



Streamlined version from MUWG

## eProcurement – Maximo, Mobility & Marketplace

13 Oct 2022

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Director, Reliability & Asset Mgmt (RAM)

*Former NAS Whidbey Site Manager*

eProcurement is hard and our solution is not perfect – we are continually improving. Why we attend MUWG.

 Southern Power

Fall 2018

Procurement automation  
(eCatalogs, eProcurement,  
contracts and auto release)

Tim McAlister, CPSM, C.P.M.



B2B Platform & eCatalogs



Maximo Integration & Configuration

INTERPRO  
SOLUTIONS

EZMAX Mobility Platform

Business Partners on this project.  
Presentation provides factual info – not marketing.

## 1) Background...

- Must have solid Business Case

## 2) Big Rock challenges before eProcurement

- Proven Mobility (high Tech adoption) + Reduce Logistics Complexity

## 3) Delivering eProcurement - Skookum Project

- Timeline, Resources, Challenges, Lessons learned

## 4) Demo

- Maximo PR w/eCatalog integration, Hosted data search, punchouts...

- **Top Tier AbilityOne Contractor**
  - Non-Profit, Employ People with Disabilities, Veterans
  - Competitive contracts – AbilityOne & Commercial
  - Extreme Partnering with our Client
  - Expanding Commercial profile
- **National Footprint - 1,400 employees at 25 sites**
  - Infrastructure (10 sites) – Facilities, Utilities, Env
  - Fleet, Janitorial, Grounds, Warehousing, Aerospace (15 sites)
  - 500+ Maximo Users, **350 Mobile Users** (includes Leads/Mgrs)
- **Effective Technician Mobility is critical**
  - Major CXO Support – “frustrated Navy Engineers”
  - Maximo and Mobility foundation (2013)
  - Paperless Work Mgmt – Fort Lee VA 2017 Uptime Award
  - **Advanced Capability** – NAS Whidbey 2017 – 2021

### Mission Statement

CREATING  
OPPORTUNITIES  
FOR PEOPLE  
OF ALL  
ABILITIES



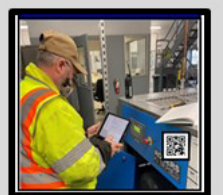
### 2017 Uptime Award – Best Work Execution System (Skookum Fort Lee)



*Best Work Execution  
Management Program*



### 2021 MaximoWorld Award Best Partnership – Interpro & Skookum



How can Tech select parts?



# Techs select Parts from IPAD??

Challenge: Must "Leapfrog" from "bad data"

## Find right Parts in Maximo Item Master?

← List View Item Specifications Item Assembly Structure Purchasing Audit Issues/Returns Audit Attach

Item Details

Item: 20982 **STUD, METAL 18GA VARIOUS SIZES** Status: ACTIVE

+Item Owner: NSBOSC North Sound Base Operations Support Contract, Whidbey Island Lot Type: NOLOT

+Item Type: ITEM Stock Category: NS

Commodity Group: Commodity Code:

Vendor	Manufacturer	Model	Catalog # / NSN	Last Price	Last Order Date	Order Unit
1299			11126222	0.66	10/12/12	EA
1323				10.50	10/16/19	EA
1493			4664T12	11.06	5/19/14	PG
1703				24.00		EA

Vendor Details

Vendor: 1299 **3/8-16 x 4" Zinc Finish Low Carbon Fully Threaded Stud** FASTENAL CO.

Manufacturer: Fastenal Part No. (SKU) 11126222

Model: Specifications - Text Values Filter 0 - 0 of 0

Attribute	Description

Catalog # / NSN: 11126222

Alternate Items Condition Codes Storerooms Vendors

Item	Description	Commodity Group

## Why can't I find like "Amazon" ?

Alternate Vendors & Items

Search Results for stud threaded stainless 1/2" x 13

Showing results for stud threaded stainless 1/2" x 13 instead

SUPPLIER: stud threaded stainless 1/2" x 13 supplied by Fastenal

CATEGORY: stud threaded stainless 1/2" x 13 in All Categories, stud threaded stainless 1/2" x 13 in Facilities, stud threaded stainless 1/2" x 13 in Maintenance & Repair, stud threaded stainless 1/2" x 13 in Maintenance & Repair > Manufacturing Supplies

PRODUCTS & SERVICES: Fully Threaded Studs - 1-1/2"-8 x 12-3/4" (OAL 13") A193 B8 Class 1, Stainless Steel Fully Threaded Stud

Viewing 1 - 48 of 72 | Save Search | Comparison list is empty.

Item #	Model #	Country of Origin
Fully Threaded Studs - 1/2"-13 x 4-1/4" (OAL 4-1/2") A193 B8 Class 1 Stainless...	Fastenal	USA
Fully Threaded Studs - 1/2"-13 x 5-1/2" (OAL 5-3/4") A193 B8 Class 1 Stainless...	Fastenal	USA
Fully Threaded Studs - 1-1/2"-8 x 13-1/2" (OAL 13-3/4") A193 B8 Class 1 Stainless...	Fastenal	USA

Fully Threaded Stud: 316 Stainless Steel, 1/2"-13 Thread Size, 2 in Lg, 10 PK

Item # 4RD24 UNSPSC # 31161619 Mfr. Model # 32510 Catalog Page # 2146

Country of Origin USA. Country of Origin is subject to change.

316 stainless steel fully threaded rods and studs have higher corrosion resistance than 18-8 stainless steel, making them a good choice for applications in salt-water and chlorine environments.

