

Q.C. Theme - No Idea

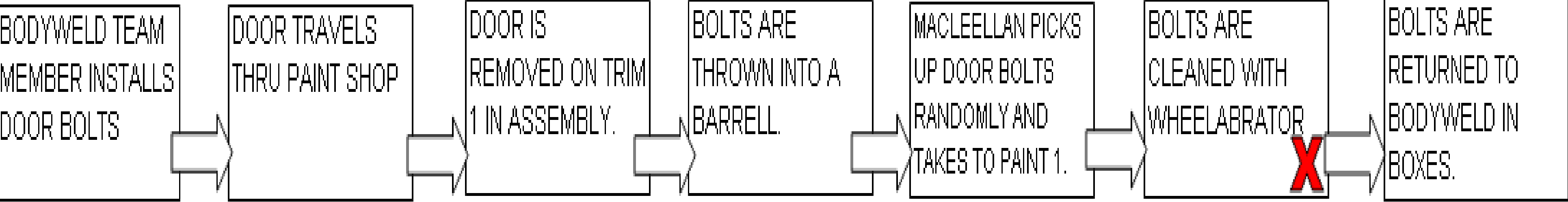
BACKGROUND:

TMMK currently uses 16 bolts per vehicle in line 1 and line 2 to install the door.
These bolts are only used to hold the door until removal on trim 1 line in assembly.
They have internal value only and do not go to our customer's.

Total usage per year = 8,000,000 bolts

OLD METHOD:

Process and system was controlled by assembly P.E.
Cleaning area was set-up in paint 1.

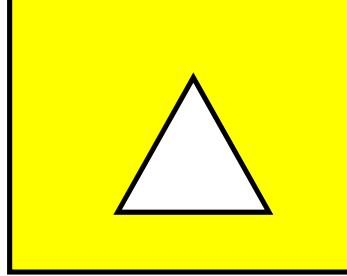


KPI Evaluation:

SAFETY-		●
QUALITY		●
PRODUCTIVITY		●
COST		▲
ENVIRONMENT		▲

OLD PROCESS COST:
\$116,307.00 / Yr.

Cost includes:
1) Zinc for wheelabrator
2) Bolt purge
3) Labor for Mc Clellan

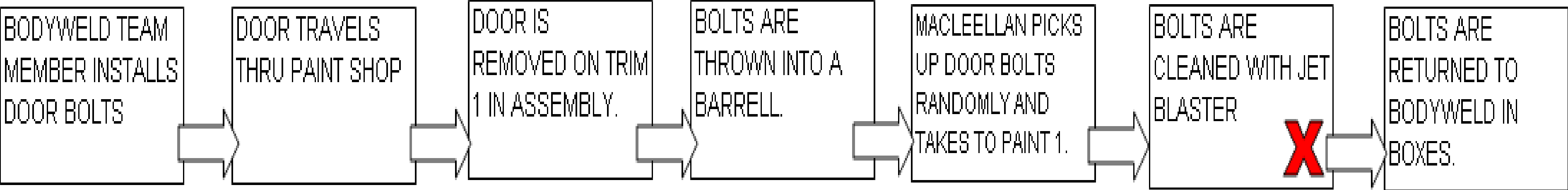


Change Point #1 - Method of cleaning was changed in paint shop.

*** Removal of Wheelobrator improves dirt in Paint Shop**

CHANGED METHOD:

Process and system still controlled by assembly P.E.
Cleaning area still in paint 1.

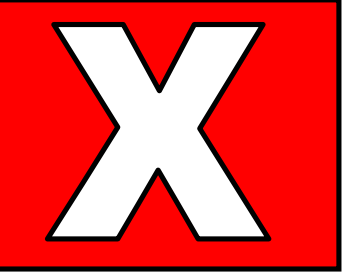


KPI Evaluation:

SAFETY		✗	10- Injuries or ESI's
QUALITY		✗	50-60 Stripped bolts daily
PRODUCTIVITY		✗	Downtime Avg.5 mins shift
COST		✗	Scrap doors and bolts
ENVIRONMENT		✗	Hazardous chemical

Changed method cost:
\$177,464.00 / Yr.

Cost includes:
1) Scrap bolts
2) Bolt purge
3) Labor for McClellan



EVALUATION= **✗** —————> REQUIRES IMPROVEMENT

QUALITY CIRCLE - "NO IDEA" - TAKES THE CHALLENGE

* INVESTIGATION / GENSHI GENBUTSU * Reviewed Past History , Current Situation and Future Potential improvement

Problems identified

- 1- Wheelabrator was removed
2. Damage coming from water blasting
- 3- No management system for bolts

- 4- No standards in place
- 5- No FIFO system

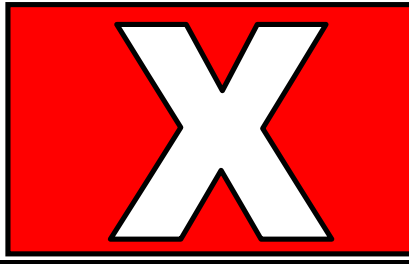
Potential countermeasure:

GMI	AGM	MGR BW.	MGR ASSY.	AM BW.	AM ASSY.
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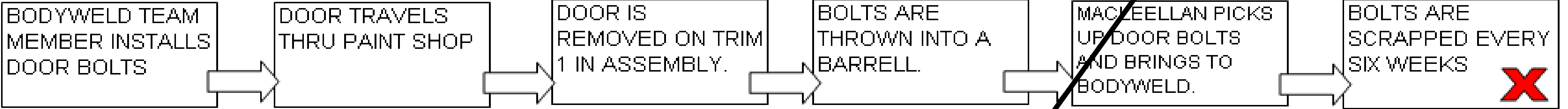
Trial #1- New Bolts only - NAMC Standard Operation
Welding production group starts using 100% New Bolts
All KPI 's Improved except Cost.

