

**Introduction / Comments:**

Install Instructions - Ford Ranger

**Note:**

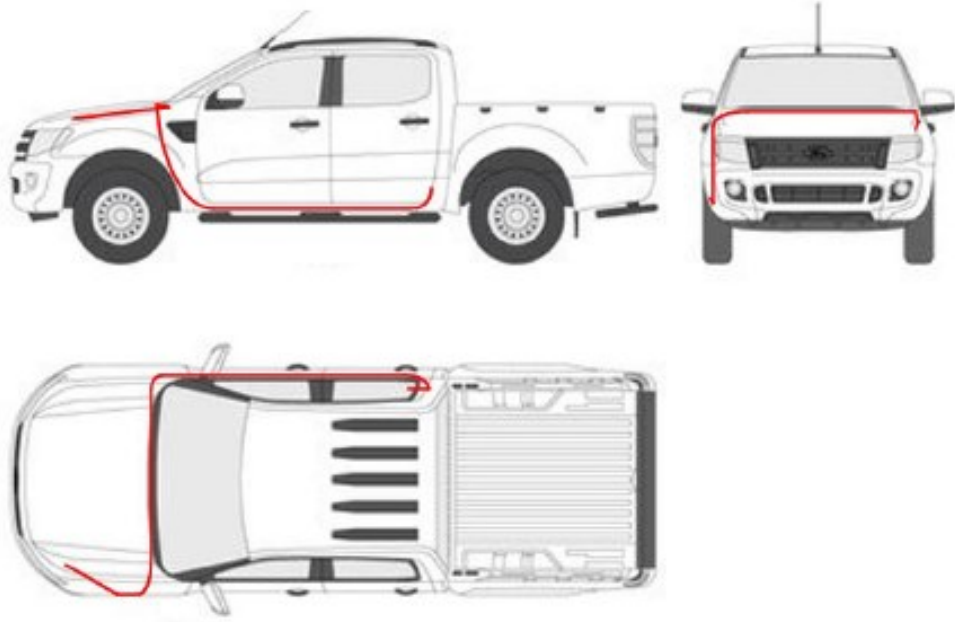
Read all instructions prior to installation. Review the Adrian Steel **GENERAL PRECAUTIONS PAGES (56638)** before attempting installation. Only personnel familiar with using electrical best practices should perform this install. Reference **ELECTRICAL BEST PRACTICES MANUAL (54479)** before trying installation.