Stainless steel fully threaded rods and studs are fasteners that provide high strength when mounting and securing components in assemblies or structures. They have higher corrosion resistance than steel threaded rods and studs and are ideal for use in wet environments where male threads are needed for the full fastener length.

Downloadable CAD Models

Technical Specs

Item	Fully Threaded Stud	Thread Direction	Right Hand
System of Measurement	Inch	Threaded Rod Thread Type	UNC
Threaded Rod Material	316 Stainless Steel	Min. Tensile Strength	75,000 psi
Threaded Rod Finish	Plain	Rockwell Hardness	B85 Min
Thread Size	1/2"-13	Thread Class	1A

Specs



# NAS Whidbey (1 of 10 infrastructure sites)

## Asset Challenge

- \$3B Plant Valve (PRV)
- Full Utilities
- 400+ Facilities
- 30K+ Diverse Assets
- 320+ Vehicles
- Age from 1941 to 2021

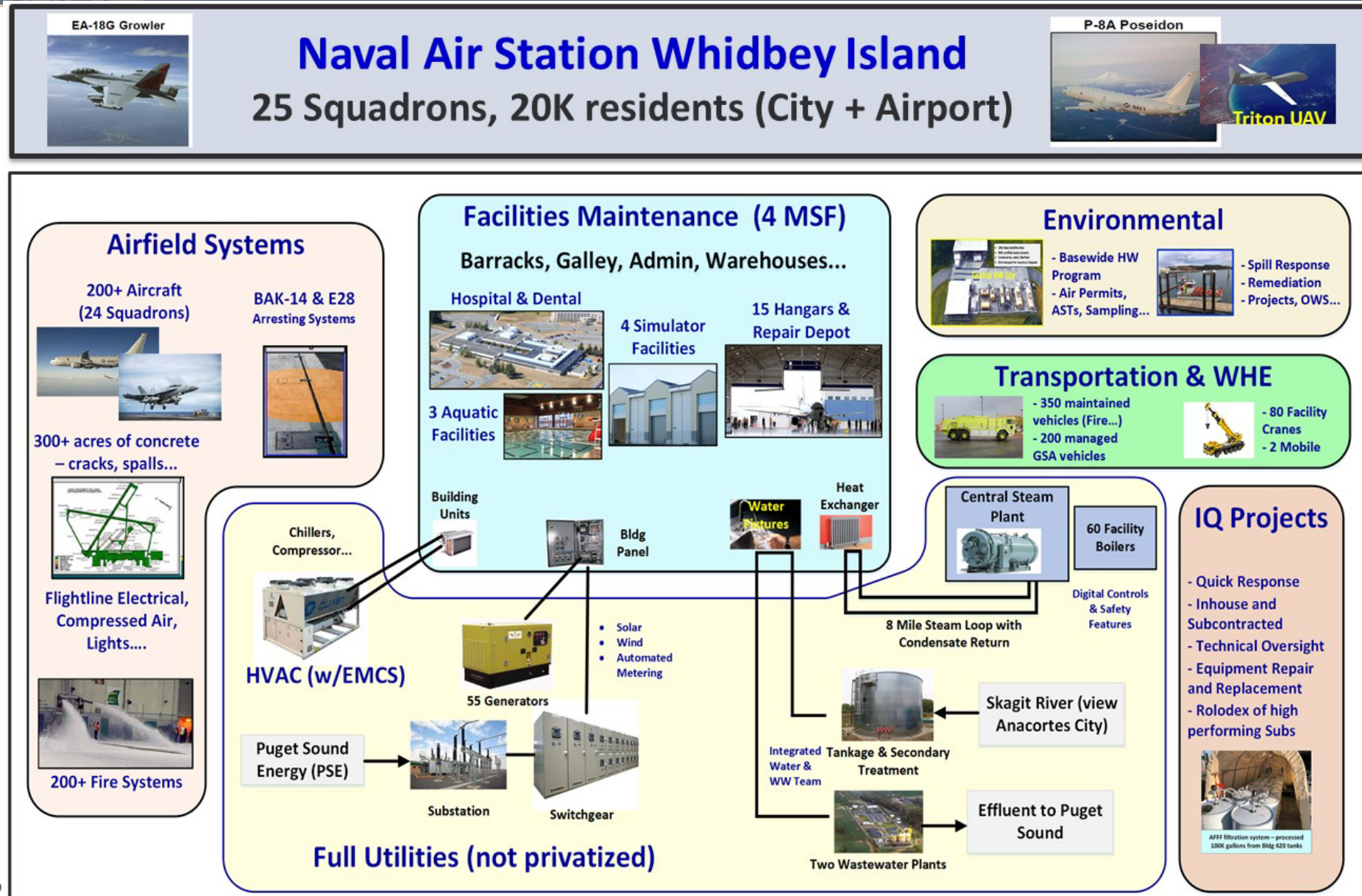


## Parts Challenge

- 150+ Vendors
- Efficiently pick right part, right vendor, right price?

