TOYOTA SIAP 86

Innovation Kaizen to Achieve KJ CMPV through Simple Auto Process and DX Implementation

M. Albar.
[Leader Project]

PRESS & WELDING
PRODUCTION DIVISION

Collaboration:

PWPD - PED - PAD – PTED – ISTD

PT. MPS - PT. ADAPTIVE

QUALITY CONTROL
PROJECT

Perkenalan Tempat Kerja - [01]

PT. TMMIN

PRODUCT (PLANT#1 & PLANT #2)

PLANT #1


Innova Reborn


All New Fortuner


Innova Zenix

PLANT #2

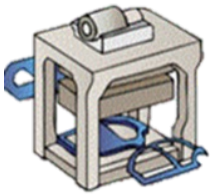
New Veloz 

Yaris Cross 

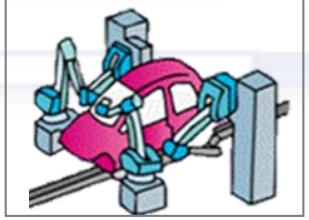
New Calya 

New Yaris GR 

GENERAL FLOW PROCESS KARAWANG PLANT

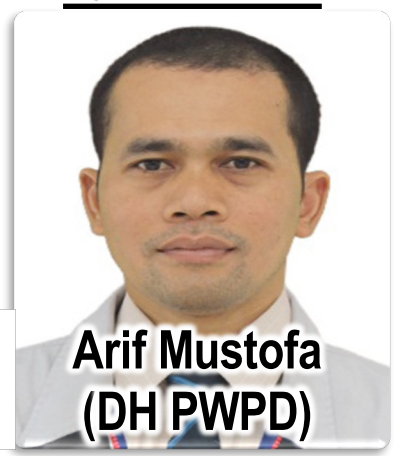
Press 

Welding 

Painting 

Assembling 

QCP Owner



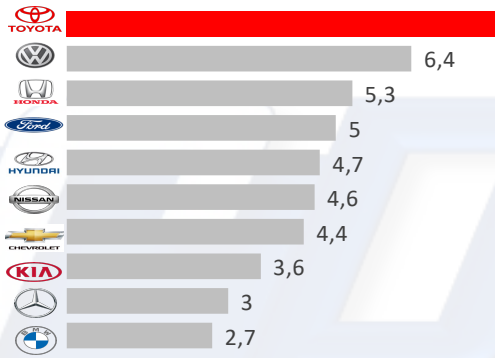
Activity Area :

PRESS WELDING PRODUCTION DIVISION [PWPD]

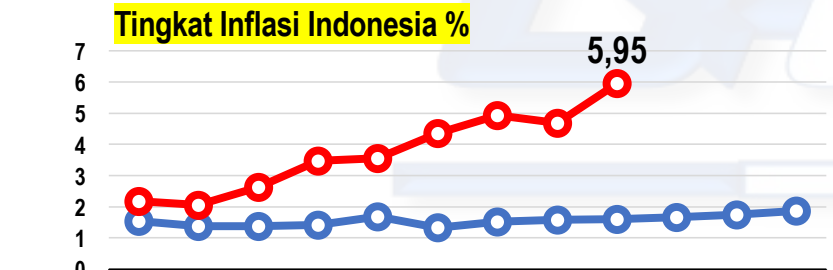
Situasi Toyota di Dunia dan Nasional - [02]

ISSUE DUNIA

PENJUALAN TOYOYA DI DUNIA

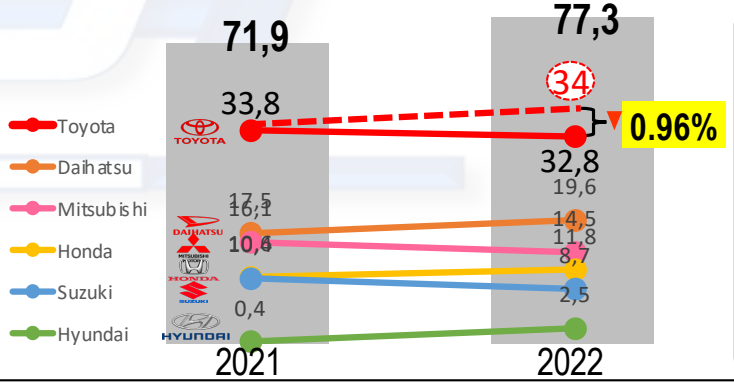


ISSUE NASIONAL



	Jan	Feb	Mar	Apr	Mei	Jun	Jul	Agt	Sep	Okt	Nov	Des
2021	1,55	1,38	1,37	1,42	1,68	1,33	1,52	1,59	1,6	1,66	1,75	1,87
2022	2,18	2,06	2,64	3,47	3,55	4,35	4,94	4,69	5,95			

SITUASI AUTOMAKER



Toyota Menguasai Pasar Otomotif Global 10.5 % Akan tetapi Market Share Domestik Turun 0.96 % dari 34 %

QCP

Situasi Toyota di TMMIN - [03]

MEMASUKI 2nd MULTI YEARS PROJECT

Sustain to be No. 1 World Class

2021(DNGA)

1st MULTI YEARS TMMIN PROJECT LAUNCHING

Sukses Lounching New Veloz pada November 2021

2023(DNGA)

3rd. MENYELESAIKAN MULTI YEARS PROJECT MELALUI **B-SUV**

Siap memasuki Era HYBRID & ELECTRIC Car

2022(TNGA)

MENJAGA & MENSUKSESKAN

2nd TMMIN PROJECT C-MPV

Smooth SOP HV Battery, Memasuki tahapan HYBRID Era

WARIH AT.
[PRESDIR]

Tahun 2022 kita akan menghadapi SOP C-MPV sebagai langkah untuk mensukseskan TMMIN MULTI YEARS PROJECT..

Background Activity - [04]

TMMIN berkomitmen untuk terus mempertahankan bisnis masa depan di 2025 dan seterusnya,
Untuk menjadi perusahaan yang

Most Competitive *[high profitable]* melalui :

Expand SR & Smooth

3 Multi Years Project

TOP Management Policy :

President : **Mr. Warih A.T.**

Vice President : **Mr. Nandi J**

Continous and Consistent SR to Achieve ***Most Competitive*** *Beyond The Best to be*

no 1 Plant in Asia

3 Kunci Strategi to Achieve Most Competitive

1. Inhouse Competitiveness	GOGUCHI LEVEL UP
2. Supply Chain Competitiveness	Stable, Flexible & Cost Competitive Supply Chain
3. Strengthen Govt. Partnership	To be trusted Government Partner

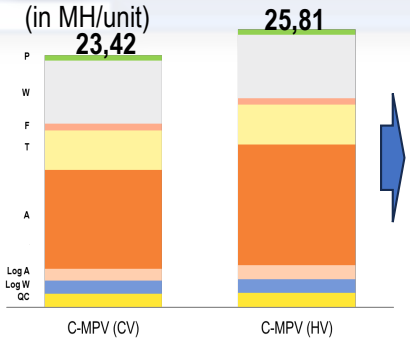
Director Policy : IMPLEMENTATION GOGUCHI LEVEL UP :

I Nyoman W
Vehicle Director

1. PLANT EFF. UP → PEFF *KJ=1,0
   (*KJ = After Depre)
2. PILOT DX IMPLEMENTATION

We must achieve new KJ (after depre) to success CMPV Multi Years Project.

Initial KJ Calculation of CMPV Multi Years Project

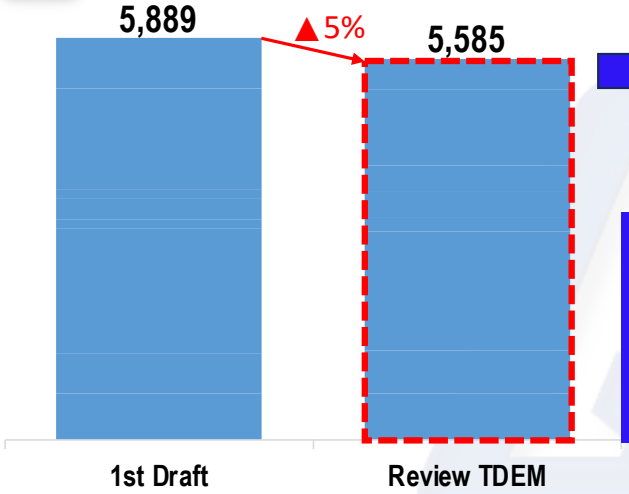


MP Impact :

		W	T	A	Fr	Log	QC	Total
Before C-MPV (Apr'22)		290	180	430	158	226	90	1374
After C-MPV (Nov'22)	Theoretical MP (PCD)	312	210	476	130	232	94	1454
	Additional MP	22	30	46	▲28	6	4	80

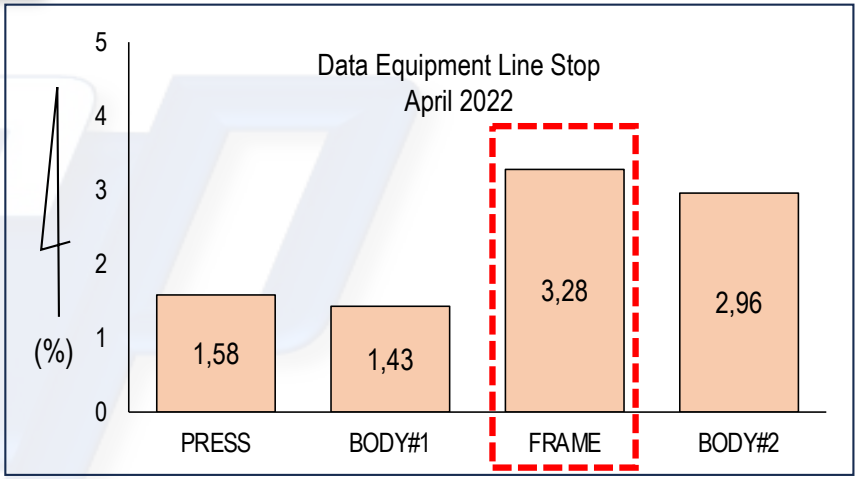
Background Activity - [05]

1 Plant Eff. Up
Welding KJ C-MPV Review Base on TDEM



We must achieve TDEM Review KJ to **Keep MPEFF** at the SOP C-MPV running.