**Inverter Installation**

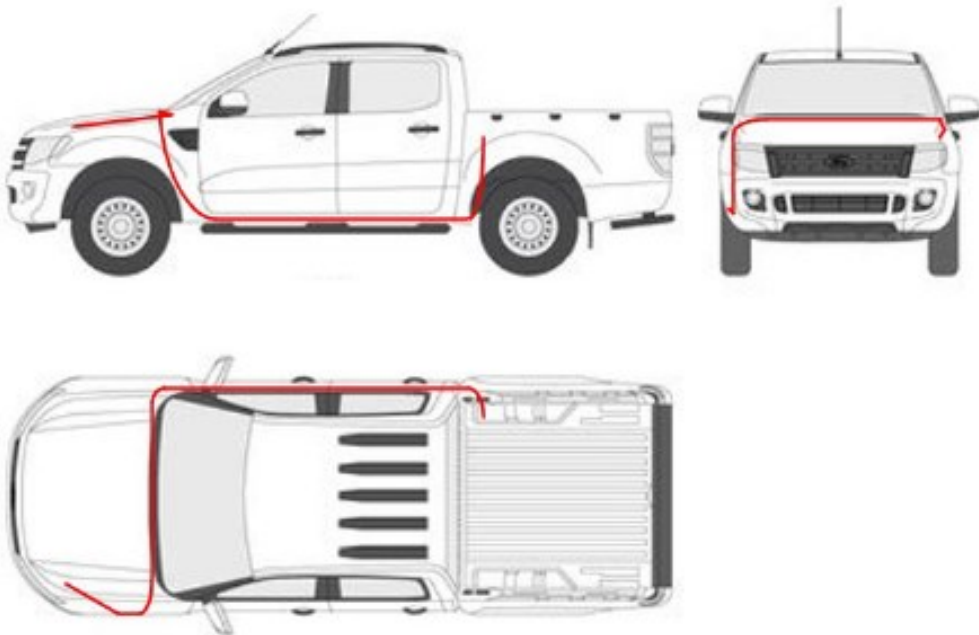
**Ford Ranger**

**Cab Mounted:**



---

**Bed Mounted:**



**Review Order Drawing for Inverter placement.**

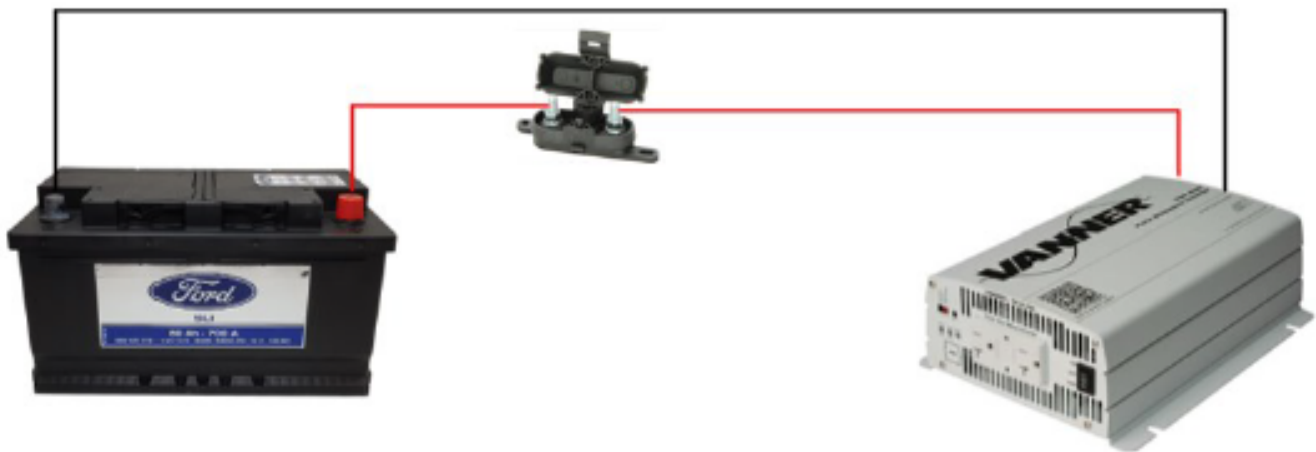
**Disconnect the negative battery cable before beginning work**

General Routing & Sub-Assembly: Pages 4 - 7.

Cab Mounted Installation (for kit 71992): Pages 8 - 9.

Bed Mounted Installation (for kit 71994): Page 10- 11.

Switch & Timer: Pages 12-14



- Locate the fuseholder, fuseholder bracket, and the following fasteners:

(2) FAS0025

(2) FAS0029

(2) FAS0641

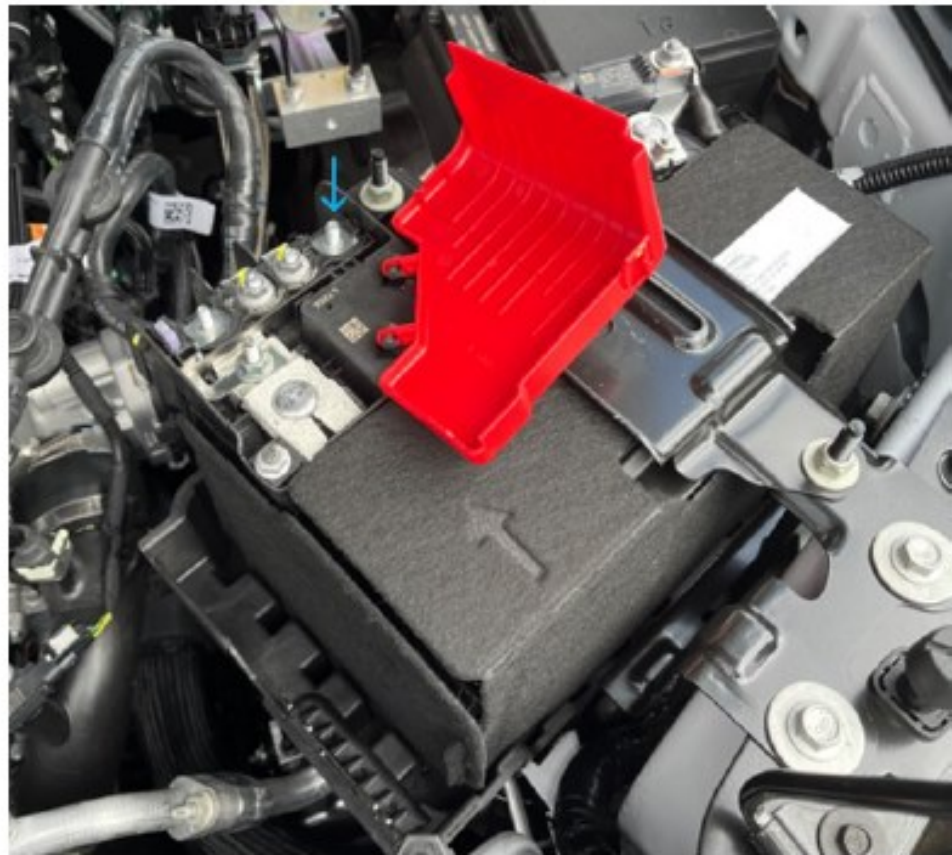
- Mount the fuseholder to the bracket using FAS0025 & FAS0029.

- Mount the bracket in the location shown below, using FAS0641. Fasteners should pass through the sheet metal, not the rubber seal.



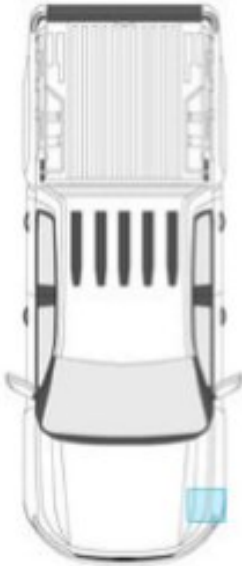
□ Locate the short red cable. Install onto the 5/16" stud shown below. Route the other end to the fuse-holder and secure.