*... and order parts in  
"minutes to hours"?*

# "Infrastructure" Parts Challenge Challenge: "IPAD Parts Selection" even harder



2018: Southern 'cracked the code'  
(Marketplace with Maximo)

# Revolutionize eProcurement ?

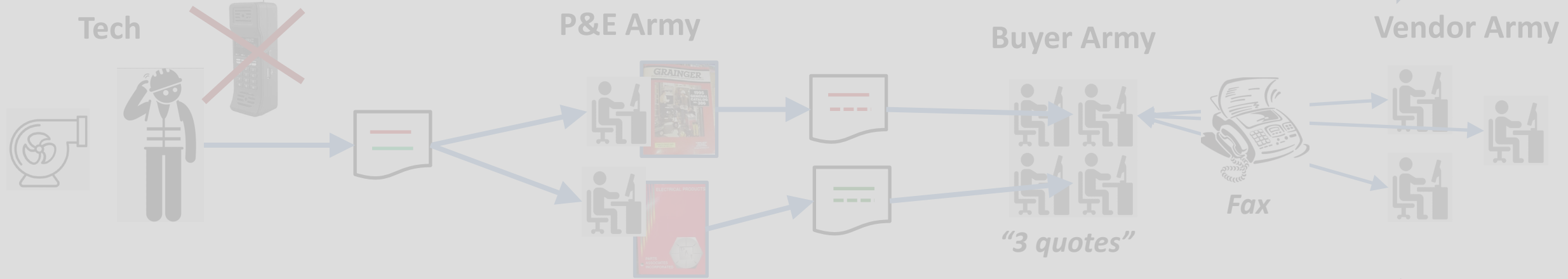
## What are the "Marketplace Options"? ...

### "Mobility"

### "eCatalogs"

### "B2B Network"

1997: "Days" to "Weeks" to get the needed Parts ???



2022: Order in "Minutes to Hours" – right part, vendor, discount ?



# "eProcurement" Business Case

## Improve Wrench-time, Discounts, Speed, Data quality

		Before (1995 - 2019)	After (2020)
<b>Techs lose ~ 5% in wrenchtime</b>	Identifying Parts	Haphazard process involving dozens of electronic and manual "catalogs"	Key parts in <b>single 'eMarketplace'</b> and easily searched - like Amazon
	Purchase Request (PR)	Manual process - Tech fill outs paper with right data? and spends 30+ minutes getting signatures	Electronic PR - <b>Maximo PR integrated with eMarketplace</b> (Desktop & Mobile)
	Obtaining price competition	Impossible to quickly compare discounts - not done for commodity buys	Discounted pricing reflected in <b>eMarketplace</b>
<b>Material Team consumed by low value work</b>	PR Quality Control	Warehouse Techs spend significant time QC'ing PR and manually entering into Maximo	Warehouse Techs spend more time on value-add work: Parts research, Kitting, Staging...
	Purchasing Process	Buyers have to cleanup a lot of issues, e.g. price competition, part number issues	Buyers spend less time on commodity buys. More time on complex buys, more capacity.
<b>Corporate Goals not being met</b>	Enforced discounts & savings	Spend goals not met due to pricing not quickly visible	On track for \$50K annual savings Year 1 (4%) and \$100K Year 2 (8%) - <b>leveraged purchasing Coops</b>
	Faster procurement process	<b>"Days"</b> to process commodity buys via 15+ steps - impacting contract response goals	<b>"Minutes to Hours"</b> via 3 step electronic process - don't need extra buyer, improve response (92%)
	Standardized Procurement	Each site buys parts differently - marginal oversight and analytics	<b>Standard E2E process</b> with spend analytics (BI)

**MRO.COM Promise at 2001 Pulse**  
(AMZN was \$8 per share)

**eMarketplace/Maximo (2018 MUWG)**  
(AMZN was \$2,000 per share)

# **Big Rock Challenges**

## **Must “Solve” before eProcurement Project**

- **Technician Mobility Adoption\***
- **Reducing Logistics Complexity\*\***

Collaborative Groups aligned with MUWG

\* Mobile User Group for Maximo (MUGM) - <https://www.linkedin.com/groups/12524289/>

\*\* Maximo Supply Chain User Group (MSCUG) - <https://www.linkedin.com/groups/2475200/>



If Mobility does not work, Techs will not use...  
and leadership will pull the plug

# Mobility Hype vs. Reality

Takes “all hands on deck” ...

Mobility Hype

Wrenchtime savings!

Gamechanger!!

Paperless!!

Return on Investment!!



<https://vimeo.com/750073086/63640500d8>

Mobility Challenges

Slow Speed!?

I'm Faster with Paper

Browser Cookie!?

Manager Apathy

Handholding

Patch Failed!?

Gamechanger??

Wrenchtime savings???

This won't work

Network Down!?

Too busy to learn:  
Offline mode,  
Speech-to-Text...

This failed at  
last company

Money Sink!!

Poll Question

We have experienced “all of the above”. Go-live Metric:



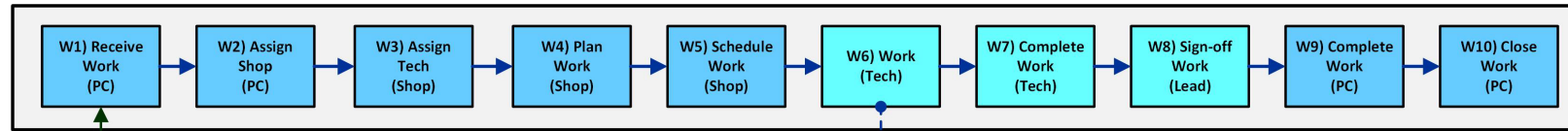
Metric: “How many smashed IPADs?”