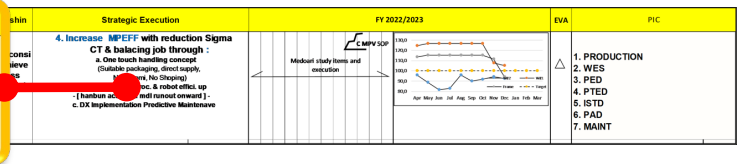
2 Pilot DX Implementation
Project Pilot in Welding Maintenance



Arif Mustofa
[PW-DH]

Bagaimana ini Pak Ari?
Innovation Kaizen Activity untuk keep MPEFF to achieve KJ Review TDEM…?

Kita bentuk Team Taskforce ya Pak?
Team akan berusaha maksimal pak..!!



Meeting All Management PWPD

Ari Indrajaya
[PW-DPH]

Saya percayakan tugas ini kepada Team QCP TOYOTA SIAP 86

Siap berkolaborasi dengan PAD, PED, PTED, ISTD, PT.Adaptive,PT.MPS & PT. Daichi

My Theme is : Innovation Kaizen for Achieve KJ CMPV through Simple Auto Process and DX Implementation

QCP Structure Organization & Schedule - [06]

Internal : 5 Departement Incharge

Arif Mustofa
[Div.Head]

Ari Indra J
[Facilitator]

Albar
Leader QCP

Reza P
Engser W1

Andrew
Maint

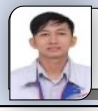
Nur K
Weld P#1

Budi P
Weld P#1

Suprapto
Frame

Rafsan
Engser W2

Rizal.H
Engser Fr



M Haris
Frame

Winning Team :
- 5 Division
- 3 Company

Lukman
ISTD

Restu
PAD

Reza
PED

Eko W
PTED

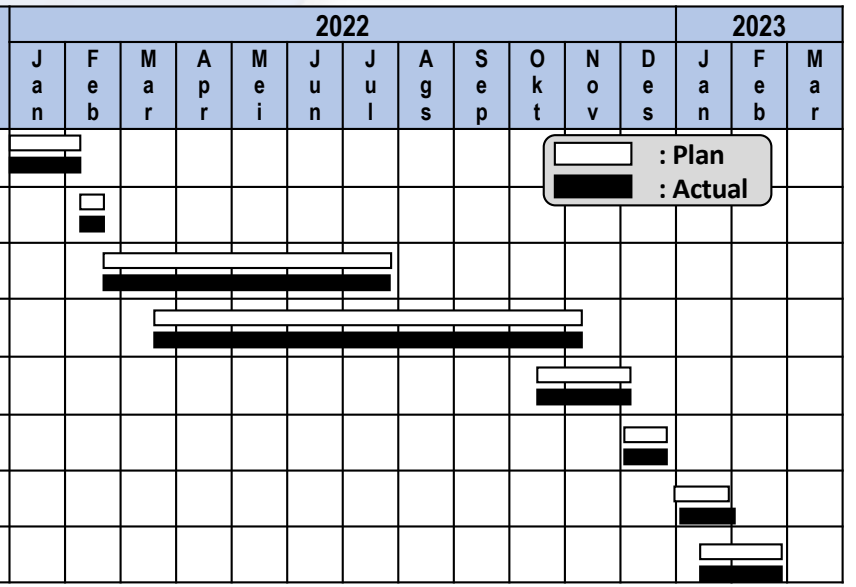
Rafi
PT. ADV

Oka K
PT. MPS

General Schedule

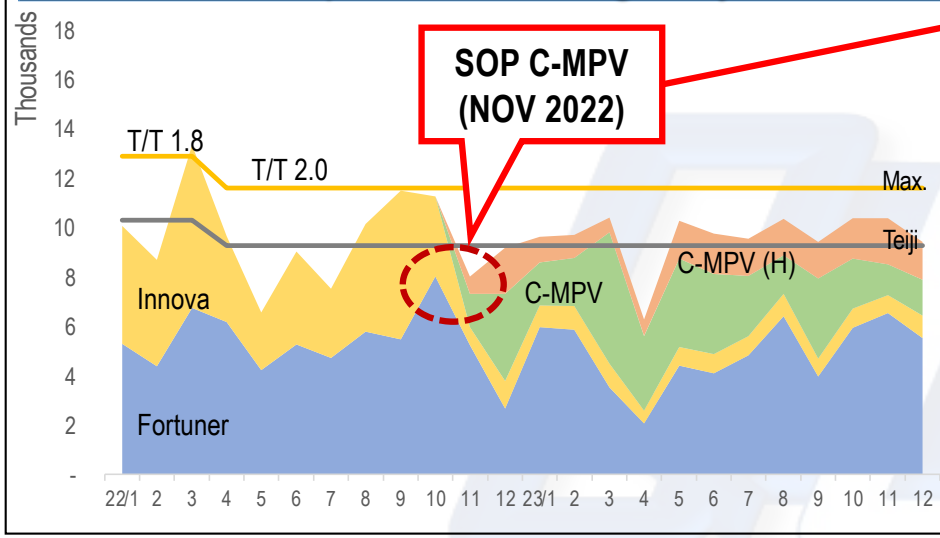
Plan → **Do** → **Check** → **Action**

		QCP Detail Activity	Purpose/ Objective	Incharge
P	1	Grasp situation & Analysis	Identification & Draft problem	Reza,Andrea, Rizal
P	2	Setting Target	Clarify & Setting Target	Albar, Lukman, Budi
P	3	Plan Improvement	Found best alternative	Team QCP Siap 86
D	4	Improve implementation	Minomi,Mini Line Relayout Stok Part	Haris, Wito, Rafsanjani
C	5	Follow up improve & Evaluation	Positive Impact	TeamQCP Siap 86
C	6	Total evaluation	Calculate contribution QCP to target	Budi, Rizal, Saiful
A	7	Standarization	No Repeat problem	Eko W, Restu
A		Yokoten & Next Action	QCP NewThema	Albar, Rafsanjani



Grasping Situation & Analyze 1 - [07]

Kondisi volume produksi welding body #1 :

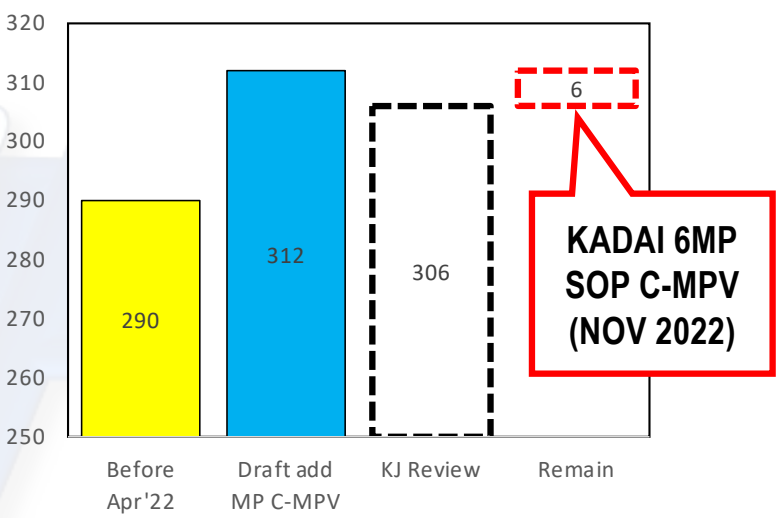


Additional Model (C-MPV)

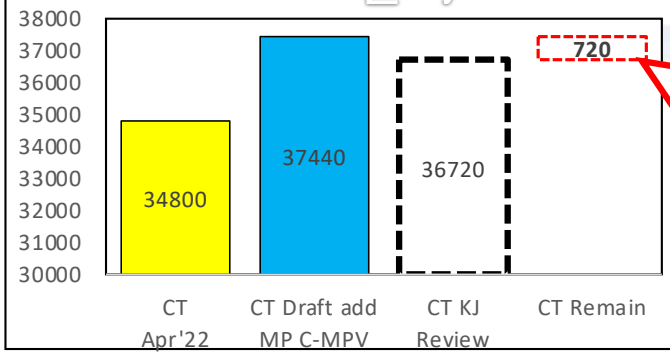
Increase Cost

Keep competitivenes

Kebutuhan MP Welding body (add C-MPV) :



Break Down Data ∑ Cycle Time :



Challenge Reduce 720 detik sampai bulan nov'22

Koordinasi team siap 86

Bapak2 kita akan menghadapi sop C-mpv. Akan ada koreksi mpeff

Perlu Strategy yang tidak biasa neh pak…!

Kita buat simple auto pak..!

