, D = day of week, R = revision level).

2.6 All parts that come into contact with the PCB will be covered with a static dissipative material.

2.7 Cabinet Tray Feed System: The tray feed system will allow the operator to load (5) part trays into the cabinet. The operator will open the door on the outside of the work area. The trays can be loaded while the robot is picking parts from another tray (shelf) in the work area. The PCB, Inner Lens, and Outer Lens be fed to the 6-Axis robots with the Cabinet Tray Feed System.

2.8 Data Collection:

- Alliance Automation will supply the production data from the PLC buffer through the HMI. The working production data can be retrieved from the HMI.
- As an option, Alliance Automation is quoting full PC connection and data collection with Rockwell Automation – Factory Talk Transaction Manager, a server, and additional support software.

2.8a SEQUENCE OF OPERATION (Automatic Load) – The operator will be responsible for loading a feed system for the housing and trays (PCB, Inner Lens, Outer Lens) loaded with components. The components of the Truck Bed Lamp are automatically loaded into tooling on moving pallets. The pallets move through workstations and the operator will manually unload the finished product tote.

- The operator will ensure that Housings are loaded into the Bowl Feed System.
- The operator will also ensure that the parts (PCB, Inner Lens and Outer Lens) trays are loaded into the tray feed cabinets. Each part will be loaded into individual tray feed cabinets.
- The operator will also ensure that the gasket material is loaded and ready for installation.
- Once everything is verified, the operator initiates the machine cycle.
- The Bowl Feed System will present (2) Housings to a pick location utilizing an escapement.

- The (2) Housings will be picked from the Bowl Feed System by Robot #1 and placed into the tooling on the moving pallet.
- The (2) PCBs will be picked from the Feed Cabinet by Robot #1 and placed into the (2) Housings.
- Part present sensors will verify that all components are placed into the tooling before the next operation is completed.
- The moving pallet with the (2) Housing/PCB Assemblies is shuttled to the Heat Stake Station where the (2) Housing/PCB Assemblies are heat staked at (2) points in each assembly.
 - If the heat stake operation fails the stake process, Robot #2 will place the failed assembly into the Heat Stake – NG Tote.
 - If the heat stake operation passes the stake process the machine will continue operation.
- The moving pallet is then transferred to the Pick & Place Location.
 - The Inner (Optical) Lens position will be verified with sensors. (The Inner Lens is handed and can be identified)
 - Robot #2 will pick (2) Inner Lens from the Feed Cabinet and place (snap) them into the (2) Housings.
 - The Outer Lens position will be loaded in the tray from the [REDACTED] supplier.
 - Robot #2 will pick (2) Outer Lens from the Feed Cabinet and place (snap) the (2) Housings.
- The moving pallet is then transferred to the Vibration Weld Pick Location.
- Robot #3 picks the (2) unwelded Truck Bed Lamp Assemblies and places them in a staging area.
- Robot #3 then removes (4) welded Truck Bed Lamp Assemblies from the Vibration Welder placing (2) the assemblies in a staging area and (2) assemblies on the moving pallets.
- Robot #3 then picks (2) unwelded Truck Bed Lamp Assemblies from the moving pallet Pick Location and picks the (2) unwelded Truck Bed Lamp Assemblies from the staging area.
- All (4) unwelded Truck Lamp Assemblies are placed in the Vibration Welder.
- Once the weld operation (approx. 30 second cycle time) is complete Robot #3 removes the (4) welded Truck Lamp Assemblies as mentioned above.
 - If the vibration weld operation fails the weld process, Robot #3 will place the failed assembly into the Vibration Weld – NG Tote.
 - If the vibration weld operation passes the stake process the machine will continue operation.
- The moving pallet with (2) welded Truck Bed Lamp Assemblies is then transferred to the Seal Test Station where the (2) Truck Lamp Assemblies are leak tested.
 - If the seal test operation fails the seal process, Robot #3 will place the failed assembly in the Seal Test – NG Tote.
 - If the seal test operation passes the stake process the machine will continue operation.
- The moving pallet is then transferred to the Light Test Station where the current is checked, the light color is checked, and the light intensity is tested on the (2) Truck Lamp Assemblies.