- **Enable Core Capability Day 1... stable in 90 days**
  - **Pilot and Prove mobility at lead site** – ensure mobility “really” works... *Coming from the Technician*
  - **Must Strong Sponsorship** - CXO and Site Leaders... use mobility on iPhone (eat own dogfood)
  - **Good initial training + transition support** - IT at site level
  - **Carrots** – Auto-emails, see work & asset history... [must sell these]
  - **Sticks** – Enter closeout info (tech notes, hours) or won't get paid... [sell themselves]
- **Continual improvement (wish we did sooner)**
  - **Recruit “Super Techs”** – Identify issues/opportunities, bridge with full shop team...
    - **Strong collaboration with IT & Dev groups** – Teams + short meetings
    - **Performance and offline mode** – aggressive identification and resolution
  - **Short training videos on IPAD** – 5 minute chunks, e.g. enter PR
  - **Incrementally add capability that Techs need – “Magnets”**
    - **“Tech Library”** – parse pdfs (asbuilts, O&M manuals...) and link to Maximo
    - **Virtual Bldg Mgr sign-off** (auto-email on ‘complete’) ; **Material received at warehouse** (auto-alert)...

# Reducing Logistics Complexity

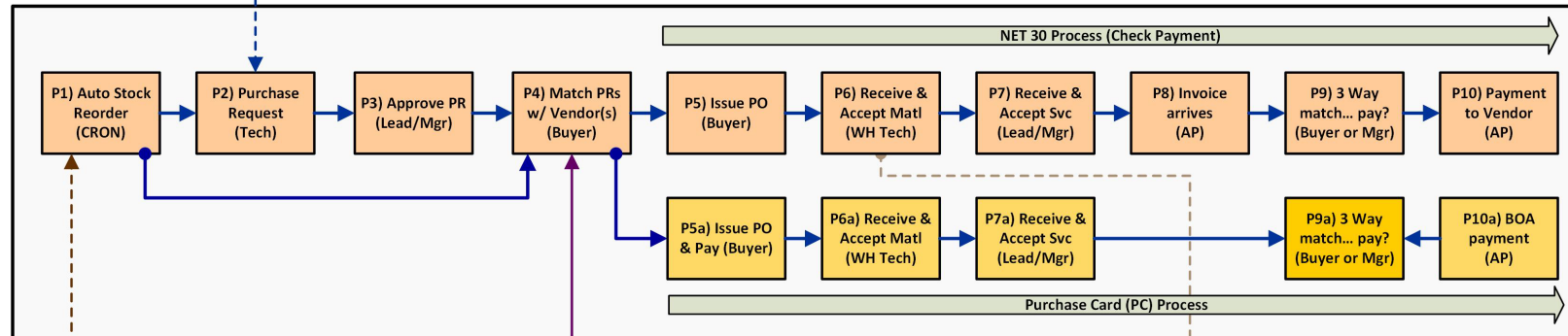
‘Blocking and Tackling’ must be in place... then “eProcurement”

## Work Management

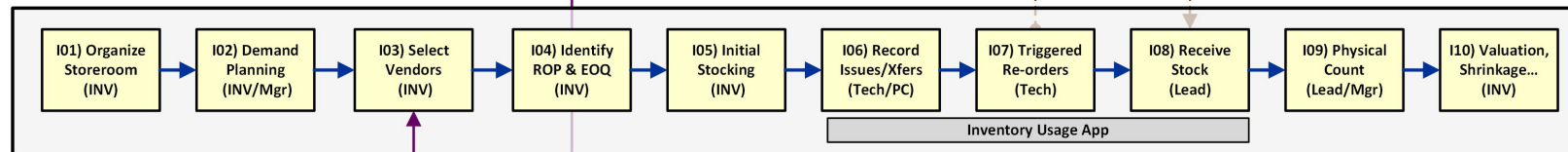


“Where is my Part!?”

## Purchasing (Matl & Svcs)

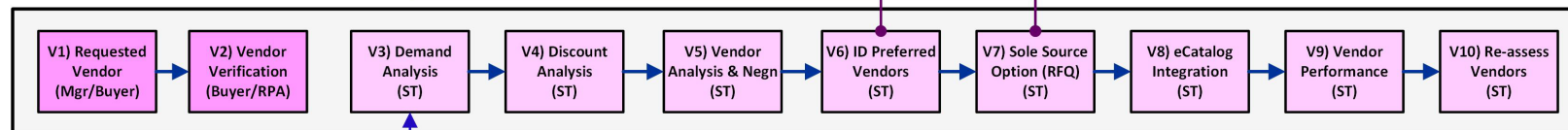


## Inventory Mgmt

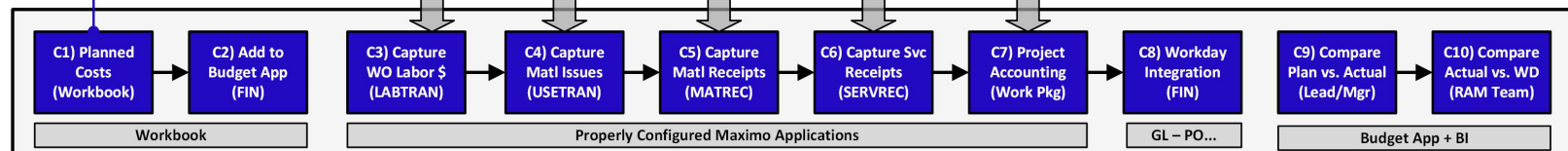


“The line between disorder and order lies in *logistics*...”  
– Sun Tzu

## Vendor Sourcing



## Cost Management





## Timeline – Preparatory Assessment and Selection

- **Oct 2017 – NAS Whidbey Contract “Went Live”**
  - Mobility Day 1 – Work & Asset Mgmt (100 Technicians) - worked
  - Tried using PR App with Item master searching... failed, back to paper
- **Fall 2018 – Southern eProcurement Brief at MUWG Brief**
  - Tim McAllister and Team shared their solution – drove our effort
- **2019 – Assessment** (Site personnel with day job – took awhile)
  - 3<sup>rd</sup> Party info (Gartner PTP), Companies, Demo, Test Drive...
  - Marketplace – Buyerquest/Varis selected... Key factors: usability, searchability, supplier enablement, vision
  - Integration – P2Insight selected... Key factors: Maximo eCommerce experience, existing solutions, vision