Robot juga perlu kita Efficiency up

STRATEGY :

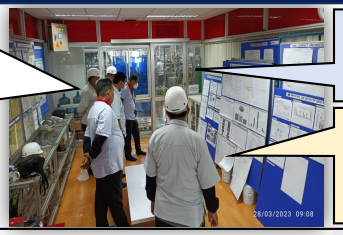
1. SIMPLE AUTO PROCESS
2. EFFICIENCY UP ROBOT

Improvement - [08]

STRATEGY 1.Simple Auto Process

Koordinasi PE,Maint,Engser & produksi
Mencari konsep automation dan juga
Untuk menentukan pos yang akan di buat simple automation

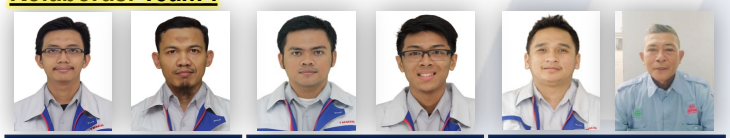
Bapak2 kita akan membuat simple automation silahkan proses mana saja yang akan kita buatkan automatisasi



POS MRA-P 560B,SOB 560B,SOB 650A

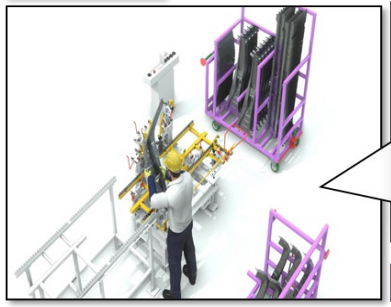
Berdasarkan safey dan workability

Kolaborasi Team :



Design & Genba (PE & Prod)	Material & Wiring (PE,Maint)	Eksekusi & PDCA (MPS,Prod,Maint,PE)

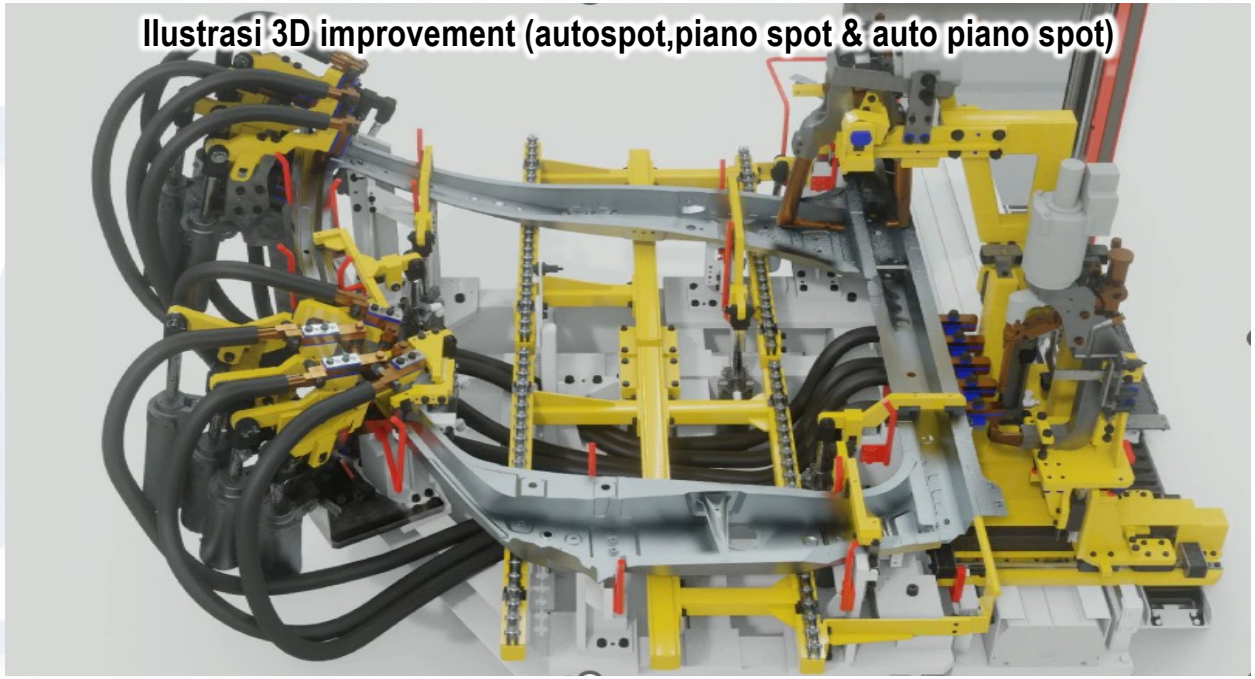
BEFORE Ilustrasi 3D Spot Manual



Proses Spot masih manual

AFTER Dibuatkan Simple Automation (Auto Spot & Auto Piano Spot)

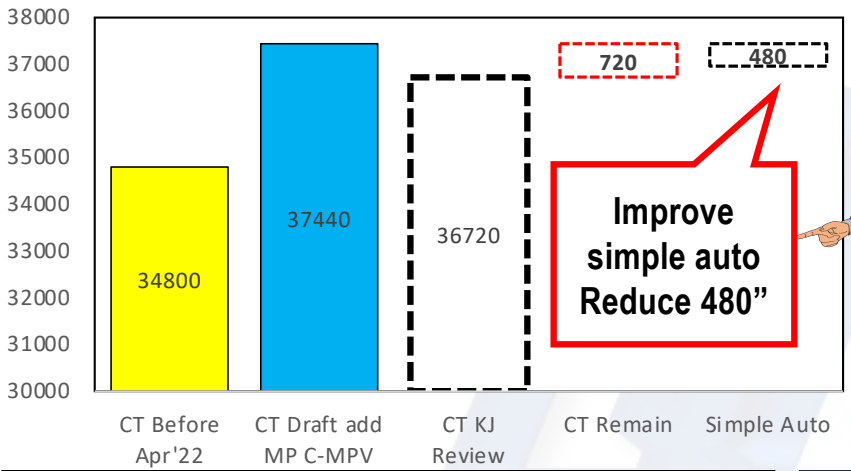
Ilustrasi 3D improvement (autospot,piano spot & auto piano spot)

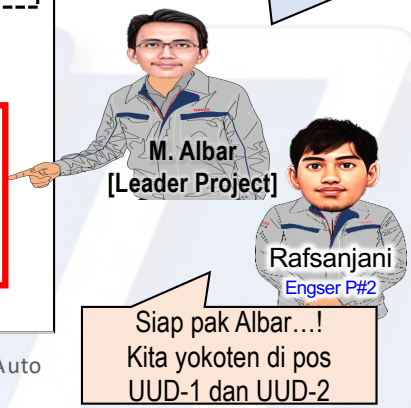


Total Simple automation diaplikasikan di 3 pos

POS MRA-P 560B
POS SOB 560B &
SOB 650A

Break Down Data ∑ Cycle Time After improve simple auto:





Yokoten Improve simple auto process spot di welding plant #2

Simple auto process di yokoten ke welding plant #2 yaitu di pos UUD-1 & UUD – 2

Koordinasi dengan All Team

Untuk efficiency up robot, kita pilih portion yang critical ya bapak-bapak.

STRATEGY

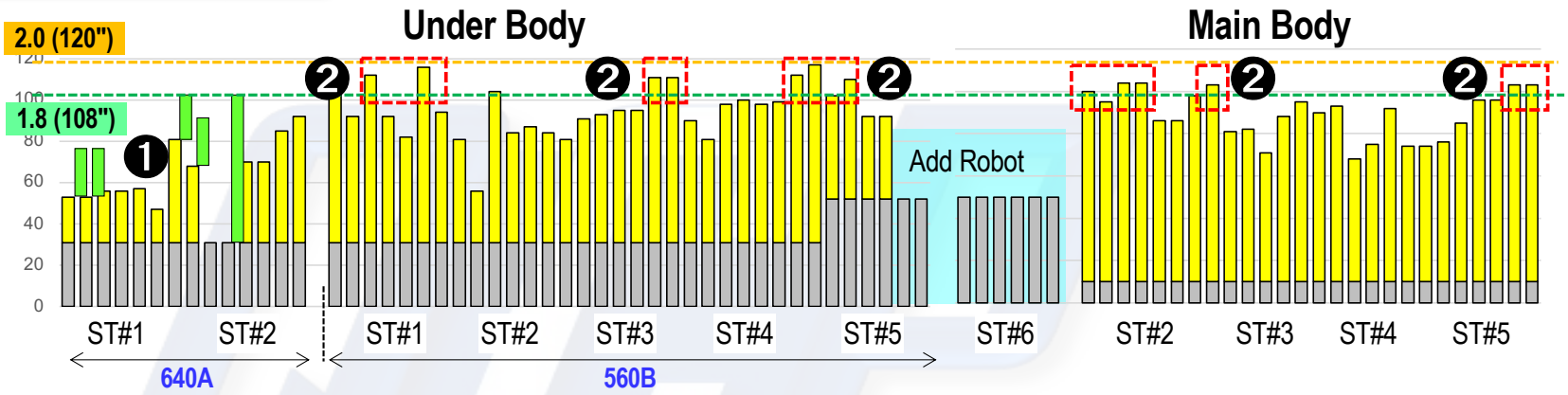
1. Move portion spot to robot
2. Move portion robot to robot

STRATEGY 2 : EFFICIENCY UP ROBOT

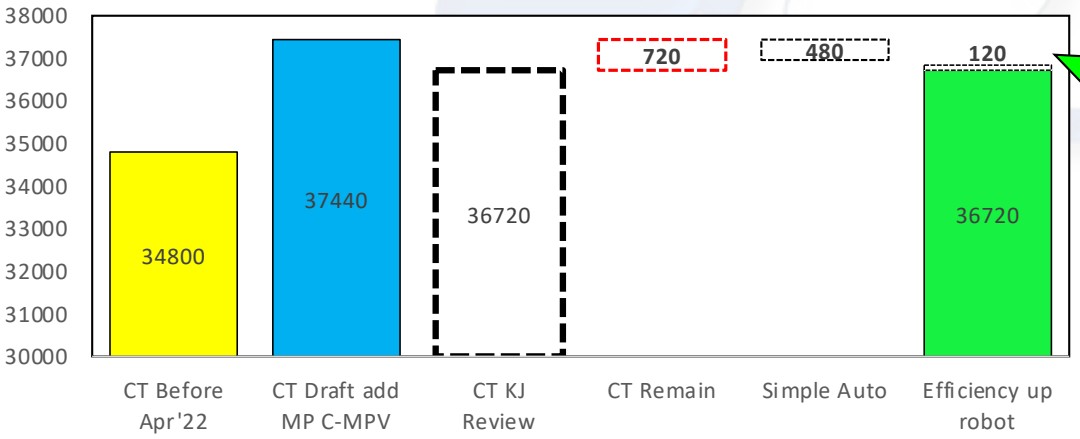
Efficiency Up:

❶ Move manual spot to robot

❷ Balancing Robot to Robot

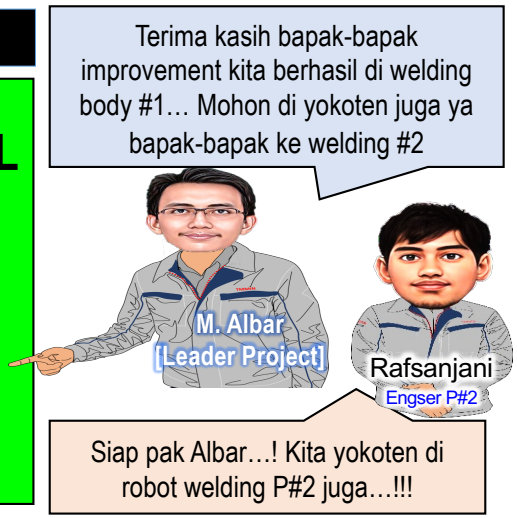


Break Down Data ∑ Cycle Time After improve Efficiency Up Robot :



Result Improvement :

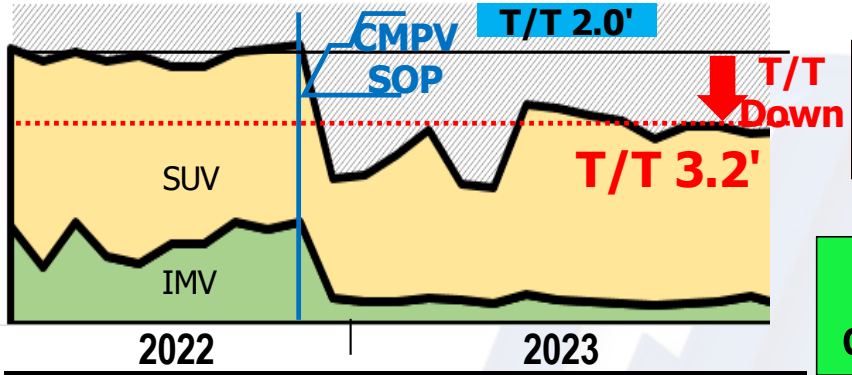
ACTUAL TOTAL REDUCE C.T 720 det. Target tercapai



Grasping Situation & Analyze 2 - [11]

2. Penurunan Volume Produks Welding Frame

※ **Frame** Prod. Volume **Decrease**

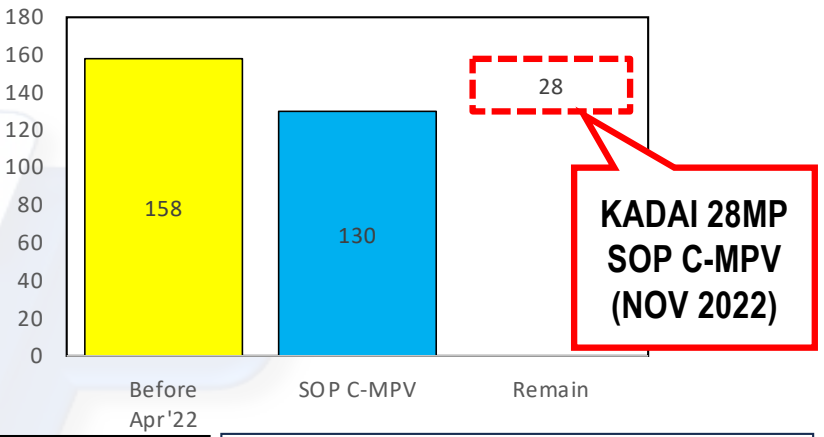


Prod. Volume down

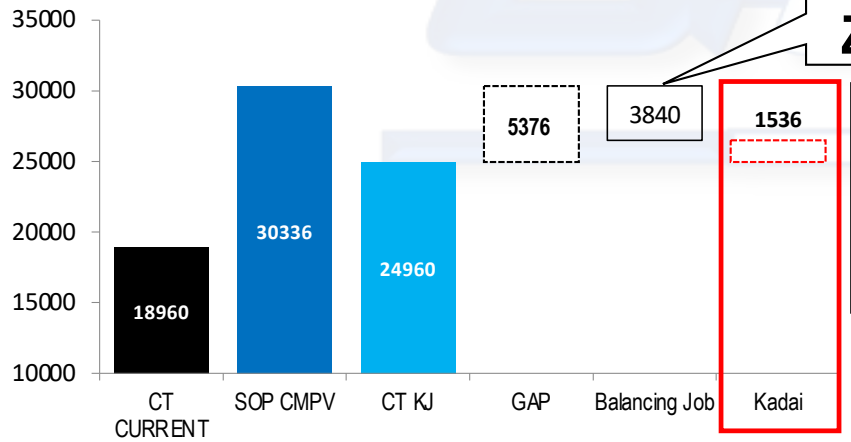
Increase Cost

Keep competitivenes

Kebutuhan MP Welding Frame Saat SOP C-MPV



Kondisi ∑CT Welding Frame Saat SOP C-MPV



Balancing ALL process. Zone 1,Zone 2 & Zone 3.

Koordinasi dengan All Team

IMPROVE DENGAN COMMONIZE JIG PAK...!

MOVING PORTION MANUAL TO ROBOT PAK...!!

Improvement - [12]

STRATEGY 1 : COMMONIZE JIG

STRATEGY
REDUCE CT FRAME
1.Commonize JIG
2. Move portion manual to robot

Koordinasi PE,Maint,Engser,PTED & produksi Mencari konsep coomonize jig dan juga Untuk menentukan pos yang akan di lakukan communize jig

Bapak2 kita akan Commonize jig di frame.
Kita tentukan pos mana yang akan kita common.

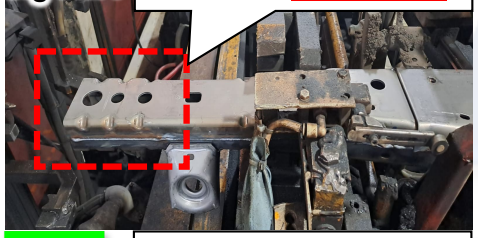
POS FBA & ADD FBA PAK...!!
POS FBG 1 & FBG 2 PAK..!
POS FAA & ADD FAA PAK..!

Disepakati 6 Pos yang akan di common JIG :

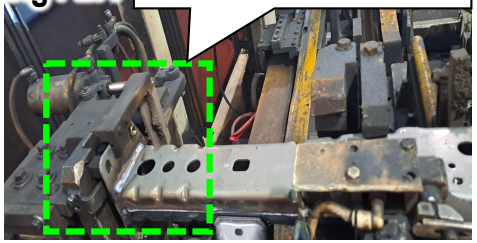
1.FBA & ADD FBA
2.FBG 1 & FBG 2
3.FAA & ADD FAA

COMMON JIG FBA & ADD FBA

BEFORE
Jig FBA
Pemasangan part front bumper di JIG Add FBA

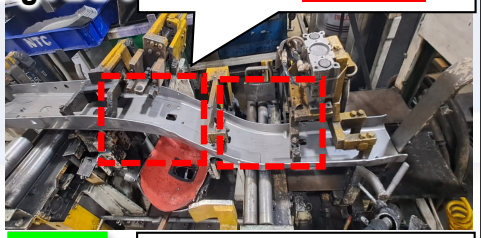


AFTER
Jig FBA
Pemasangan part front bumper di JIG FBA

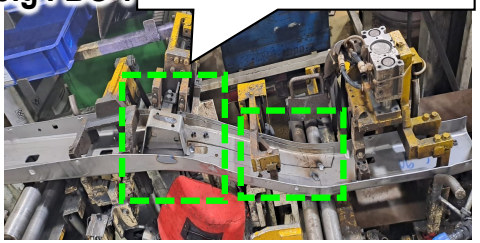


COMMON JIG FBG 1 & FBG 2

BEFORE
Jig FBG 1
Pemasangan R/F 02 & R/F 03 di JIG FBG 2



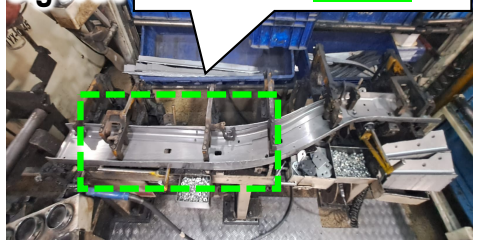
AFTER
Jig FBG 1
Pemasangan R/F 02 & R/F 03 di JIG FBG 1



COMMON JIG FAA & ADD FAA

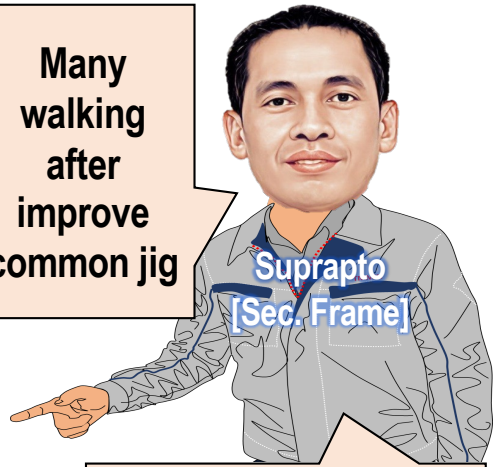
BEFORE
Jig FAA
Pemasangan R/F 01 di JIG ADD FAA

AFTER
Jig FAA
Pemasangan R/F 01 pindah di JIG FAA



AFTER IMPROVE COMMON JIG

Many walking after improve common jig

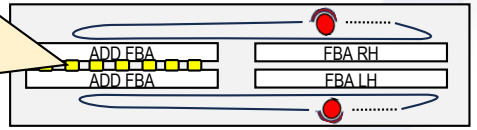


Perlu Improve Innovasi auto transfer dan hanger transfer

PDCA IMPROVEMENT

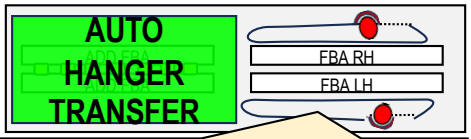
BEFORE

FBA MANY WALKING SAAT TAKE IN TAKE OUT HANGER



AFTER — Dibuatkan Auto Hanger Transfer

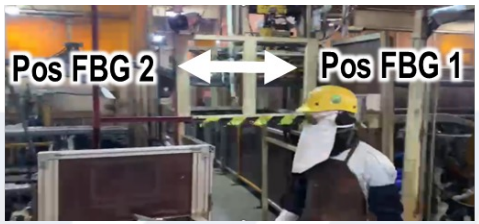
AUTO HANGER TRANSFER

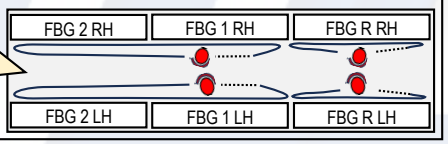


MENGHILANGKAN PROSES WALKING TAKE IN TAKE OUT HANGER PADA PROSES FBA

BEFORE

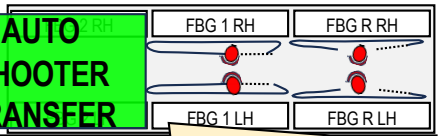
FBG 1 MANY WALKING SAAT TRANSFER PART TO ROBOT