- If the light test operation fails the process, Robot #4 will place the failed assembly into the Light Test – NG Tote.
- If the light test operation passes the process the machine will continue operation.
- The moving pallet is then transferred to the Pin Check Station where the (2) Truck Bed Lamp Assemblies is picked up and rotated. The pin is confirmed and the assemblies are placed back into the tooling.
 - If the pin check operation fails the process, Robot #4 will place the failed assembly into the Pin Check – NG Tote.
 - If the pin check operation passes the process the machine will continue operation.
- The moving pallet is then transferred to the Gasket Apply Station.
- Robot #4 will then pick the gasket, place and apply to the (2) Truck Lamp Assemblies either from a reel or sheets.
 - If the pick operation fails the process, Robot #4 will place the failed assembly into the Gasket – NG Tote.
 - If the pin check operation passes the stake process the machine will continue operation.
- The moving pallet is then transferred to the Laser Marking Station and the (2) Truck Lamp Assemblies are marked.
- The moving pallet will then transfer to the Unload Station.
- The completed Truck Bed Lamp Assembly will be picked from the Unload Station and placed in the Finished Goods Tote with Robot #5.

2.8b SEQUENCE OF OPERATION (Red Rabbit Part Introduction)

- The operator will select either the Red Rabbit Test from the HMI
- The operator will load the Red Rabbit Part into the tooling on the moving pallet at the Introduction Location
- Once the operator clears the light curtain and the parts are verified in the tooling on the moving pallet the Red Rabbit Part will move through the Assembly & Test processes
- If the Red Rabbit Part fails/passes the test, the indication will be displayed on the HMI screen.
- Note: The Pallets will be tracked with an IMF Effector – RFID System

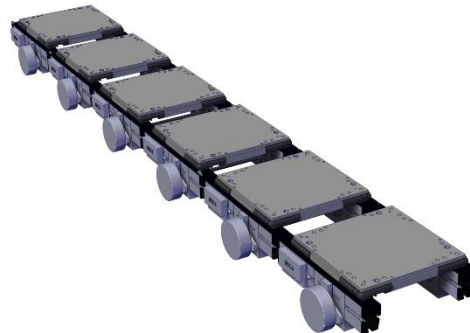
2.8c SEQUENCE OF OPERATION (Re-Work Part Introduction)

- The operator will select the type of re-work for the part being introduced from the HMI.
- The operator will load the Re-Work Part into the tooling on the moving pallet at the Introduction Location.
- Once the operator clears the light curtain and the parts are verified in the tooling on the moving pallet, the Re-Work Part will move through the Assembly & Test processes.

3.0 SYSTEM COMPONENTS (Automatic Load)

3.1 Base System

- (1) Pallet Shuttle System
 - (1) Shuttle Base Frame
 - (25) Shuttle Pallets
 - (25) Tooling Fixtures
- (1) Safety Guarding
- (1) Reject Bin with Sensor
- (1) In Feed Conveyor System
 - (1) Conveyor Base Frame
 - (4) Roller Conveyors
- (1) Out Feed Conveyor System
 - (1) Conveyor Base Frame
 - (1) Roller Conveyor
 - (3) Part Present Sensor



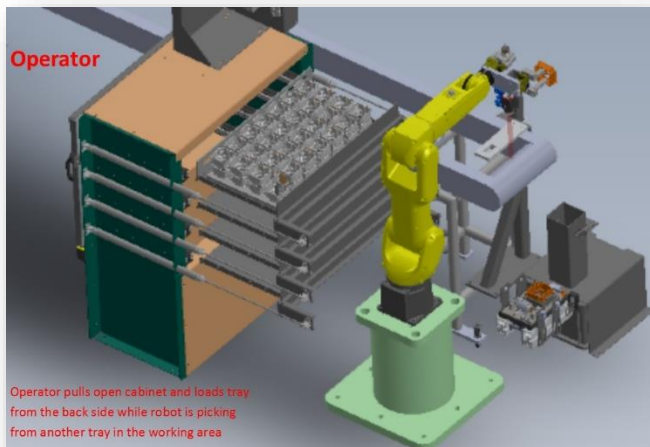
Pallet Shuttle System

3.2 Housing Feed Station

- (1) Feeder Bowl System
- (1) Escapement
- (1) Base Frame Structure
- (1) Horizontal Pneumatic Cylinder
- (1) Vertical Pneumatic Cylinder
- (1) Pneumatic Gripper
- (1) Gripper Tooling