**CXO approval  
Dec 2019  
(ROI brief)**



CY22 – Deploy to Buyers at all Sites  
CY23 – Deploy to Techs at all Sites

Timeline – Go Live  
NAS Whidbey – 110 current Technicians

Technology was easiest part  
Obtaining eCatalogs was the critical path... combined with discount improvements

Tech Adoption highest risk – bell curve adoption, PR app configuration, eCatalogs...

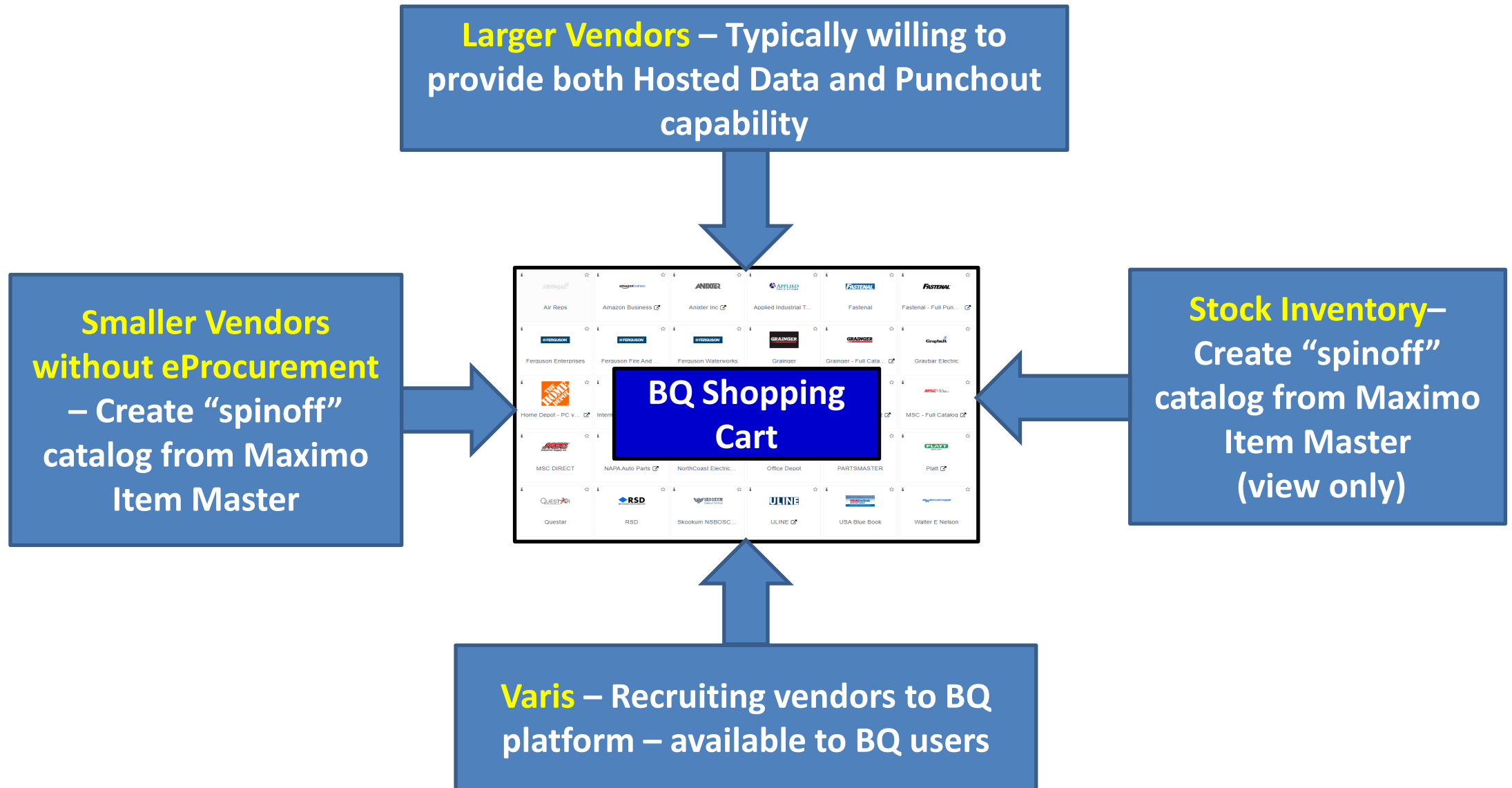
	CY20				CY21	
	Q1	Q2	Q3	Q4	Q1	Q2
Varis Configuration	X					
Maximo/Varis Interface	X					
Maximo "Workflow" (Portlets + BI)		X				
Obtain Catalogs & Better Discounts	8	5+	5+	5+	5+	5+
Pilot Shops (select Techs) - many tactical improvements		➡	X	X		
Deploy to All Shops				➡	X	X

Since June 2020:

- **15K+ electronic PRs (no paper)** – 40% eCatalog items, 30% Item Master, 30% Freeform
- **37 eCatalogs** - Hosted Data, Punchout, “Spin-off” (small vendor), Storeroom and Varis
- **> 5% additive discount** – visible and enforced via eCatalog... ~ \$100K annual savings