AFTER — Dibuatkan Auto Shooter transfer

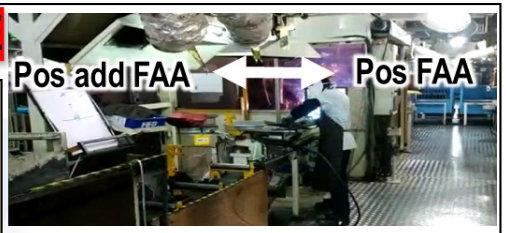
AUTO SHOOTER TRANSFER

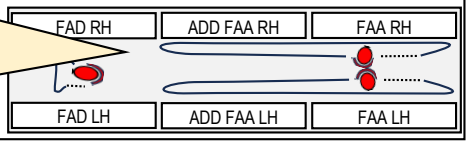


MENGHILANGKAN PROSES WALKING SAAT TRANSFER PART TO ROBOT

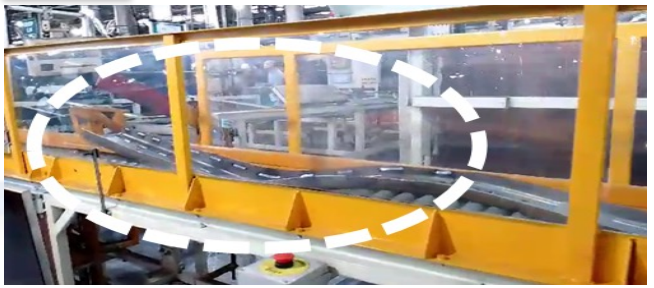
BEFORE

FAA MANY WALKING SAAT TRANSFER PART TO BUFFER





AFTER — Dibuatkan Auto Shooter transfer



AUTO SHOOTER TRANSFER

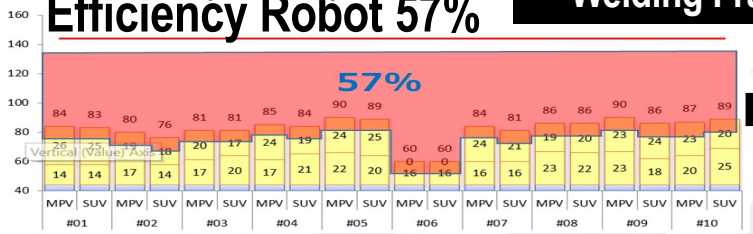
MENGHILANGKAN PROSES WALKING SAAT TRANSFER PART TO BUFFER DOLLY

STRATEGY 2 : MOVE PORTION MANUAL TO ROBOT

BEFORE

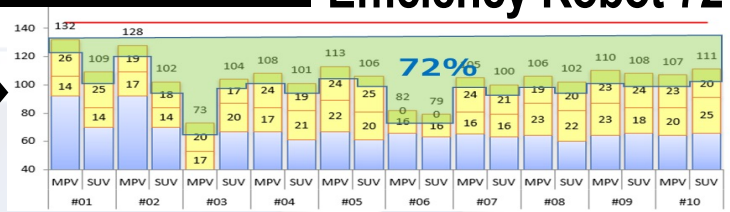
Banyak Temachi dirobot pada T.T 3,2

Efficiency Robot 57%



Welding Frame Robot Re-Arc

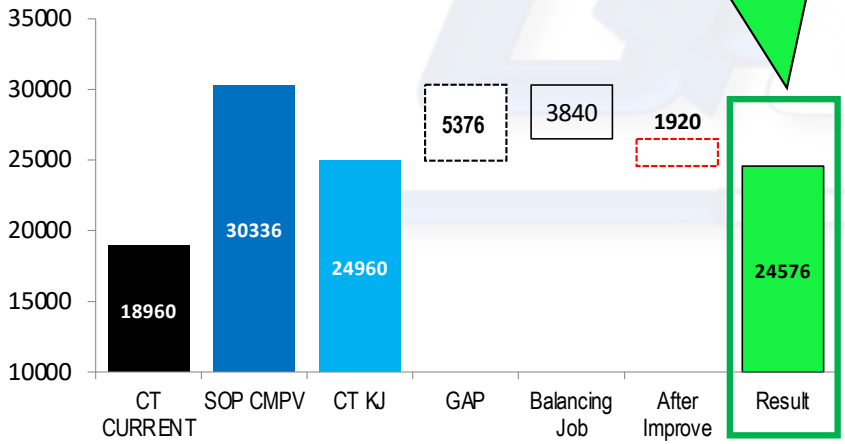
Efficiency Robot 72%



AFTER

Balancing proses manual to robot

Kondisi ∑CT Welding Frame After Improvement



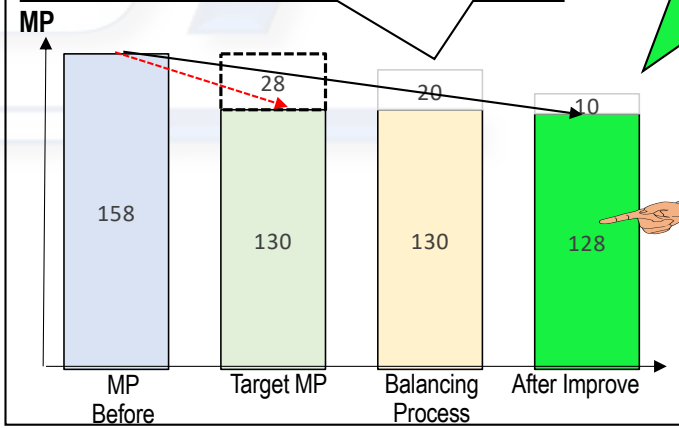
Result Reduce MP Frame T.T 3,2

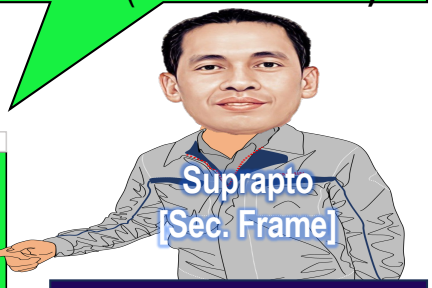
1. Balancing ALL process.

Reduce MP belum mencapai target

Target 28 MP = Actual 20 MP

Improve Commonize JIG,Auto Transfer, Hanger Transfer, Efficiency Up Robot.(**Reduce 10 MP**)





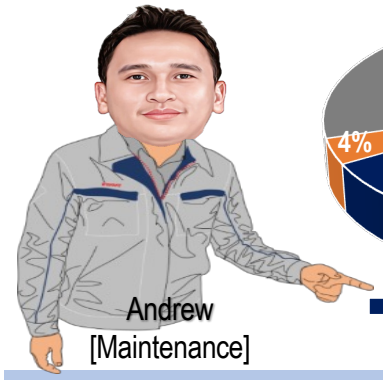
Kami Berhasil Reduce

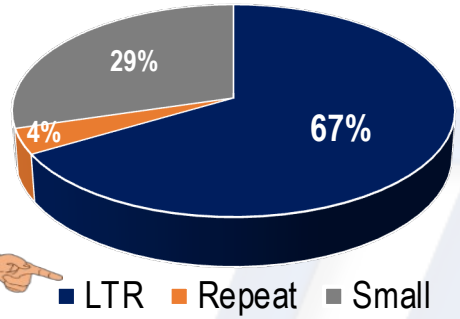
30 MP

dari Target 28 MP

Grasping Situation & Analyze 3 - [15]

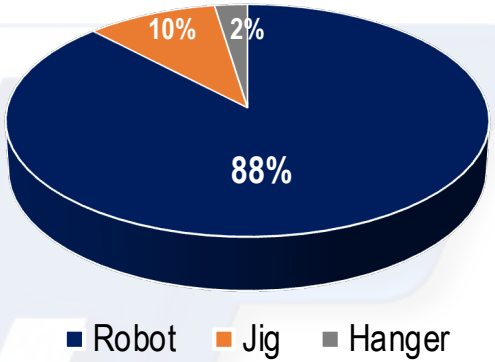
3. Data Line Stop Equipment Welding Frame





- **LTR (Long Time Repair)** →lebih dari 10 menit
- **Small** →kurang dari 10 menit
- **Repeat** →Problem berulang

Break down line stop Line Stop LTR (Long Time Repair) di welding frame :



LTR Di dominasi oleh Problem Robot...!
Mari kita tanggulangi guys..!