3.3 Tray Feed System

- (1) PCB – Tray Feed System (5 Trays)
- (1) Inner Lens – Tray Feed System (5 Trays)
- (1) Outer Lens – Tray Feed System (5 Trays)



Tray Feed System
(4 Tray System Shown)

3.4 Heat Stake Station

- (1) Heat Stake System
- (1) Base Frame Structure
- (1) Pneumatic Cylinder
- (2) Heat Stake Tooling



Heat Stake

- 3.5 Robot #1 – (Housing & PCB Load)
 - (1) Robot Mounting Structure
 - (1) Yaskawa - 6-Axis GP12 Robot
 - (1) Robot Dual EOAT w/ Pneumatic Gripper

- 3.6 Robot #2 – (Inner & Outer Lens Load)
 - (1) Robot Mounting Structure
 - (1) Yaskawa - 6-Axis GP12 Robot
 - (1) Robot Dual EOAT w/ Pneumatic Gripper

- 3.7 Robot #3 – (Vibration Welder Load)
 - (1) Robot Mounting Structure
 - (1) Yaskawa - 6-Axis GP12 Robot
 - (1) Robot Dual EOAT w/ Pneumatic Gripper

- 3.8 Vibration Weld Station
 - (1) Dukane - Vibration Weld System
 - (1) Vibration Weld Tooling

- 3.9 Seal Test Station
 - (2) Cincinnati Test Systems C28 – Pressure Decay Tester
 - (1) Base Frame
 - (1) Pneumatic Slide Cylinder
 - (1) Seal Test Tooling

- 3.10 Light Test Station
 - (1) Cognex IS7200C – Light Test Camera
 - (1) Pneumatic Slide Cylinder
 - (1) Light Test Plug

- 3.11 Pin Alignment Check Station
 - (1) Keyence IV-HG150MA - Camera
 - (1) Base Frame Structure
 - (1) Rotary Actuator
 - (1) Pneumatic Gripper
 - (1) Part Present Sensors



Pressure
Decay
Tester

3.12 Gasket Apply Station

- (1) Keyence (or equivalent) Vision System
- (1) Roll Feeder
- (1) Stripper Assembly
- (2) Pneumatic Valves

3.13 Robot #4 – (Gasket Apply)

- (1) Robot Pedestal
- (1) Yaskawa - 6-Axis GP12 Robot
- (1) Robot Dual EOAT w/ Pneumatic Gripper