# “Obtaining” eCatalogs

## 4 primary methods







# Must make “parts selection” even easier

## Beyond eCatalog selection

- **Planned Material Automation**
  - When Consumables are “guaranteed” to be used, e.g. HVAC Filters
  - Link Filters to Asset/Building – PM auto-generates POs (Vendor kits by building)
- **Spare Parts tied to Asset... “Select Spare Parts”**
  - Build during construction turnover – pdf or discrete data in spare parts table
  - “Reverse” parts from PO to Asset (if WO has AssetID entered)
    - Leverage full material data (Buyerquest) with manu, part#, vendor, SKU
  - Leverage OEM spare parts DB, e.g. Trane, Daikan... linked to asset make/model
- **B2B Usability**
  - Enrich catalog data... training on how to do material comparisons
  - Train to use “previous shopping carts”, “favorite parts”, “kits” (bundles)
  - Improve sync btwn B2B and Maximo... “propose new part for Item Master?”
  - Improve analytic views (BI) and redundant support tasks (RPA)



- **Tech-based “eProcurement” is viable but challenging**
  - Good ROI if successful: Improve wrench-time (~5%), codify and enforce better discounts (~ 5%), less procurement rework, faster WO execution
- **Must have solid Mobility & Logistics processes in place - BEFORE**
- **Top Challenges/Risk**
  - 1) **Technician usability and adoption – Demo...**
  - 2) Building eCatalogs with right discounts – takes time
  - 3) Get existing sites to move to “best process” (entrenched habits hard to break)
  - 4) Technology is the easier part

# Demo

- **Varis Marketplace eco-system**
- **PR Build from IPAD**
  - **Hosted data search (compare & select items)**
  - **Punchout (use vendor's full catalog functionality)**
  - **Startcenter 'workflow' (Manager and Buyer)**
- **Finding spare parts**

**Questions?**

Hello Scott

[Log Out](#)

## PRODUCTS &amp; SERVICES ▾

[Facilities](#) +[Machinery](#) +[Maintenance & Repair](#) +[Office](#) +[Raw Materials](#) +[Services](#) +[Shop by Supplier](#)[Quick Order](#)

## MY DOCUMENTS +


## MY ACCOUNT +

## See what you need below?

Click on the  
**Supplier** link to shop

**CLICK**[Shop by Supplier](#) [View All >](#)

Applied Industrial Technologies



Buy Supply Inc



Amazon Business



Skookum Fort Lee Warehouse

## Looking for something?

Search by **Keyword**,  
**SKU**, or **Part#** in the

 search box above,

## Need help?

Check the side bar  
for useful  
**Quick Links!**

### Quick Links

[FAQ](#)[Shop by Supplier](#)

### Transferred Carts [View All >](#)

004646 **\$294.82**  
Line Items: 2 Sep 26, 2022

004645 **\$308.33**  
Line Items: 2 Sep 26, 2022

004624 **\$240.71**  
Line Items: 3 Sep 23, 2022

004622 **\$79.48**  
Line Items: 1 Sep 22, 2022

004621 **\$246.82**  
Line Items: 2 Sep 22, 2022



# Sump Pump Repair

## Order Sump Pump, Conduit, V Belt



# Air Compressor – Find Spare Part to Order



# PR Use Case – Sump Pump project

## 3 Parts

### New Purchase Request Technician IPAD or Planner Desktop

Purchase Requisition (NSBOSC)

Purchase Requisition (NSBOSC) PR Lines

Actions

- Change Status
- Punchout to Marketplace
- Attachments 0

PR 35836

Remember: WO #00000# In Description

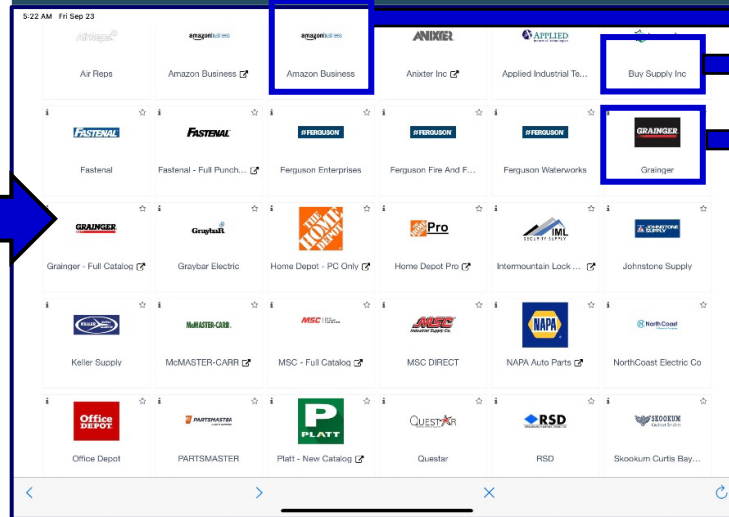
Repair BLDG 56 Sump System (demo)