**DO NOT INSTALL THE FUSE AT THIS TIME.**



• Notch the cover to allow it to close w/ the cable passing through.

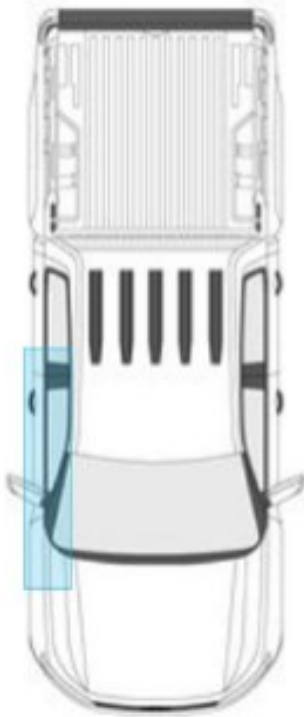
- Locate the OEM ground, next to the battery. Connect the black cable and re-secure the OEM nut.



- Connect the long red cable to the other end of the fuseholder and route across the cowl, securing to the OEM harness.



- Drop down the wheel well area to beneath the passenger-side floor.



- Secure the cables below the vehicle using the provided cable clamps & FAS0641 screws.

## **\*\*Cab Mounted Option is for kit 71992\*\***

- Place the mount behind the passenger seat.  
2.25" away from the stepwell trim, slid forward against the seat base mount.



- Use a paint marker and mark the forward four holes.
- Note: The first aid kit will be installed OVER-TOP of this mount, using the same two fastening points.
- Remove the plate and drill.

## **\*\*Cab Mounted Option is for kit 71992\*\***

- Before installing the plate, mount the inverter to the plate using the provided 1/4" fasteners:
  - (4) FAS0018
  - (4) FAS0055
- Secure the plate and the first aid kit to the vehicle.
  - (4) FAS0018
  - (4) FAS0052 (plusnuts)
- Behind the seat belt stud, drill the two locations shown. Drill from above.



- Route the cables between the seat and plate. Connect the cables to the Inverter.

## \*\*Bed Mounted Option is for kit 71994\*\*

- Drill the cable passthrough in the locations shown, the 1st low channel away from the wheel well. Route the black inverter cables up the drilled holes in the bed.
- Mount the inverter to the shelf wall as shown in the Figure below (and also shown in the order drawing) using the provided 1/4" fasteners and plusnuts.
  - (4) FAS0018
  - (4) FAS0052
- Connect the GND wire to the bolt in the bed frame, shown in the below Figure. Connect all battery cables and the GND wire to the inverter.
- Use provided edge clips (59713) to secure loose wiring from GND wire.