3.14 Laser Marking Station

- (1) Keyence - Laser Marking System
- (1) System Base Frame

3.15 Robot #5 – (Pack-Out)

- (1) Robot Pedestal
- (1) Yaskawa – 6-Axis GP12 Robot
- (1) Robot EOAT

3.16 NG Box Assembly

- (6) NG Box Stands
- (6) Part Present Sensors

3.17 Electrical Components

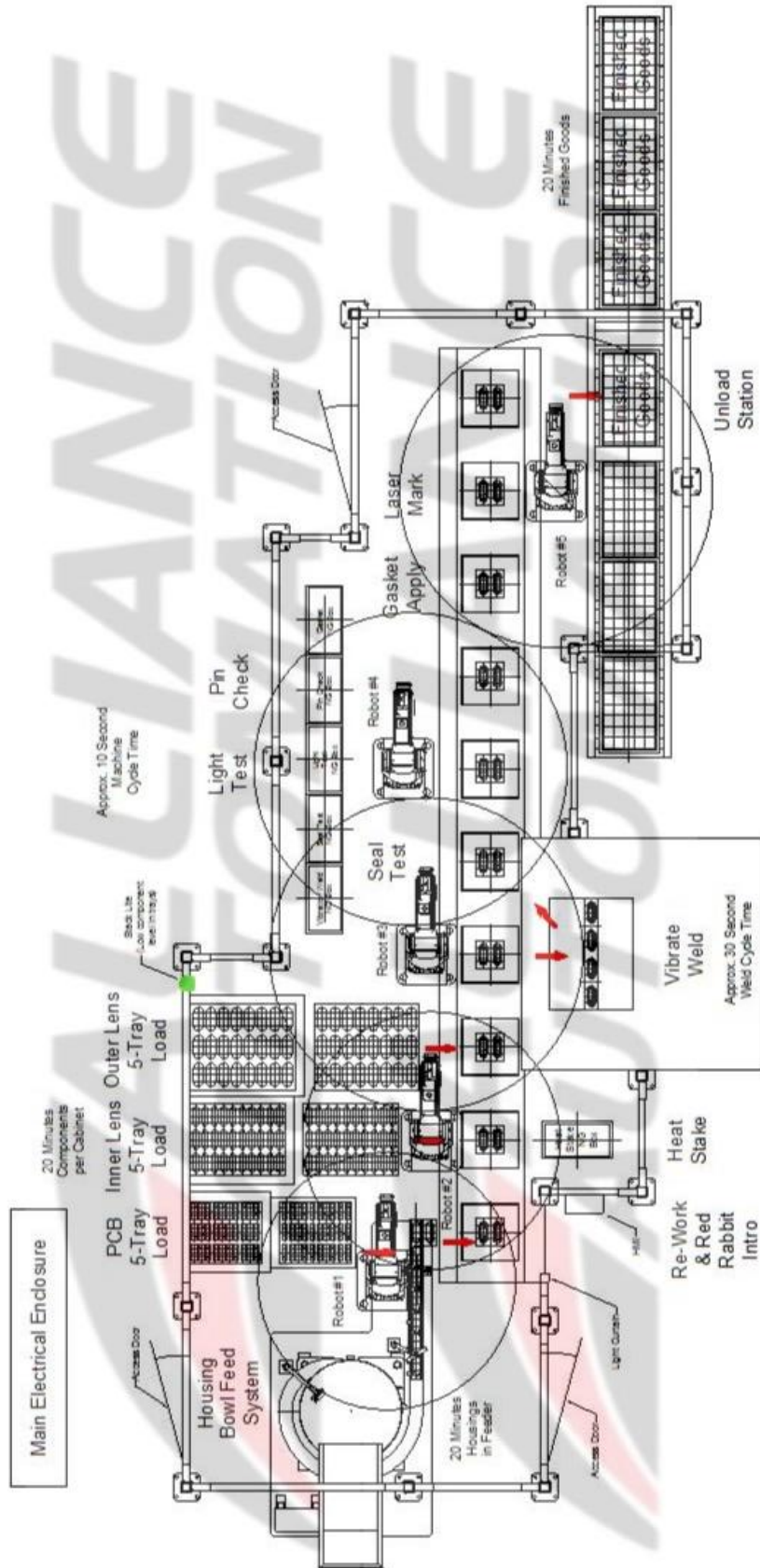
- (1) Main Control Enclosure
- (1) Allen Bradley - PLC
- (1) Maple Systems – HMI
- (2) Double Stack Light (Red & Green)
- (3) E-Stop Buttons
- (3) Door Safety Interlock
- (1) Adjustable Power Supply – Calibration Points
- (1) IMF Effector – RFID System



Laser Marking



4.0 CONCEPT DRAWING



5.0 ALLIANCE AUTOMATION STANDARD DOCUMENTATION

5.1 Mechanical Documentation (1 electronic copy)

- Mechanical CAD drawings
- 3D CAD - Solid Model drawings
- Cell Layout
- Assembly Prints
- Detail Prints
- Spare Parts List

5.2 Controls Documentation (1 electronic copy)

- Electrical CAD drawings (1 electronic copy)
- Panel layouts
- I/O
- AC/DC power distribution
- PLC program
- HMI program

5.3 **OPTIONAL: Machine Manual (Included with Machine Costing)**

- Operation Instructions
- Installation/Adjustment Instructions
- Preventive Maintenance Recommendations
- Standard Maintenance Instructions