Site WHIDBEY1

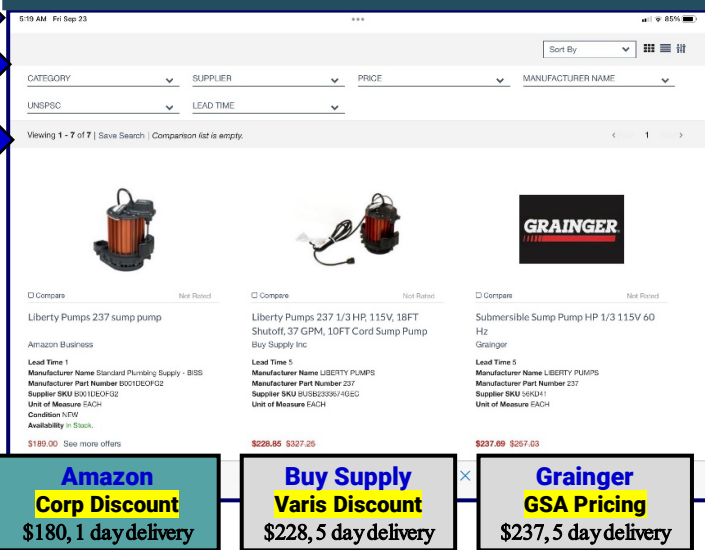
Status WAPPR

Go to Skookum B2B Marketplace

### Search 35+ Catalogs Amazon-like Search, Right Discount



### 'Amazon' Search: "Sump..." Sorting, Comparison, Rating...

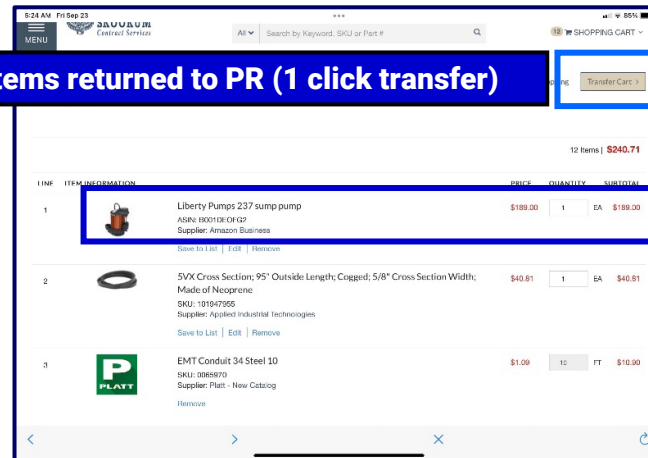


### Full detail to Buyer

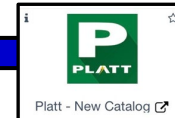
STANDARD PLUMBING SUPPLY -
B001DEOFG2
2552
AMAZON BUSINESS (AMAZON.COM, INC.)
B001DEOFG2

Total Cost	240.71
PR Lines	
Line: 1	
- LIBERTY PUMPS 237 SUMP PUMP	
Quantity	1.00
Unit Cost	189.000
Line Cost	189.00
Line: 2	
- 5VX CROSS SECTION; 95" OUTSIDE LENGTH; COGGED; 5/8" CR...	
Quantity	1.00
Unit Cost	40.810
Line Cost	40.81
Line: 3	
- EMT CONDUIT 34 STEEL 10	
Quantity	10.00
Unit Cost	1.090
Line Cost	10.90

Items returned to PR (1 click transfer)



AIT  
V Belt Search  
OMNIA Discount




Platt Electrical  
Punchout  
Corp Discount



# "Hosted Data" Search example

## V Belt with common Part ID (5VX950)

- **Search: V Belt 5VX950**
- **Goal:** Enable core (preferred) vendors with good discount rate for key commodities (Industrial/MRO, Elect, Plumbing, HVAC...)
  - Need vendor options given site location differences, brands, pricing, lead time




**Storeroom (view only)**

☐ Compare Not Rated

V-BELT 5VX950 3 BAND

**Skookum Fort Lee Warehouse**

Lead Time 0  
Manufacturer Name Not Listed  
Manufacturer Part Number Not Listed  
Supplier SKU SK1014111  
Unit of Measure EACH



**Grainger w/GSA Discount**

☐ Compare Not Rated

V-Belt Cogged 5VX950

**Grainger**

Lead Time 3  
Manufacturer Name DAYTON  
Manufacturer Part Number 2L442  
Supplier SKU 2L442  
Unit of Measure EACH




**Buy Supply w/Varis discount**

Narrow "5VX" Cogged V-Belt, 5VX950

**Buy Supply Inc**

Lead Time 5  
Manufacturer Name Master Drive Inc  
Manufacturer Part Number 5VX950SEL  
Supplier SKU BUSB634270GEC  
Unit of Measure EACH



**AIT w/OMNIA discount**

5VX Cross Section; 95" Outside Length; Cogged; 5/8" Cross Section Width...

**Applied Industrial Technologies**

Lead Time 3-5 Days  
Manufacturer Name Dodge  
Manufacturer Part Number 5VX950  
Supplier SKU 101947955  
Unit of Measure EACH



**MSC w/Corp Discount**

☐ Compare Not Rated

Section 5VX, 5/8" Wide, 95" Outside Leng

**MSC DIRECT**

Manufacturer Name Bando  
Manufacturer Part Number 5VX950  
Supplier SKU 62736012  
Unit of Measure EACH

Buyerquest Incremental Search

sump pump superior 92250

SUPPLIER

sump pump superior 92250 supplied by Amazon Business

CATEGORY

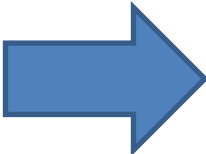
sump pump superior 92250 in All Categories

sump pump superior 92250 in Facilities

sump pump superior 92250 in Maintenance & Repair > HVAC and Heating


PRODUCTS & SERVICES

Superior Pump 92250 Thermoplastic Submersible Sump Pump with Tethered Float Swit



Return to: Home > Search Results for 'sump pump' > Superior Pump 92250 Thermoplastic Submersible Sump Pump with Tethered Float Swit