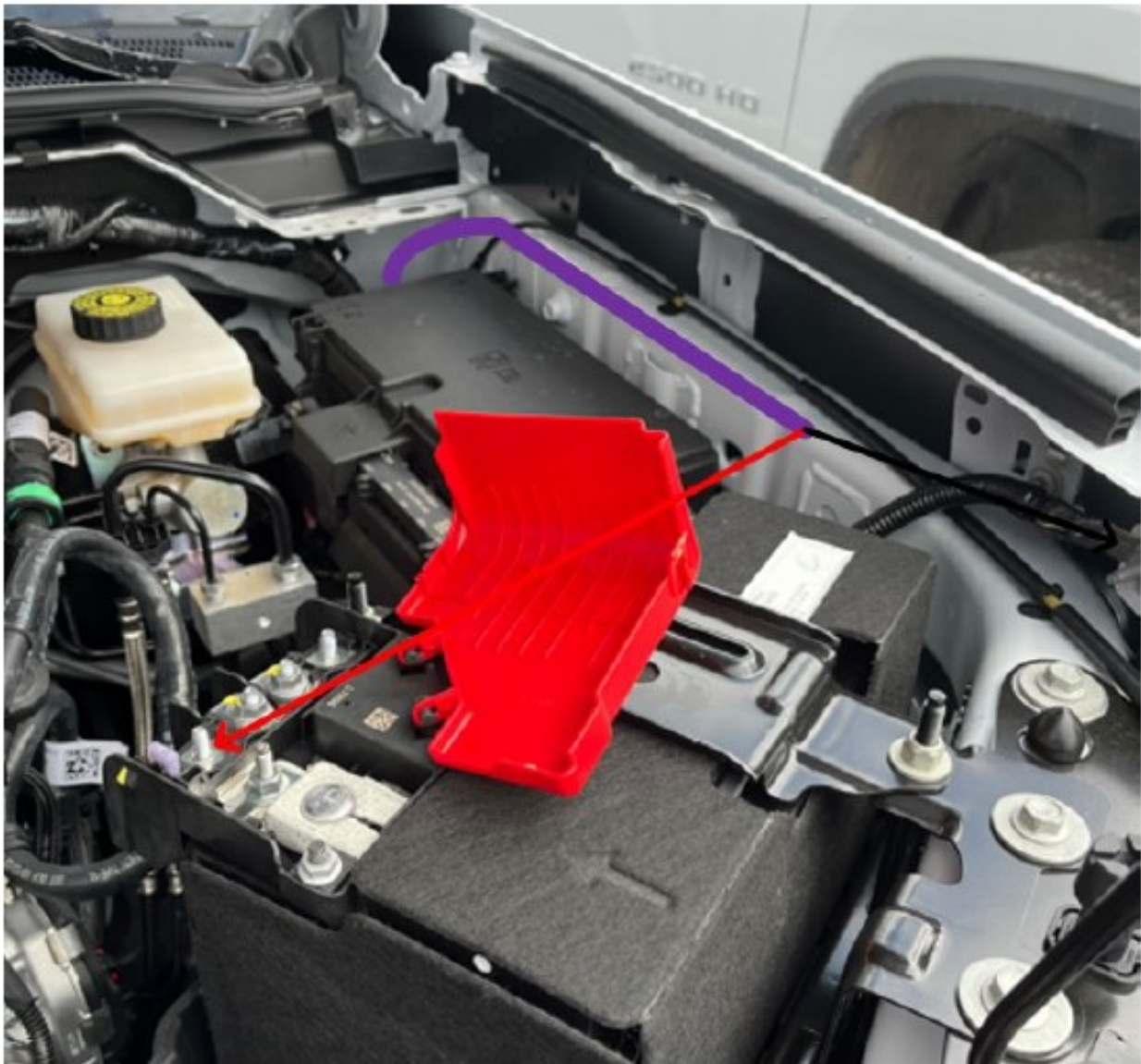


## **\*\*Bed Mounted Option is for kit 71994\*\***

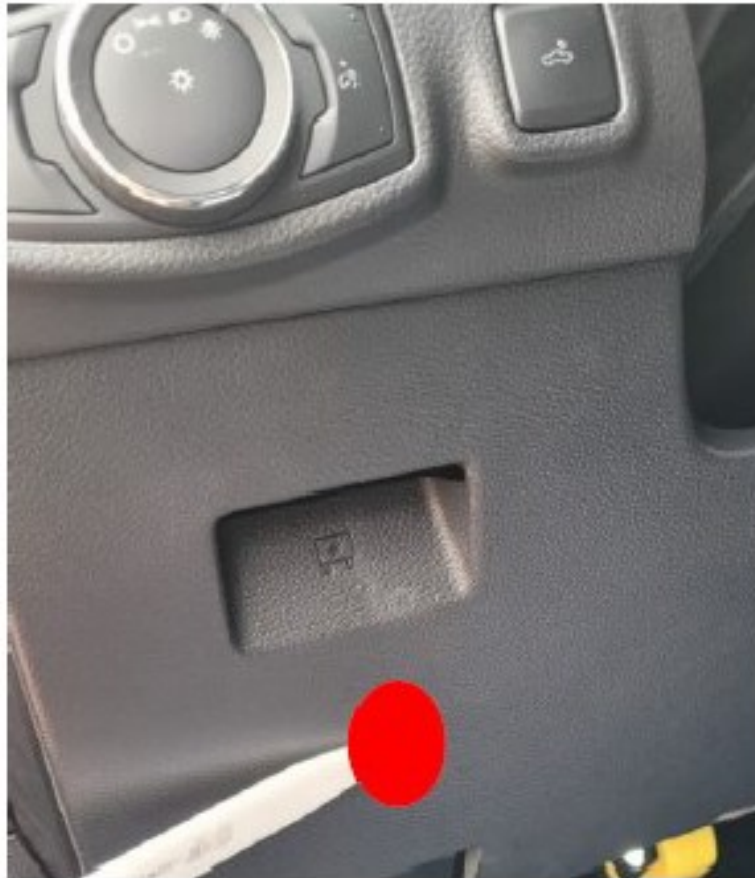
- Secure the power strip onto the right topper door shelving using the provide fasteners. The top of the power strip will be aligned with the top of the shelf.
  - (4) FAS0010
  - (4) FAS0013
- Once plugged in, route the power strip harness along the side of the bed taut. Use provided edge clips to secure power strip harness as shown below.