6.0 ALLIANCE AUTOMATION PROJECT MANAGEMENT

- 6.1 Each project at Alliance Automation is assigned a Project Manager, Mechanical Engineer and Controls Engineer.
- 6.2 Upon awarding of the project, a meeting will be scheduled to review the design concept, system operation, customer obligations to Alliance Automation, and customer expectation of Alliance Automation.
- 6.3 Additional design review meetings, as determined by the design team, will be scheduled with times convenient to both the customer and Alliance Automation. All design review meetings must occur prior start of manufacturing.
- 6.4 The customer may direct their communications to any of the Alliance team, however the official contact will be the Project Manager.
- 6.5 The project team will meet upon an agreed basis to review the schedule, review milestones, and identify any problems.
- 6.6 Project Resources
 - The Project Manager is responsible for acting as the main point of communication with the customer, project schedule, resources, and informing the Mechanical and Controls Engineer of any project changes.
 - The Mechanical Engineer is responsible for the Mechanical design of the equipment, ensures adherence to the customer's specifications, and enforces ANSI, OSHA and Alliance Automation standards. The Mechanical Engineer is also responsible for monitoring the manufacturing of details and fielding questions from the shop as well as directing the assembly technicians during the assembly and debug of the equipment.
 - The Controls Engineer is responsible for the Controls design of the equipment, ensures adherence to the customer's specifications, and enforces NEC, OSHA and Alliance Automation standards. The Controls Engineer is also responsible for monitoring panel build and fielding questions from the shop as well as directing the electricians during the assembly and debug of the equipment.

7.0 COMMENTS AND EXCEPTIONS

- 7.1 Alliance Automation will provide a machine that will be designed to run a machine cycle time as stated within this proposal. The stated cycle time does not include allowance for machine downtime, rejected parts, operator breaks, operator stoppages, operator load/unload time, scheduled machine maintenance and set-up time.
- 7.2 Any work or hardware requested by the customer that is not detailed, explained, or specified in this proposal will be quoted separately. A purchase order must be received for this additional work before Alliance Automation will implement the requested change.
- 7.3 Alliance Automation will quote additional time and material cost for any modifications required in the event that customer part designs change from the original part prints or production parts are different from what was provided at time of proposal.
- 7.4 This proposal represents Alliance Automation's best effort to address the specified requirements and is based on available information to date. Alliance Automation reserves the right to modify or substitute concepts, methods or components as appropriate based on discovery, new information, material availability or engineering principles. Any changes requiring cost adjustments will only be done on a mutually agreed upon basis.
- 7.5 Unless specified by the customer Alliance Automation reserves the right to specify component manufacturers.
- 7.6 Alliance Automation will need samples of the gasket (either roll or sheet) to test the picking and placing operation of the gasket. The testing will help determine the best solution for applying the gasket.
- 7.7 Any programming of the Dukane Welder will be the responsibility of [REDACTED]. The Dukane Welder will need to be capable of communicating with Ethernet IP.
- 7.8 Alliance Automation will design the GP12 Yaskawa Robot to have the maximum amount of reach.

8.0 CUSTOMER REQUIREMENTS

- 8.1 [REDACTED] is responsible for providing operators able to feed/load the proposed system to allow the machine to run at the required cycle time.
- 8.2 [REDACTED] must supply 480 volts / 3 Ph / 60 Hz input power and clean dry air. Other voltages shall be obtained by transformers and power supplies within the control enclosure. The control voltage will be 24 VDC. The customer facility must be capable of supplying the necessary utilities to run the equipment.
- 8.3 [REDACTED] is encouraged to provide a VPN connection to the control panel for remote access to the system. The VPN connection can provide remote support efficiently and be more cost effective. The customer may incur additional cost for onsite service in the event that a VPN connection is not provided.
- 8.4 [REDACTED] is responsible for all floor preparations (concrete/building modifications where needed) and area preparations. Alliance Automation will provide all modification specifications and will add delivery of such specifications to the project timeline.
- 8.5 [REDACTED] will be responsible for all verification parts, plant layout and machine placement, operator instructions, and all part dunnage.
- 8.6 [REDACTED] is responsible for supplying all production parts needed to perform testing to prove process capability including but not limited to initial process testing, production run testing, equipment sizing & capability testing, and other ECAP requirements.
- 8.7 [REDACTED] is responsible for providing sample parts of each part number on or before the project kick off meeting with Alliance Automation. Project timing and cost could be affected if parts are not available at the kick off meeting.
- 8.8 Additional parts may be needed for feeding, vision, and special applications testing. The overall project timing and cost could be impacted if parts are not received per requested dates.
- 8.9 [REDACTED] is responsible for supplying all calibration or pass/fail type parts.
- 8.10 [REDACTED] is responsible for all parts required for testing and evaluation in the design phase of the equipment.
- 8.11 [REDACTED] will be responsible for the following:
- Mechanical Design Review Sign-off
 - Electrical Design Review Sign-off
 - Machine Run-off at Alliance Automation Sign-off
 - Machine Installation, Start-up and Training, Final Machine Sign-off
 - All dimensional verification/testing of sample parts that are processed on the final equipment tooling including CMM Measurements for the castings.