Analisa LTR Tinggi di welding Frame

Analisa	Kerusakan dini part yang tidak terdeteksi	Metode daily cek equip masih by.kanban	Ada part yang rusak sebelum masa usia pakai
Ilustrasi			

Strategy Reduce LTR di welding Frame

Make Schedule weekly meeting for management, monitoring & Follow abnormality machine

Strategy Improvement Reduce LTR :

1.Quick Repair Step Analysis

2.Re Occurence Prevention

Reduce Long Time Repair (LTR) Rank A

1. STRATEGY QUICK REPAIR STEP ANALISYS

1. Update Kondisi machine by.Shymptom	2. Robot controller inspection
	

2. STRATEGY RE OCCURRENCE PREVENTION

1. TPM Timming Review	2. Review PM Item
	1. Review schedule PM dan TPM. 2. Review Item detail cek equipment

Progress kurang significant
Perlu Sistem yang lain

Kondisi equipment

Current

MP Aktif update kondisi equipment

Ideal

Equipment pro aktif update kondisi ke MP

1. Pak kita perlu terobosan baru untuk predictive machine..?

3. Siyap kita observasi segera pak...!

2. Machine yang Ready & connectivity support ada di Line 560A (C-MPV)

Koordinasi mencari system predictive machine

560B RrSup Line C-MPV

Pilot Line
New equipment with IOT (DX)

Ini sejalan dengan Hoshin nya Management...DX by.(IoT)

Director Policy :

IMPLEMENTATION GOGUCHI LEVEL UP :

I Nyoman W
Vehicle Director

1. PLANT EFF. UP → PEFF *KJ=1,0
(*KJ=After Depre)

2. PILOT DX IMPLEMENTATION

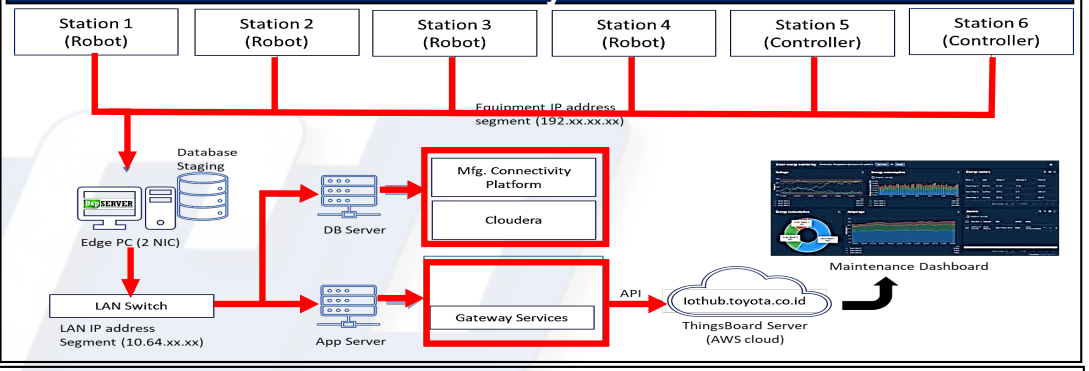
Automation Equipment Report condition (Real Time)

Koordinasi Maintenance dengan ISTD & PT.Adaptive
Untuk membuat konsep dan eksekusi
DX Automation by.IoT

Step untuk koneksi DX implementasi :

1. Instalasi PC & Kabel Jaringan
2. Set Up komunikasi PC dengan equipment
3. Ambil data dari equipment & disimpan dalam data base PC
4. Lakukan cleaning & Kalkulasi data
5. Kirim data ke platform visualisasi di server
6. Buat dashboard visualisasi

Instalasi Connectivity DX Di Line C-MPV

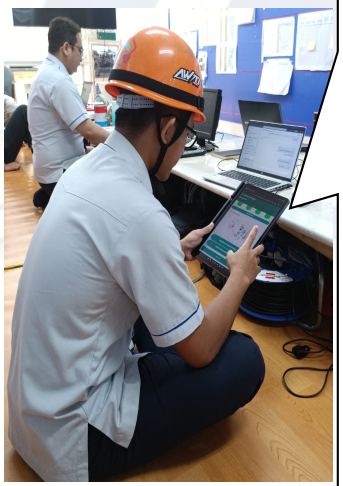


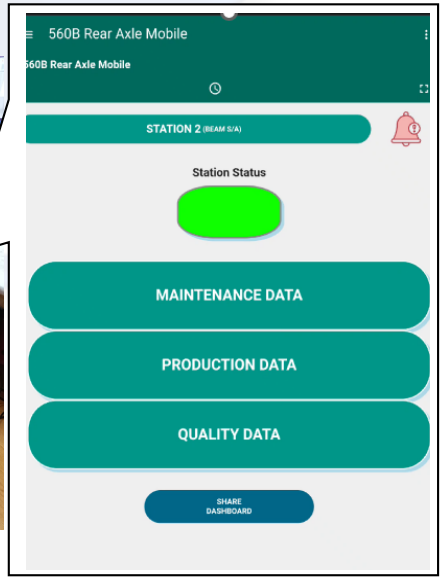
BEFORE

Proses control & monitoring equipment manual check (by.Kanban)

AFTER

Proses Control & Monitoring equipment, Efficiency, & consumtion material, cukup dengan HP/IPAD





Suksesnya DX maintenance
Di Line C-MPV
Akan kita yokoten ke seluruh machine di PWPD

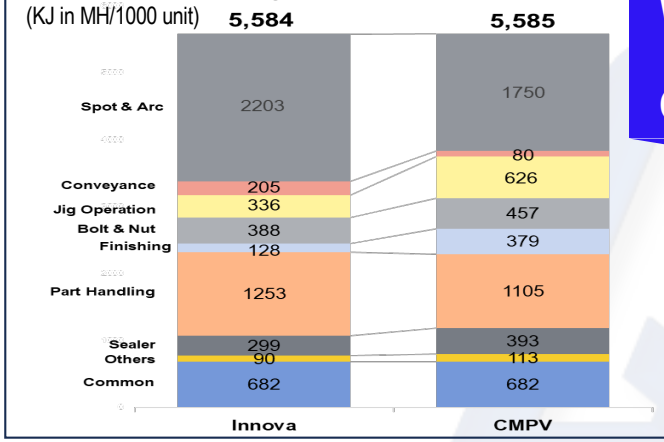
QCP

Result - [18]

1 Plant Eff. Up
Result KJ CMPV vs KJ GOGHUCI

KJ CMPV vs Goghuci

(KJ in MH/1000 unit)

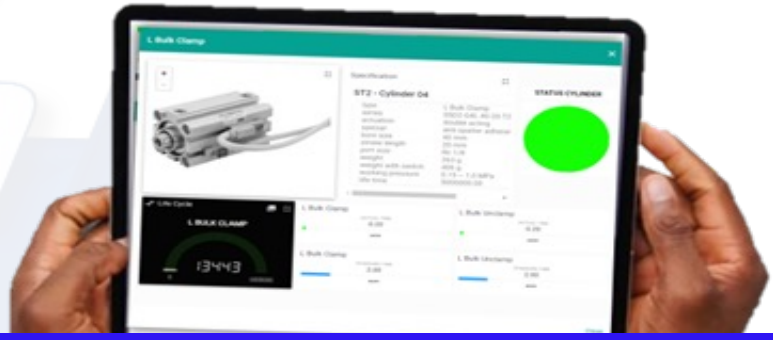


We can achieve KJ CMPV same as KJ GOGHUCI (Innova)

VICE PRESIDENT

Great..!!

2 Pilot DX Implementation
Project Pilot in Welding Maintenance



Monitoring & controlling not anymore **Manually** but now with **Digitalization**

InTangible :

SAFETY

" 0 " ZERO ACCIDENT

HUMAN RESOURCES

Plant #1 Project :

SMOOTH SOP C-MPV [Innova Zenix]

Tangible :

PRODUCTIVITY

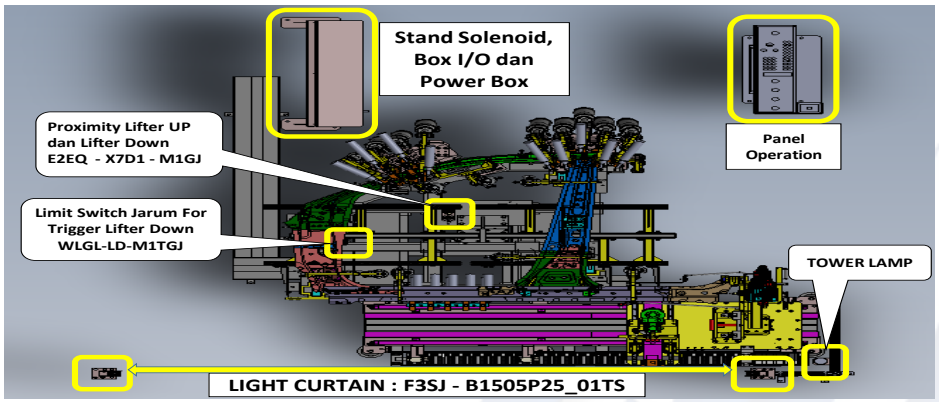
Kaizen proses mencapai

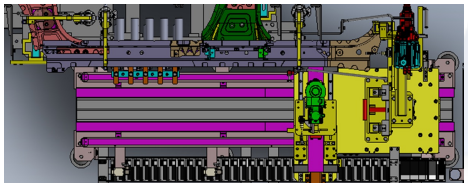
42 man power

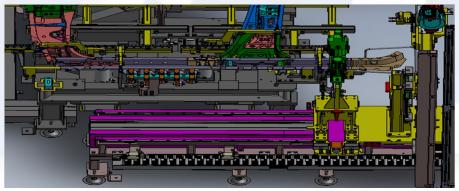
COST

NQI mencapai : **Rp. 14 Miliar**

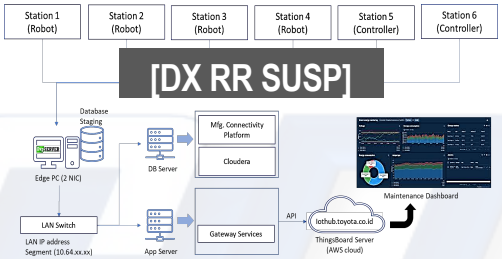
[Standard Drawing]