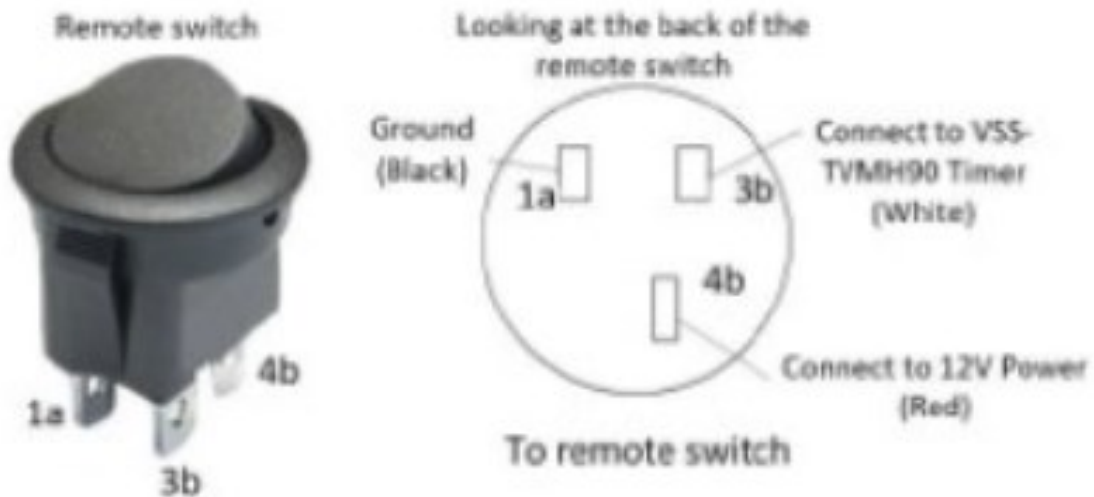
- From inside the cab, locate the firewall grommet. Drill a small hole (or cut an X) to allow the timer harness to pass through.
- Pass the red & black ring terminals through to the engine bay. The timer & spade connectors will remain in the cab.
- Connect the black ring terminal to the same ground location as the inverter power cable.
- Install the red wire onto the 1/4" stud. Do not insert the fuse into the fuseholder at this time.



- Hole placement for dash switch, located below the headlamp switch.



- Pull the spade connectors through the hole and connect to the switch as shown:



- Secure the timer behind the dash, away from driver controls.
- Connect the orange wire and route to the inverter. Strip the end and press into position 1.
- Under the hood, insert the timer fuse & Inverter megafuse.

**INSTALLATION IS COMPLETE**

# PURCHASED COMPONENT KEY FEATURES

## DESCRIPTION OF REQUIREMENTS

DIMENSIONAL REQUIREMENTS (AS SHOWN ON DRAWING)

LOAD/RATING REQUIREMENT

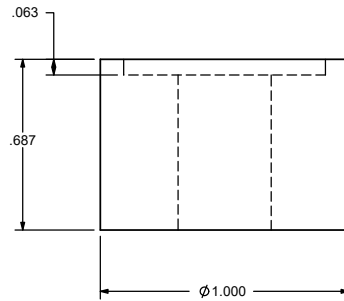
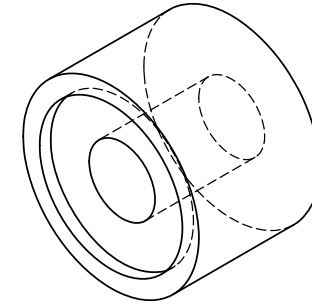
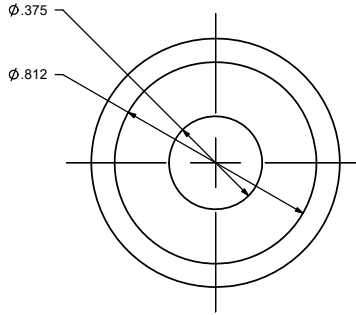
MATERIAL REQUIREMENT

**1010 STEEL**

PACKAGING REQUIREMENT

OTHER REQUIREMENTS

**FINISH: ZINC COATED**



CHAMFER ON CORNERS  
ACCEPTED BUT NOT  
REQUIRED

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PRINTED DOCUMENT IS UNCONTROLLED

Sheet 1 of 1

## TOLERANCES & INSPECTION

UNLESS OTHERWISE SPECIFIED

ALL BEND ANGLES ARE 90 DEGREES

ALL DIMENSIONS ARE IN INCHES.

REFERENCE DIMENSIONS (X.XXX)  
DO NOT REQUIRE INSPECTION

FEATURES	HOLES/SLOTS	ANGLES
0.0 = ± .125	0.0 = ± .062	0° = ± 2°
0.00 = ± .062	0.00 = ± .031	0.0° = ± 1°
0.000 = ± .031	0.000 = ± .015	

Material Thickness: per ASTM Std.  
Weld Callouts per AWS

## RELEASE & REVISIONS

INITIAL ECN: **3808**

CURRENT ECN: **22408**

ECN DESCRIPTION:

**UPDATE THE MATERIAL USED**

REVISED BY: **BCB**

# PURCHASED COMPONENT

REFERENCED SUPPLIER AND/OR MANUFACTURER  
**MID-STATE BOLT & NUT CO INC**  
REFERENCED SUPPLIER AND/OR MANUFACTURER PART NUMBER

COLOR (ONLY LIST IF COLOR SPECIFIC)

COMMODITY ITEM (Y/N) (YES = ALL DIMENSIONS AND NOTES ARE REFERENCE)  
(NOTE: DIMENSIONS AND FEATURES MAY VARY FOR A COMMODITY ITEM.)