Superior Pump 92250 Thermoplastic Submersible Sump Pump with Tethered Float Swit



Click to Enlarge

Supplier: Amazon Business

Merchant: Amazon.com

1. 14 HP Sump pump moves up to 1,800 gallons per hour pump will lift water up to 25' of vertical height 2. Tough thermoplastic construction 10foot cord length 3. Tethered float switch to automatically turn the pump on/off 4. 1 1/2 inch or 1 1/2 inch NPT discharge for high capacity pumping 5. Superior Pumps are Built to Last, engineered with quality components and are 100% factory tested

Usually ships within 1 to 2 months. | Condition: New

Quantity 1

Add to Cart >

Add to Saved Shopping List Compare

Additional Information Other Offers

AMAZON URL Click here

SUPPLIER Amazon Business

SUPPLIER SKU B0001JR5F6

UNIT OF MEASURE EA - EACH

UNSPSC 40151500

MANUFACTURER NAME Superior Pump - Decko Products

MANUFACTURER PART NUMBER B0001JR5F6

LEAD TIME 1

BRAND Amazon.com

CATEGORY Facilities

CATEGORY Maintenance & Repair > HVAC and Heating

Hosted Data  
example  
(Amazon)

Skookum – All rights reserved © 2022

# Punchout Examples

## Use Vendors full catalog functionality

### NAPA – Lookup Parts by Vehicle Type or VIN (Sourcewell Discount)

Welcome NAS Whidbey - Naval Air Station - Whidbey

**NAPA PRO1Link**

HOME SUBMITTED ORDERS SAVED SHOPPING CARTS STOCK ORDERS SPECIALS VEHICLES PARTNER!

**My NAPA AUTO PARTS Store**  
WHIDBEY AUTO PARTS  
1370 S W BARLOW ST  
3606755946

**Shopping Cart** [VIEW](#)

ITEM	QTY	PRICE
------	-----	-------

VIN: 1GBJG31R511233533

**Your Choices**  
(click to change a current choice)

- ☒ All Your Choices
- ☒ Lookup Types : Auto/Light Trucks
- ☒ Years : 2001
- ☒ Makes : Chevrolet
- ☒ Models : Express 3500 1 Ton - Van
- ☒ Engines : 5.7 L 350 CID V8
- ☒ Drive Trains : Rear Wheel Drive
- ☒ Engine Fuel Types : Gasoline
- ☒ Engine Aspirations : Naturally Aspirated
- ☒ Body Styles : RV Cutaway
- ☒ Text Search : Alternator









Define by Category

**Alternator | Spark Plug | Air Filter**

**Search Results**

Displaying 1 to 11 of 11 matches  [>>](#)

Sort By:  Price/Qty:

Item	Part Number	Quantity
 Alternator - Remanufactured - Standard  NAPA Power Premium Plus Comments: w/ 105 Amp Alternator;w/ 6 Groove Pulley Per Car Qty: 1	RAY 2134838	<input type="text" value="1"/> <a href="#">+ CART</a>
 Alternator - New  NAPA New Rotating Electrical Comments: Optional;130 Amp Alternator Per Car Qty: 1	NRO 1N4801	<input type="text" value="1"/> <a href="#">+ CART</a>
 Alternator - Remanufactured - Standard  NAPA Power Premium Plus Comments: w/ 130 Amp Alternator;w/ 6 Groove Pulley Per Car Qty: 1	RAY 2134811	<input type="text" value="1"/> <a href="#">+ CART</a>
 Alternator Connector  NAPA Power Premium Plus Comments: Cable kit that Must be Sold w/ the High Output Alternator Per Car Qty: 1	RAY 21341K	<input type="text" value="1"/> <a href="#">+ CART</a>

### McMaster-Carr – Smart drilldown to select right fastener (Corporate discount)


**BROWSE CATALOG**


**McMASTER-CARR.**

6 Products

[About Tapping Screws](#)  
[More](#)

**Aluminum Phillips Rounded Head Screws for Sheet Metal**

 One-third the weight of steel, aluminum screws resist corrosion in wet environments and are nonmagnetic. They penetrate 0.025" and thinner sheet metal. Length is measured from under the head.


 For technical drawings and 3-D models, click on a part number.

Lg.	Dia.	Ht.	Drive Size	Drill Bit Size	Approximate Threads per Inch	Pkg. Qty.	Pkg.
<b>2024 Aluminum</b>							
<b>No. 6</b>							
3/8"	0.27"	0.097"	No. 2	No. 32	18	50	93080A310 \$14.92
1/2"	0.27"	0.097"	No. 2	No. 32	18	25	93080A330 9.62
1"	0.27"	0.097"	No. 2	No. 32	18	25	93080A390 10.36
<b>No. 8</b>							
3/8"	0.322"	0.115"	No. 2	No. 29	15	10	93080A420 5.71
1"	0.322"	0.115"	No. 2	No. 29	15	25	93080A480 10.58
1 1/2"	0.322"	0.115"	No. 2	No. 29	15	25	93080A520 14.43


**Material**  
Aluminum


**System of Measurement**  
Inch


**Length**


 3/8" 1" 1 1/2"

**Screw Size**  
No. 6  
No. 8

**Drive Style**  
 Phillips

**Tip Type**  
 Pointed

**Rounded Head Style**  
 Pan

**Head Type**  
 Rounded