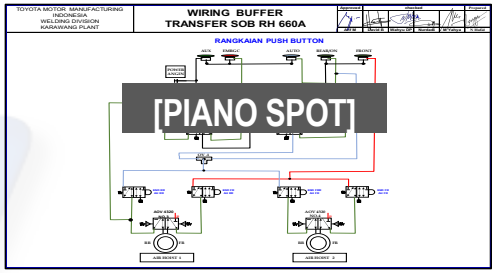


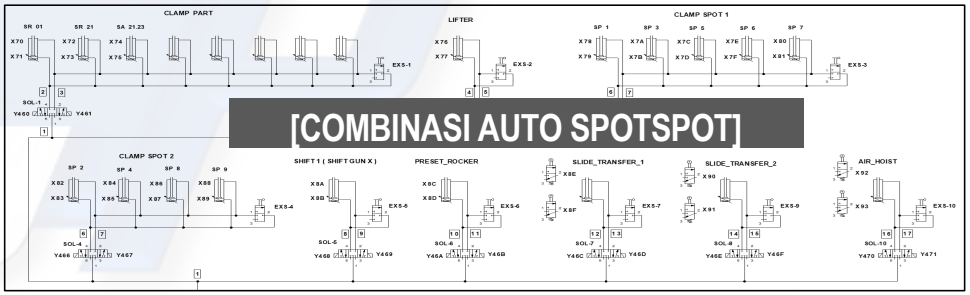




[Wiring Diagram]







[Yokoten & Gegouchi Level Up Activity]

No	Item Yokoten	Aplikasi Yokoten	Schedule
1	Simple Automation	Line B-SUV	Tahun 2023
2	Digitalisasi Transformasi	Project B-SUV	

[Next Activity]

Expansi Dx Maintenance IoT to all machine (Rank A)

TOYOTA SIAP 86

QCP

TOYOTA LET'S GO BEYOND

Industry 4.0

TOYOTA SIAP 86

TERIMA KASIH

QUALITY CONTROL

Lampiran-Lampiran

PT. TOYOTA MOTOR MFG. INDONESIA

DEPARTMENT : WELDING PROD 1
SECTION : MAIN BODY W
LINE : SIDE MEMBER RH

STANDARDISASI AUTO SPOT SOB RH FORTUNER

ENGINEER	SH	LH	GH	PREPARED
SUNU AJI	REDY L. L.	HARYONO	YUSNUL	Albar

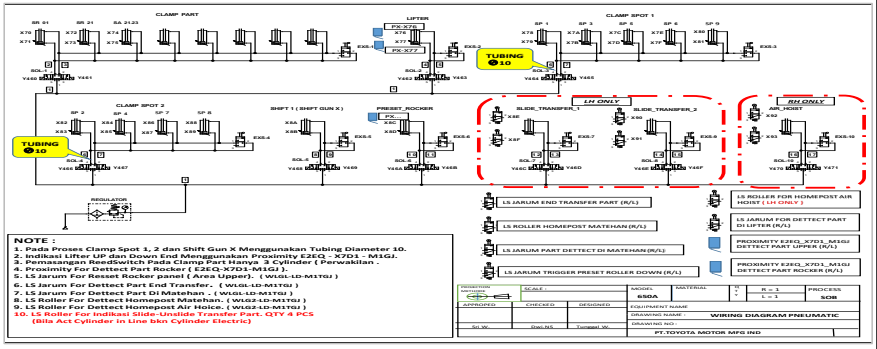
MATERIAL

PART LIST PNEUMATIC

No.	Part Name	Code Part	Qty.	Maker	Remark
1	JOINT MALE	30PM	1	LOKAL	
	BLSOV 3/8	3/8	1	LOKAL	
	DOUBLE TREATH		1	LOKAL	
2	PUSH BOTTON	AC30E-20G-V-B	1	SMC	
3	PUSH BOTTON	VR1SD-01-308A		SMC	
4	BOTH HAND VALVE	VR1-C08B		SMC	
5	RELAY VALVE	4R1-01A-01		SMC	
6	RELAY VALVE	4R2-01A-01		SMC	
7	MECHANICAL VALVE (Roller)	VM1SD-01-11		SMC	
8	MECHANICAL VALVE (Lever)	VM1SD-01-11		SMC	
9	AIR OPERATED VALVE (5/2 SINGLE)	4GA31R-C8		CKD	
10	AIR OPERATED VALVE (5/2 DOUBLE)	4GA32R-C8		CKD	
11	AIR OPERATED VALVE (5/3 CLOSED CENTER)	4GA33R-C8		CKD	
12	AIR OPERATED VALVE (5/3 EXHAUST CENTER)	4GA34R-C8		CKD	
13	EXIT VALVE	VHJ200-02	6	SMC	
14	QUICK EXHAUST VALVE	AQ300-02		SMC	
15	AND VALVE	VR1211-01		SMC	
16	SILENCER	AN20-03	2	SMC	
17	SILENCER	AN110-01		SMC	
18	MANIFOLD	M6SA3R-00-2		CKD	
19	MANIFOLD	M4SA3R-00-2	2	CKD	
20	BLANKING PLATE	M1C3R-M1		CKD	
21	TUBING	TSB1065HV-100		SMC	
22	TUBING	TSB1065BV-100		SMC	
23	SPEED CONTROL	ASF320F-02-08S	10	SMC	
24	SPEED CONTROL	ASF320F-01-08S		SMC	
25	MALE ELBOW	KQ2L10 - 02	8	SMC	
26	MALE ELBOW	KQ2L08 - 02	22	SMC	
27	MALE ELBOW	KQ2L06 - 02	22	SMC	
28	MALE ELBOW	KQ2L08 - 01		SMC	
29	MALE ELBOW	KQ2L06-07S		SMC	
30	MALE ELBOW	KQ2L06-02S		SMC	
31	MALE CONNECTOR	KQ2H06-02		SMC	
32	MALE CONNECTOR	KQ2H08-02		SMC	
33	MALE CONNECTOR	KQ2H06-02S		SMC	
34	MALE CONNECTOR	KQ2H06-00		SMC	
35	MALE CONNECTOR	KQ2K06-01S		SMC	
36	MALE CONNECTOR	KQ2H10-02		SMC	
37	MALE CONNECTOR	KQ2H10-00		SMC	
38	MALE CONNECTOR	KQ2H10-02		SMC	
39	UNION Y	KQ2U06-00		SMC	
40	UNION Y	KQ2U08-00	20	SMC	
41	UNION Y	KQ2U10-00	20	SMC	
42	REDUCER	KQ2R10-06		SMC	
43	MALE ELBOW MANUAL	AKH06-02-08S		SMC	
44	SOLENOID VALVE (5/2 SINGLE)	4GA320R-C8-EC-3		CKD	
45	SOLENOID VALVE (5/3 DOUBLE)	4GA330R-C8-EC-3	5	CKD	

	SCALE :	MODEL : 650A	MATERIAL :	: R = 1 : L = 1	PROCESS : SOB	
APPROVED	CHECKED	DESIGNED	EQUIPMENT NAME : SOB			
			DRAWING NAME : PART LIST			
Sri Wid	Dwi NS	Tomasi W	DRAWING NO : PT.TOYOTA MOTOR MFG IND			

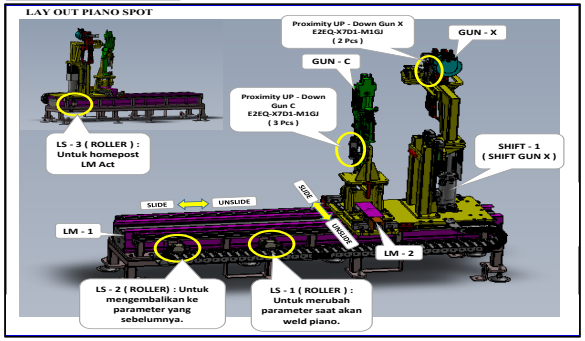
WIRING DIAGRAM



NOTE :
1. Pada Proses Clamp Spot 1, 2 dan Shift Gun X Menggunakan Tubing Diameter 10.
2. Indikasi Lifter UP dan Down End Menggunakan Proximity E2EQ - X7D1 - M1GJ.
3. Pemasangan ReedSwitch Pada Clamp Part Hanya 3 Cylinder (Perwakilan).
4. Proximity For Dettect Part Rocker (E2EQ-X7D1-M1GJ).
5. LS Jarum For Reset Rocker panel (Area Upper). (WG6L-LD-M1TGJ)
6. LS Jarum For Dettect Part End Transfer. (WG6L-LD-M1TGJ)
7. LS Jarum For Dettect Part Di Matehan . (WG6L-LD-M1TGJ)
8. LS Roller For Dettect Homepost Matehan. (WG2-LD-M1TGJ)
9. LS Roller For Dettect Homepost Air Hoice. (WG2-LD-M1TGJ)
10. LS Roller For Indikasi Slide-Unslide Transfer Part. QTY 4 PCS (Bila Act Cylinder in Line bkn Cylinder Electric)

	SCALE :	MODEL : 650A	MATERIAL :	: R = 1 : L = 1	PROCESS : SOB	
APPROVED	CHECKED	DESIGNED	EQUIPMENT NAME : WIRING DIAGRAM PNEUMATIC			
			DRAWING NAME :			
Sri Wid	Dwi NS	Tomasi W	DRAWING NO : PT.TOYOTA MOTOR MFG IND			

CONSTRUCTION



PERAWATAN

PT. TOYOTA MOTOR MFG. INDONESIA - KARAWANG PLANT

TOTAL PRODUCTIVE MAINTENANCE (TPM) **SUV 1**

Motto : Saya Pakai Saya Rawat

BULAN : DESEMBER 2022 SHEET No. T P M

SHOP	LINE	PERIODE	MACHINE NAME	AUTO SPOT SOB 650 RH	PIC
WELDING PRODUKSI	SM RH FORTUNER	Daily	PROCESS NAME	SWA 1 + SOB	R : DEWA W : ERIC

No.	ITEM	METODE (Point Check)	Hasil Std	Shift	Waktu	Tanggal 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	GAMBAR / ILUSTRASI
	JIG						
1	Check P/Bottom Head Clamp	Tekan P/Bottom dengan kedua tangan	Clamp mengunci	White	Awal Akhir		
2	Check kondisi Pin	Lihat	Ada & Tidak aus	White	Awal Akhir		
3	Check Slang angin (tubing)	Lihat dan dengar	Tidak bocor	White	Awal Akhir		
	GUN SPOT						
4	Check switch gun	Tekan Switch gun	Switch berfungsi	White	Awal Akhir		
5	Cup tip	Tekan Switch gun	Cuptip center	White	Awal Akhir		
6	Kran air sirkulasi	Dilihat	Kran air terbuka/lurus	White	Awal Akhir		
7	Sling Balancer	Dilihat	Sling tidak rantas	White	Awal Akhir		
	HUNGER						
8	Pendant Hanger	Operasionalkan	Berfungsi	White	Awal Akhir		
9	Hook	Dilihat	Mengunci	White	Awal Akhir		
10	Air hoist	Dilihat	Sling tidak rantas	White	Awal Akhir		