**NO**

## PART / PRODUCT IDENTIFICATION



**ADRIAN STEEL**

ADRIAN STEEL COMPANY  
906 JAMES STREET, ADRIAN, MI 49221

REVISION LEVEL

**D**

MAT'L USED: **1010**

DESIGNED BY: **JLC**

DESCRIPTION: **SPACER,FLR,1010,11/16 ZP**

WEIGHT (Lbs.): **0.11**

SEGMENT CODE: **FAS**

PART NUMBER: **03927-2**

PART NUMBER

13905-0

**ITEM DESCRIPTION: WIRE TIE, NYLON 40Lb, 8.5" BLACK**



MANUFACTURER: WAYTEK, INC. or equivalent  
MANUFACTURERS PART NUMBER: 21093M or 21093C

SPECIFICATIONS:     STANDARD CABLE TIE  
                          BLACK, NYLON  
                          8-1/2" LONG  
                          TENSILE STRENGTH: 40.0 LBS  
                          21093M = 1,000 quantity  
                          21093C = 100 quantity

SPECIAL NOTES: PART NUMBER IS BLACK.

**SUPPLIED BY: THIS ITEM IS ADRIAN AVAILABLE!**

**PURCHASED PRODUCT DATA SHEET (PPDS)**

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**ADRIAN STEEL**  
VAN AND PICKUP EQUIPMENT

906 JAMES STREET  
ADRIAN, MI 49221  
517-265-6194  
WWW.ADRIANSTEEL.COM



**CAUTION**

**WHEN INSTALLING EQUIPMENT IN OR ON VEHICLES CHECK FOR FUEL TANKS, FUEL LINES, CONTROL LINES AND ELECTRICAL WIRING BEFORE DRILLING! ALWAYS USE DRILL BITS WITH INTEGRAL STOPS WHENEVER POSSIBLE!**

DRAWN BY  
MDG

DATE DRAWN  
10/26/2006

ECN NUMBER  
18021

ECN DATE  
11/13/2015

PART WEIGHT  
0.01 LBS.

REV. LEVEL  
D

PART NUMBER  
**13905-0**

PART NUMBER

26618-0

ITEM DESCRIPTION: SILICONE, 1oz. TUBE



SPECIFICATIONS: SU5005 RTV SILICONE  
1oz. TUBE  
CLEAR OR EQUIVALENT  
SELF PIERCING CAP

SPECIAL NOTES:

**SUPPLIED BY: THIS ITEM IS ADRIAN AVAILABLE!**

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DRAWN BY  
JLC

DATE DRAWN  
7/21/2001

ECN NUMBER  
16551

ECN DATE  
7/22/2014

PART WEIGHT  
0.02 LBS.

REV. LEVEL  
C

PART NUMBER  
**26618-0**

PART NUMBER

26618-0

ITEM DESCRIPTION: SILICONE, 1oz. TUBE



SPECIFICATIONS: SU5005 RTV SILICONE  
1oz. TUBE  
CLEAR OR EQUIVALENT  
SELF PIERCING CAP

SPECIAL NOTES:

**SUPPLIED BY: THIS ITEM IS ADRIAN AVAILABLE!**

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DRAWN BY  
JLC

DATE DRAWN  
7/21/2001

ECN NUMBER  
16551

ECN DATE  
7/22/2014

PART WEIGHT  
0.02 LBS.

REV. LEVEL  
C

PART NUMBER  
**26618-0**

# PURCHASED COMPONENT KEY FEATURES

## DESCRIPTION OF REQUIREMENTS

DIMENSIONAL REQUIREMENTS (AS SHOWN ON DRAWING)

N/A

LOAD/RATING REQUIREMENT

N/A

MATERIAL REQUIREMENT

N/A

PACKAGING REQUIREMENT

N/A

## OTHER REQUIREMENTS

**Input Voltage:** 12VDC 10.5V - 16.5V) **Continuous Output Power:** 700w (+/-3%) **Output Voltage:** 100/110/115/120 VAC (+/-5%) (Dip Switch Selectable)  
**Output Waveform:** Pure Sign Wave (THD<5%@ normal load)  
**Operating Temp:** -25C to approx. 40C  
**Safety Standard:** Certified UL 458 (UL only for GFCI)  
**SURGE RATING** 150% OF CONTINUOUS POWER FOR 3 SECONDS  
**EMC STANDARDS** FCC CLASS B: TS400, TS700, TS1000, AND TS1500  
**FCC CLASS A:** TS2000 AND TS3000  
**EFFICIENCY** 90%-93%  
**STANDBY RECOVERY** FIVE SECONDS

INVERTERS CAN BE EITHER VANNER OR HAVIS, BOTH ARE DEPCITED HERE. VANNER HAS REBRANDED TO HAVIS, SO THE "VANNER" INVERTER IS BEING PHASED OUT.



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## TOLERANCES & INSPECTION

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REFERENCE DIMENSIONS (X.XXX)

DO NOT REQUIRE INSPECTION

FEATURES	HOLES/SLOTS	ANGLES
0.0 = ± .125	0.0 = ± .062	0° = ± 2°
0.00 = ± .062	0.00 = ± .031	0.0° = ± 1°
0.000 = ± .031	0.000 = ± .015	

Material Thickness: per ASTM Std.  
Weld Callouts per AWS

## RELEASE & REVISIONS

INITIAL ECN: **22984**

CURRENT ECN: **29480**

ECN DESCRIPTION:

**ADD HAVIS INVERTER IMAGE**

REVISED BY: **C.GILBERT**

# PURCHASED COMPONENT

REFERENCED SUPPLIER AND/OR MANUFACTURER  
**VANNER/HAVIS**

REFERENCED SUPPLIER AND/OR MANUFACTURER PART NUMBER  
**TS12-700**

COLOR (ONLY LIST IF COLOR SPECIFIC)

COMMODITY ITEM (Y/N) (YES = ALL DIMENSIONS AND NOTES ARE REFERENCE)  
(NOTE: DIMENSIONS AND FEATURES MAY VARY FOR A COMODITY ITEM.)