COST:

\$480,000.00



Trial #2- Recycle every 6 weeks (NO cleaning)



CURRENTLY WE ARE NOT CLEANING ONLY SCRAPPING BOLTS **200,000** BOLTS EVERY 6-WEEKS
WE WILL SCRAP AROUND **1,800,000** BOLTS A YEAR.

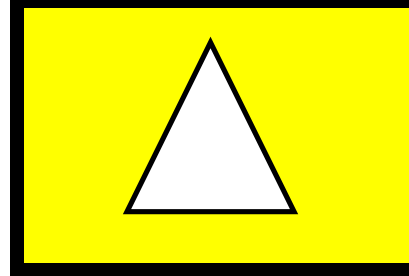
Results

SAFETY	✗	STILL HAVING ERGONOMIC ISSUES
QUALITY	▲	DEFECTED BOLTS MIXED IN
PRODUCTIVITY	▲	DOWNTIME AVG. 2MINS/SHIFT
COST	✗	SCRAP BOLT COST
ENVIRONMENT	▲	SCRAPPING THE BOLTS

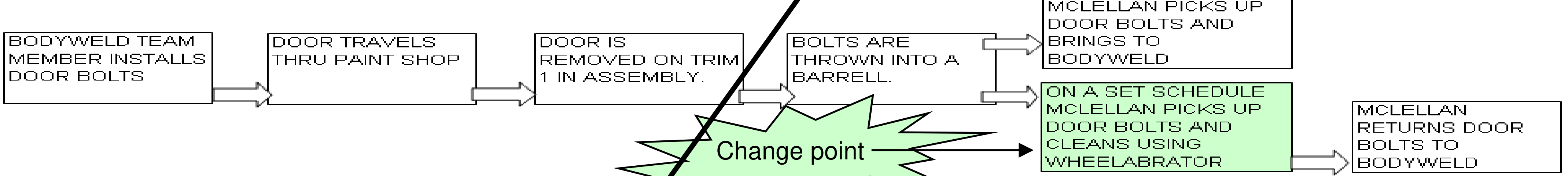
* Requires Management / FIFO
* Includes transportation cost

COST:

\$119,520.00 / Yr.



Trial # 3- Recycle with adding cleaning



Results

EVALUATION KPI'S	
SAFETY-	●
QUALITY	●
PRODUCTIVITY	●
COST	●
ENVIRONMENT	●

IMPROVES ALL KPI'S

COST:

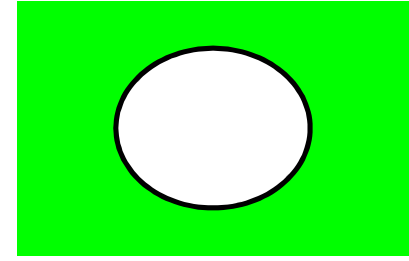
\$25,000.00 FIRST YEAR

FUTURE COST:

\$ 26,559.00 YEARLY COST

* Requires management/FIFO
* Includes transportation and labor
* Has a set cleaning schedule
* Will have no bolt purging

Difference between old method and this trial is.
* Set cleaning schedule which will reduce Zinc.
* Not scrapping the bolts reusing them.



Analysis

OPTIONS		SAFETY	QUALITY	PROD.	COST	ENVIRON.		TOTAL YEARLY COST
#1	Purchase new bolts	●	●	●	✗	✗		\$480,000.00
#2	Scrap bolts after use	●	▲	▲	✗	✗		\$119,520.00
#3	Clean bolts 8 times yr.	●	●	●	●	●		\$26,559.00

Based on our Q.C. activity we have following recommendation:

O		Who:	Status:
Present to Bodyweld management		Q.C.	○
Present to P.C.		Q.C./Manag.	○
Present to Dept.Heads		Management	○
Plant approval		Dept Heads	○
Add to kaizen database		Engineering	○
NAMC Yokoten		Engineering	○

Cost avoidance/ Reduction at TMMK can be realized at all NAMC's in N.America and abroad (based on volume and environmental impact)

Implementation:

WHAT:	WHO:	WHEN:	STATUS:
ESTABLISH BUDGET RINGI	P.E.	17/05/2010	○
SET UP WHEELABRATOR COLUMN Z-20	PROJ/MAINT.	24/05/2010	○
WRITE STD WORK	Q.C.	24/05/2010	○
FABRICATE CARTS /DRUMS	PROJ 1&2	07/06/2010	○
ORDER BOLTS	P.C.	19/07/2010	○
BEGIN NEW BOLT PROCESS	B.W.	19/07/2010	○