9.0 SHIPPING, INSTALLATION & TRAINING

9.1 Shipping

- Shipping will be F.O.B. Alliance Automation, Van Wert Ohio. Customer will be responsible shipping arrangements.
- Alliance will be responsible for rigging equipment onto truck at Alliance Automation in Van Wert, Ohio.
- [REDACTED] be responsible for rigging equipment and placing the equipment on the floor where it is to be installed. Customer is responsible for providing all required rigging equipment needed during installation. In the event the customer cannot provide this equipment Alliance Automation will provide the equipment at an additional cost to the customer.

9.2 Installation

- [REDACTED] is responsible for all electrical, communication, air and plumbing service drops required for the proposed assembly equipment.
- [REDACTED] will be responsible for the electrical connection from the facility buss bar to the main panel disconnect lugs.
- All other internal cell connections and termination will be made by Alliance during Alliance Set-up and Start-up.
- [REDACTED] will be responsible for the pneumatic connection from the facility air supply (plant air) to the Alliance cell drip leg connection.
- All other internal cell pneumatic connections are the responsibility of Alliance during Alliance Set-up and Start-up.
- Installation will be performed during non-holiday 1st shift working hours, Monday - Friday. Installation hours requested outside of this time period will be quoted as an additional cost.

9.3 Training

- Unless otherwise stated within this proposal Alliance Automation provides training as an option. The cost for this option can be found in the pricing section. All personnel being trained must understand English. Bilingual training is not available.
- Training will be performed during 1st shift working hours, Monday - Friday. Training hours requested outside of this time period will be quoted as an additional cost.
- Additional training for new operators and maintenance personnel can be scheduled and performed by our technicians, if needed. Additional training will be billed at our normal rates and can be quoted upon request.

10.0 RUN OFF REQUIREMENTS

10.1 Run-Off at Alliance Automation

- The customer and Alliance to agree upon requirements during kick off phase of project. At a minimum the equipment must meet cycle time, safety and functional requirements.
- To be filled out per customer requirements. Discussion to be held on Thursday meetings.

10.2 Run-Off at Customer Facility

- The customer and Alliance to agree upon requirements during kick off phase of project. At a minimum the equipment must meet cycle time, safety and functional requirements.

10.3 Run-Off Notes

- [REDACTED] is responsible for supplying all necessary parts and labor for all runoffs.
- The system acceptance shall apply only to work provided under this quotation. In the system acceptance testing phase of this project, any downtime due to breakdowns of ancillary equipment, interfacing equipment, or, in general, any equipment not provided by Alliance Automation, and/or by damaged/defective product shall not be included in determination of acceptance testing.
- The customer is responsible for reimbursing Alliance for any additional labor and or travel expenses incurred in the event the customer does not supply the pre-determined amount of parts necessary to perform any run-off requirements. This includes run-offs performed at Alliance Automation and at customer facility.

11.0 DELIVERY

Delivery is based upon current workload and machine purchase component availability at the time of order; however normal delivery will be approximately **26-28 weeks** from project kick off meeting.

Project timeline will be developed with the receipt of purchase order and down payment.

The project timeline will not start until part prints, part models, and part samples have been received.