**NO**

PRINTED DOCUMENT IS UNCONTROLLED

Sheet 1 of 1

## PART / PRODUCT IDENTIFICATION



**ADRIAN STEEL**

ADRIAN STEEL COMPANY  
906 JAMES STREET, ADRIAN, MI 49221

REVISION LEVEL

**B**

MAT'L USED:

DESIGNED BY: **MJF**

DESCRIPTION:

**INV TS12-700**

WEIGHT (Lbs.):

**6**

SEGMENT CODE: **EIN**

PART NUMBER: **56904**

# PURCHASED COMPONENT KEY FEATURES

## DESCRIPTION OF REQUIREMENTS

DIMENSIONAL REQUIREMENTS (AS SHOWN ON DRAWING)

N/A

LOAD/RATING REQUIREMENT

N/A

MATERIAL REQUIREMENT

N/A

PACKAGING REQUIREMENT

N/A

OTHER REQUIREMENTS

700W Cable kit for Ford Ranger, cab mounted.

Includes switch & timer assembly.



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0.00 = ± .062	0.00 = ± .031	0.0° = ± 1°
0.000 = ± .031	0.000 = ± .015	

Material Thickness: per ASTM Std.  
Weld Callouts per AWS

## RELEASE & REVISIONS

INITIAL ECN: 27380

CURRENT ECN: 27380

ECN DESCRIPTION:

Release.

REVISED BY: N/A

# PURCHASED COMPONENT

REFERENCED SUPPLIER AND/OR MANUFACTURER

Vanner

REFERENCED SUPPLIER AND/OR MANUFACTURER PART NUMBER

D021204

COLOR (ONLY LIST IF COLOR SPECIFIC)

COMODITY ITEM (Y/N) (YES = ALL DIMENSIONS AND NOTES ARE REFERENCE)  
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NO

PRINTED DOCUMENT IS UNCONTROLLED

Sheet 1 of 1

## PART / PRODUCT IDENTIFICATION



**ADRIAN STEEL**

ADRIAN STEEL COMPANY  
906 JAMES STREET, ADRIAN, MI 49221

REVISION LEVEL

**A**

MAT'L USED:

DESIGNED BY: A. Bussing

DESCRIPTION:

**KIT CBL 0.7KW, CAB RA**

WEIGHT (Lbs.): 10.0

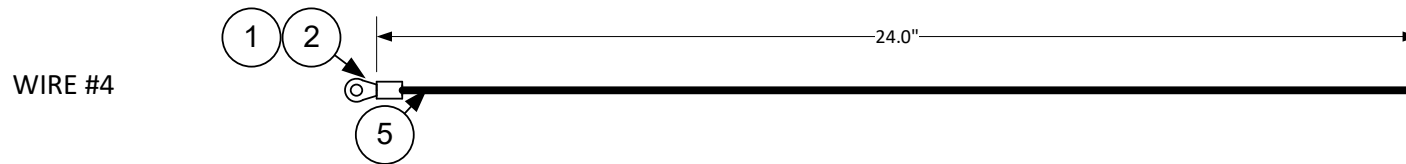
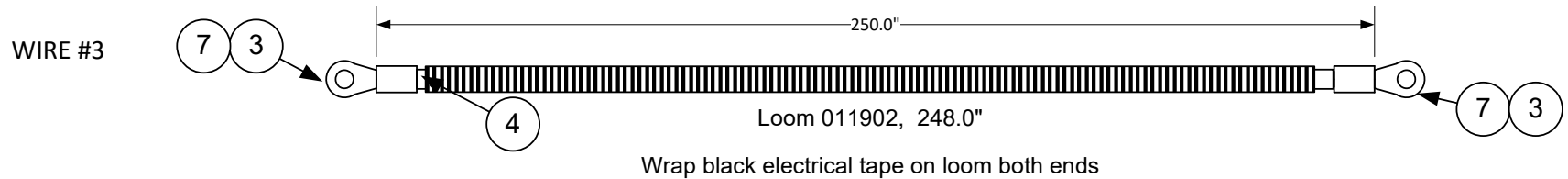
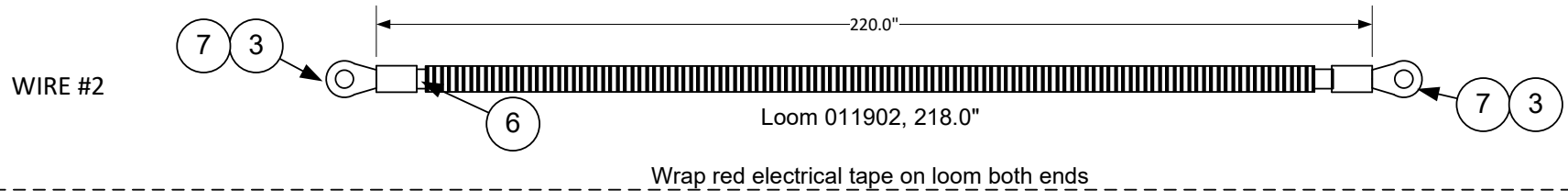
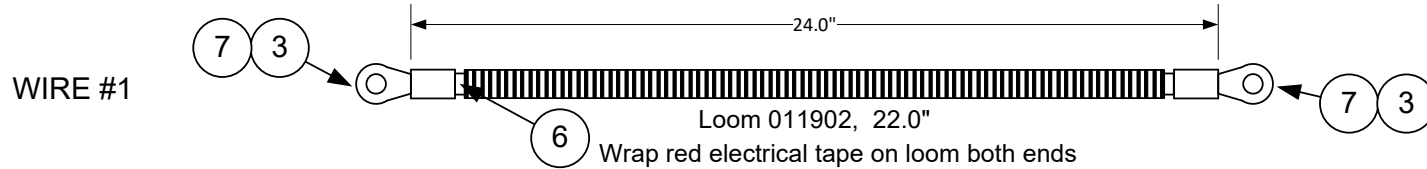
SEGMENT CODE: EIN