Keterangan : *Beri tanda di kolom hasil sesuai kondisi yang ada*
√ = Bagus X = Tdk Bagus

Plant: OPT / GH / LH

NO	TANGGAL	MASALAH	PENANGGULANGAN	SCHEDULE	PIC	EVALUASI

CARA KERJA

PT. TOYOTA MOTOR MANUFACTURING INDONESIA
PRESS & WELDING DIVISION
WELDING BODY #1

STANDARD OPERATIONAL PROCEDURE
(STANDARD URUTAN KERJA)

650 A

ALREADY SIGNED

DEPARTEMEN	: WELDING BODY	NO. SOP	: S Q F A R B J O P R S 1	KODE PROSES : SOB RH	DOKUMEN PENDUKUNG
SEKSI	: MAIN BODY GROUP	TANGGAL	: 21 Juli 2023	PEKERJAAN : Check dan Adjust Cup Tip Auto Spot	- Part Drawing
LINE	: SM RH	NAMA PROSES	: KALIBRASI CUP TIP CLAMP SPOT CTR PILAR	PERALATAN : Guide Check, Kunci 24 & 15	- EIS

NO	URUTAN PROSES		POINT PENTING
1	Tekan Tombol **Emergency Stop**	a	Tekan tombol **Emergency Stop** dengan Menggunakan 1 Tangan
		b	Pastikan Tombol **Emergency Stop** Sudah Menyala
2	Ambil guide kalibrasi dari stand	a	Ambil dengan Tangan Kiri pada posisi Handle
		b	Tangan kanan pada posisi aman
3	Setting **Tool kalibrasi** ke jig	a	Setting **Tool kalibrasi** ke jig dengan Tangan kiri
		b	Hole Tool kalibrasi hole masuk pin dan datum pada posisi datum jig
4	Setting magned pada **Tool kalibrasi** & jig	a	Tempelkan magned pada Tool kalibrasi &datum support jig arah "L"
		b	Tempelkan magned pada Tool kalibrasi &datum support jig arah "H"
5	Check gap guide x cup tip (std – 0,5 mm)	a	Masukkan shim diantara **guide x cup tip**
6	Repaire gap cup tip	a	Kendorkan Mur dengan Kunci 24
		b	Setting ketinggian Cup tip dengan kunci 15
		c	Check kembali gap dengan shim 0,5 mm
		d	Kencangkan Mur dengan Kunci 24
		e	Lakukan di semua cup tip
7	Take out **Tool kalibrasi** dari jig	a	Lepas magned dari datum jig dan Tempelkan magned pada Tool kalibrasi
		b	Take Tool kalibrasi out dari jig dengan tangan kiri
		c	Taruh Tool kalibrasi di stand
8	Release **Emergency Stop**	a	Putar Anticlockwise sampai lampu padam
9	Release **pb buzzer**	a	Tekan tombol release buzzer dengan 1 jari sampai buzzer error clear
10	Tekan tombol **master on**	a	Tekan tombol master On dengan 1 jari sampai menyala hijau
11	Tekan tombol **Home Position**	a	Tekan tombol Home Position dengan 1 jari sampai menyala kuning
		b	Tekan tombol Aux dan Unclamp sampai indikasi home pos menyala kuning
12	Putar tombol **select ke Auto**	a	Putar selector auto manual ke posisi Auto

ILUSTRASI

ITEM PERBAIKAN				
No	TANGGAL	CATATAN	DIPERIKSA	DIRUAT

NO	ALAT PENDUKUNG
1	Kunci 24
2	Kunci 15

ALAT PELINDUNG DIRI YANG DIPAKAI

1	Helmet
2	Baju Wajib Safety
3	Masker
4	Arm Protector
5	Wrist Protector
6	Sarung Tangan Kulun & Benang Nuti
7	Apron
8	Leg Protector
9	Sepatu Safety

No. List

DIRECTORY
LAMPIRAN PERHITUNGAN NET QUALITY INCOME*

KATEGORI : QUALITY CONTROL PROJECT
NAMA : TOYOTA SIAP 86
JUDUL : Innovation Kaizen to Support Plant Efficiency Up with Achieve Increase PEFF and DX Implementation

NO	DISKRIPSI		NILAI
1.0.0	**TANGIBLE BENEFIT**		
1.1.0	**Penurunan biaya operasi**	Rp	
1.1.1	Penurunan rework/scrap	Rp	-
1.1.2	Penurunan biaya overtime/headcount	Rp	-
1.1.3	Penghematan (konsumsi) materia	Rp	-
1.1.4	Penurunan biaya garansi/klaim	Rp	-
1.1.5	Penurunan biaya depresiasi/sewa plant/gedung	Rp	-
1.1.6	Penurunan biaya operasi (utilisasi : air, listrik, dll)	Rp	-
1.1.7	Lainnya, **Penurunan Cost MH (Kaizen MP)**	Rp	13.280.400.000
1.2.0	**Peningkatan pendapatan**	Rp	
1.2.1	Peningkatan kapasitas dengan perbaikan produk/layanan dan perbaikan proses	Rp	-
1.2.2	Peningkatan pendapatan terkait dengan peningkatan produk/layanan	Rp	-
1.2.3	Peningkatan pendapatan karena kenaikan harga	Rp	-
1.2.4	Penurunan tingkat resiko kecelakaan	Rp	-
1.3.0	**Pendapatan bunga**	Rp	
1.3.1	Pendapatan bunga atas investasi yang dilakukan	Rp	-
1.3.2	Penurunan pembayaran atas bunga pinjaman	Rp	-
1.3.3	Lainnya, sebutkan….	Rp	-
1.4.0	**Aliran kas**	Rp	
1.4.1	Pengurangan penggunaan fasilitas	Rp	4.573.000.000
1.4.2	Penurunan -A/R (tagihan)	Rp	-
1.4.3	Penurunan -A/R (term of payment)	Rp	-
1.4.4	Penurunan tingkat inventori	Rp	-
1.4.5	Lainnya, sebutkan ….	Rp	-
	# TOTAL BENEFIT (/Year)	Rp	17.853.400.000

2.0.0	**COST OF IMPLEMENTATION* (incremental cost)**		
	* Biaya hanya dihitung untuk biaya baru (investasi)		
2.1.0	**Project Development**	Rp	
2.1.1	Manhour	Rp	3.299.320.000
2.1.2	Biaya pencetakan dan material lainnya	Rp	
2.1.3	Lainnya, sebutkan	Rp	
2.2.0	**Project Implementation**	Rp	
2.2.1	Pelatihan	Rp	1.560.000
2.2.2	Sosialisasi	Rp	3.276.000
2.2.3	Peralatan	Rp -	
2.2.4	Lainnya, sebutkan	Rp -	
	# TOTAL COST OF IMPLEMENTATION	Rp	3.299.320.000

	NET QUALITY INCOME (BENEFIT – COST)	Rp	14.554.080.000

	BENEFIT/COST (HIGHER BETTER)	**5,4**

Perhitungan Cost Saving
QCP Toyota Siap-86

Approved	Checked	Prepared
Process Owner	QCP facilitator	QCP Leader
Arif M	Ari Indra	M Albar

No	item cost	Detail	Condition			Implementasi	Month	Perhitungan			Total Cost (/Year)	
			Before	After	Result			Detail	Hasil			
1	Cost MH	Frame	158	128	30	November'22 ~ Oktober'23	12	= Total MP x 12 bln x 22hari kerja x 8jam kerja x MH	Rp	9.486.000.000	Rp	9.486.000.000
		Body #1	312	306	6	November'22 ~ Oktober'23	12	= Total MP x 12 bln x 22hari kerja x 8jam kerja x MH	Rp	1.897.200.000	Rp	1.897.200.000
		Body #2	284	278	6	November'22 ~ Oktober'23	12	= Total MP x 12 bln x 22hari kerja x 8jam kerja x MH	Rp	1.897.200.000	Rp	1.897.200.000
2	Cost Machine	Frame	Jig FBG 2	Buffer Trf	Demolish	November'22 ~ Oktober'23	12	JIG FBG 2 RH & JIG FBG 2 LH (2 JIG)	Rp	650.000.000	Rp	1.300.000.000
		Frame	Jig ADD FAA	Buffer Trf	Demolish	November'22 ~ Oktober'23	12	JIG ADD FAA RH & JIG ADD FAA LH (2 JIG)	Rp	756.500.000	Rp	1.513.000.000
		Frame	Jig ADD FBA	Hanget Trf	Demolish	November'22 ~ Oktober'23	12	JIG FBG 2 RH & JIG FBG 2 LH (2 JIG)	Rp	880.000.000	Rp	1.760.000.000
Total Tangible Benefit											Rp	17.853.400.000

Summary cost improvement			
1. Buffer transfer FBG 2 RH & LH	=	Rp	126.000.000
2. Buffer Transfer ADD FAA RH & LH	=	Rp	119.000.000
3. Hanger Transfer ADD FBA RH & LH	=	Rp	73.600.000
4. Auto Piano Spot UUD -1	=	Rp	569.840.000
5. Auto Piano Spot UUD -2	=	Rp	647.840.000
6. Efficiency Up Robot (Body #1, Body #2 & Frame)	=	Rp	59.520.000
7. Auto Piano Spot MRA	=	Rp	486.840.000
8. Auto Piano Spot SOB 560-A	=	Rp	597.840.000
9. Auto Piano Spot SOB 650-A	=	Rp	537.840.000
10. DX Maintenance	=	Rp	81.000.000
TOTAL COST ALL IMROVEMENTS	=	Rp	3.299.320.000