12.0 PRICING

ITEM #	DESCRIPTION	QTY	PRICE	TOTAL
1	Truck Bed Lamp Assemble and Test Machine Automatic Load	1		
2	Shipping Option	1		
3	Tooling Cost	1		
			Total Sell Price	

13.0 PAYMENT TERMS

- 30% Invoiced upon Receipt of Purchase Order, Due Net 45 Days
- 30% Invoiced upon design approval, Due Net 45 Days
- 30% Invoiced after run-off (at Alliance) or shipment of equipment, whichever occurs first. In the event that multiple shipments are required invoice will be sent upon first shipment. Due Net 45 Days
- 10% Invoiced upon completion of installation & final run-off, not longer than 30 days after delivery, Due Net 45 Days
- Payments must be in U.S. Dollars

14.0 WARRANTY, TERMS, and CONDITIONS

WARRANTY: Alliance Automation, LLC (hereafter Seller) warrants for **one year** from date of shipment, the mechanical and electrical equipment of its own manufacture against defects in workmanship or material, its obligation being limited solely to repair or replacement of defective parts. The seller warrants for **one year** from date of shipment the engineering design of the equipment and will replace or repair any component not properly designed or applied in the intended process. The seller shall not be liable for any other damages, direct, indirect or consequential. Equipment not manufactured by the Seller shall carry the warranty of the manufacturer thereof. Deterioration caused by misuse, abuse or improper operating procedures does not constitute a defect. This warranty, which is given expressly and in lieu of all other warranties, expressed or implied, of merchantability and fitness for particular purpose, constitutes the only warranty made by the Seller. It is further agreed that there are no understandings, agreements or representations, express or implied, not specified herein respecting this order and this instrument contains the entire agreement between the parties

DELIVERY: Except as otherwise specified in this quotation, delivery will be FOB, Alliance Automation, Van Wert, OH. Shipping dates are approximate and are based upon receipt of all information and necessary approvals.

TERMS: Except as otherwise specified in this quotation, The terms of payment shall be balance net within 60 days from date of invoice, depending upon standard terms or progressive terms. Amounts past due and older will be charged a finance charge of 1.5% of the outstanding balance per month.

FORCE MAJEURE: Seller will not be responsible or liable for any delays in delivery or manufacture due to any cause or condition beyond its control, including, without limitation, strikes or other labor difficulties, or unavailability, flood, earthquake, inability to secure transportation facilities, shortage of materials or supplies, riot or other civil disturbance, war, acts of God or nature, accident, or any acts of any government. Seller will also not be held responsible or liable for scheduled installation completion dates if at any time during the project process the seller's timeline is put on hold by the seller due to lack of information, sample run-off material delays, machine downtime, untimely review process, change in scope and/or customer support. (Installation completion dates will move the same amount of days as project is on hold or adjusted for scope change.)

ACCEPTANCE: This quotation shall expire 30 days after its date, unless otherwise stated herein.

PRICES: The prices specified herein do not include sales, use, occupation, license, excise or other taxes in respect to manufacture, sale or delivery, all of which shall be paid by the Purchaser, unless a proper exemption certificate is furnished.

TITLE: The equipment shall remain personal property, regardless of how affixed to any realty or structure. Title thereto shall remain with the Seller until the purchase price has been fully paid.

RIGHT TO RESTRICT USE: In order to provide additional security for both Interim and Final Payments, Alliance may install a software registration key in the equipment furnished under this proposal. In the event of payment default by the customer Alliance may, at its discretion, limit use of the equipment using programmatic methods incorporated in such software. These methods include, without limitation, the restriction of the use of controller software contained in the equipment by the withholding of additional software registration keys necessary to continue to operate the equipment. This restriction may make the equipment incapable of operating for its intended purpose. In the event that Alliance exercises the right to restrict use, and upon satisfaction of all customer payment and nonpayment obligations under this proposal, Alliance will at its sole expense provide customer with a software registration key having no expiration date.

CANCELLATION AND TERMINATION: Upon cancellation of all or a portion of an order placed with Alliance Automation, LLC the customer becomes liable for payment of reasonable cancellation charges, which shall take into account, expenses already incurred and commitments made by Alliance Automation, LLC relating to the subject order. In the event that Alliance Automation, LLC experiences any restocking, cancellation, or associated charges from a related vendor contracted to supply material or labor for a specific customer's order, these charges shall become the full responsibility of the customer. No termination by the customer for default shall be effective unless and until Alliance Automation, LLC shall have failed to correct such alleged default within 30 days after receipt of a written notice specifying the default and required corrective measure.