PART NUMBER: 71993

ITEMS IN BAG: 03199  
 QTY 1, #012992 FUSE HOLDER  
 QTY 1, #013914 200A FUSE  
 QTY 6, #017053 CABLE CLAMP  
 QTY 5, #013131 CABLE TY  
 QTY 1, #D021208 TIMER RANGER 2024+

QTY 1, #021210 M6 FLANGE NUT

REVISIONS			
REV	DESCRIPTION	DATE	REA/ECO



**Notes:**  
 Each cable to have wire number as listed marked on both ends of wires, exterior of loom behind tape, harness suppliers discretion on materials used

SCALE: NONE	REA/ECO NO.: 5490	TOL. UNLESS OTHERWISE NOTED .x ± .025 .xx ± .015 .xxx ± .005	
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		CHK/DATE	TITLE: DWG, HARNESS, TS 1000/1500, 20.8', SW/TVM, RANGER 2024+
		DRAWING/ PART NO. D921204	SHEET 1 OF 2 REV A

This page for Adrian Steel  
ONLY

REVISIONS			
REV	DESCRIPTION	DATE	REA/ECO
	see sheet 1		

Part Number	Description	Quantity	Balloon
D021204	HARNESS, TS 1000/1500, 20.8', SW/TVM, RANGER 2024+	0	5490
010705	LUG, 8 AWG, RING TONGUE, UNINSULATED, 5/16 STUD	1	1
011902	LOOM, 1/2" I.D., NYLON, BLACK, HI-TEMP, SPLIT	40.67	
012573	HEATSHRINK, ADHESIVE, .375 ID, BLK	0.08	2
012575	HEATSHRINK, ADHESIVE, .75 ID, BLK	0.5	3
012992	FUSEHOLDER, BUSSMANN, AMG 100-300 AMPS	1	
013132	CABLE TY 6/6 NYLON 15.5"L X 0.18" W, BLACK, 50LB	10	
013942	CABLE, 2 AWG, SGX, SAE J1127, BLACK	20.83	4
013943	CABLE, 2 AWG, SGX, SAE J1127, RED	20.33	5
013944	CABLE, 8 AWG, GXL, SAE J1128, DARK GREEN	2	6
015481	LUG, 2 AWG, RING TONGUE, SEALED, 5/16 STUD	4	7
015696	BOX, SHIPPING, 16 X 16 X 6	1	
015789	GROMMET, .875ID X 1.625OD, 1/16"PT, 1.250PHD	2	
016184	LUG, 2 AWG, RING TONGUE, SEALED, 1/4 STUD	2	8
016444	TAPE VINYL PLASTIC ELECTRICAL, RED	0	
017053	CLAMP, 2 CABLE, 1.0 ID, 3/4" W, .406 DIA MNT, STL	6	
021210	NUT, M6 X 1.0MM, FLANGE, SERR, SS	1	
02424	TAPE VINYL PLASTIC ELECTRICAL, BLACK	0	
D021205	LABEL, SPEC, D021204	0	
D08320	LABEL 3.00"X4.00" SILVER (BLANK)	1	
D021208	HARNESS, TVM, SWITCH, RANGER 2024	1	
D921204	DWG, HRNS, TS1000/1500, 20.8', SW/TVM, RANGER 2024+	0	

SCALE: NONE

REA/ECO NO.: 5490

TOL. UNLESS  
OTHERWISE NOTED

.x ± .025  
.xx ± .015  
.xxx ± .005

**VANNER**  
INCORPORATED

HILLIARD, OHIO USA

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DRNDATE  
MEO  
5/8/24

CHKDATE

TITLE: DWG, HARNESS, TS 1000/1500, 20.8',  
SW/TVM, RANGER 2024+

DRAWING/  
PART NO. D921204

SHEET  
2 OF 2

REV  
A