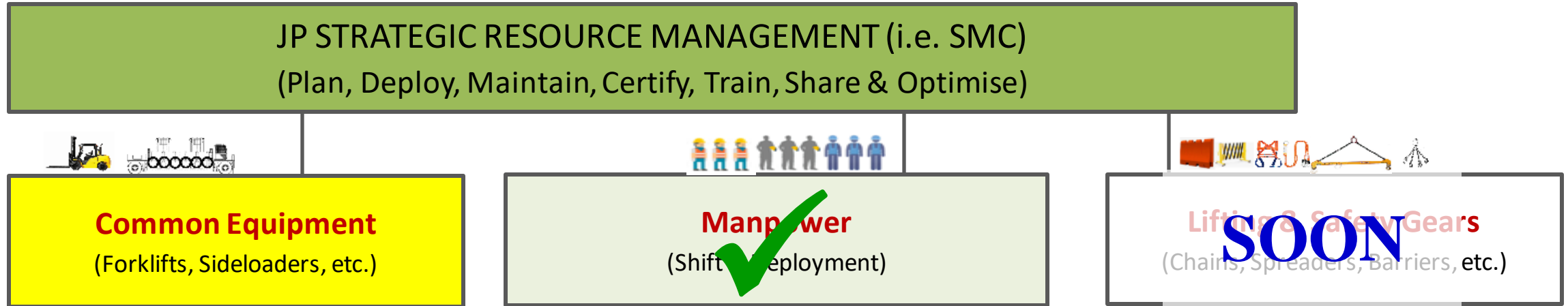


Good Practices on Safe Use of Forklift – Forklift Pooling Jurong Port

Joey Chua

RELY ON US

JP's Need For Pooling



Aligning with JP's efforts to be the *Next Generation Multi-Purpose Port (NGMPP)*

- To have influence and control of the critical resources as an effective port operator

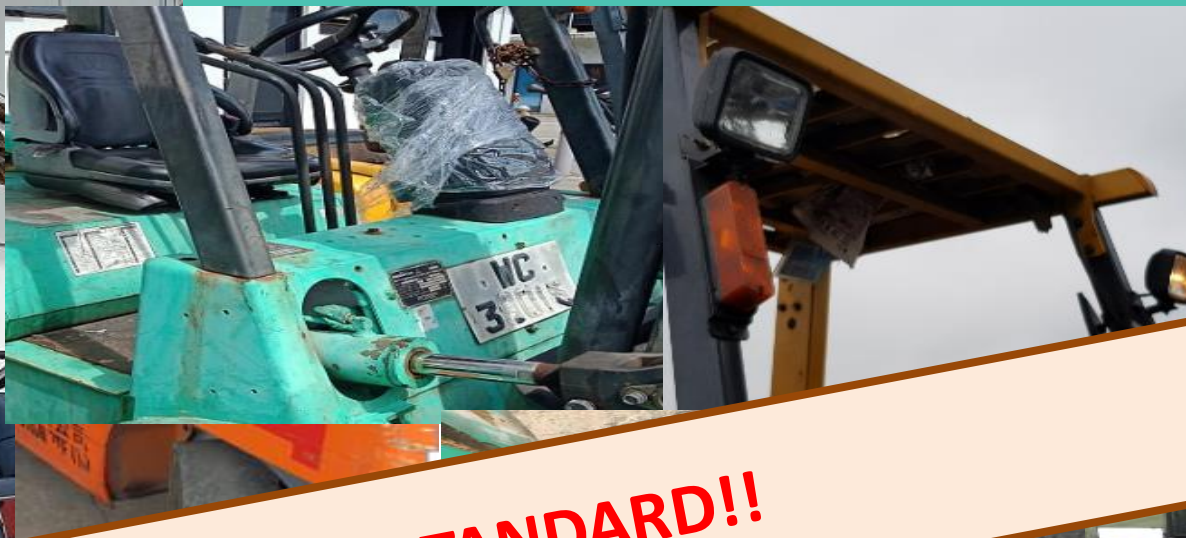
Enable higher & harmonized safety and quality standards of product/services

- Establish standards and process checks of FLs within Port
- Proper maintenance and repairs in equipment
- Introduce technologies (e.g. reverse cameras & FL pooling mgmt. system)

Current surplus situation of equipment in JP

- Poor utilization rate of forklifts at 11%, with too many idle equipment at port
- Pooling will aid with the port's overall optimal utilization of resources, whilst leveraging on scale economies

FORKLIFTS PREVIOUSLY...



POOR STANDARD!!



FL WORKGROUP FORMATION & AGREEMENT

**Forklift Pooling Workgroup was formed
(10 members) in 2020.**
(13 workgroup sessions completed)



Agreement Signed (11th Nov 20)

100% Sign off by 10 SCs

- 1. Pooling Service Agreement (Forklift Owners)**
- 2. Rental Agreement**

Dated this 1st day of February 2021

Between

JURONG PORT PTE LTD
(Singapore Reg. No. : 200007468N)

... "JPPL"

And

HOYSAN STEVEDORING PTE LTD
(Singapore Reg. No. : 198305245E)

... "SC"

FORKLIFT RENTAL AGREEMENT

Schedule 1 – The Stevedoring Companies listed in Schedule 1

S/No	Name of Company	Company Registration No.	Registered Address
1	HOYSAN STEVEDORING PTE LTD	198305245E	5 Penjuru Lane, Singapore 609186
2	MARINE PORT SERVICES PTE LTD	200008399E	2 Boon Leat Terrace, #08-01, Harbourside Building 2, Singapore 119844
3	INDON SHIPPING PTE LTD	198305531M	Telok Ayer Conservation Area, 137 Telok Ayer Street #07-08 Singapore 048462
4	YEW HOCK STEVEDORE & TRADING PTE LTD	199101037W	38 Surin Avenue, Singapore 533928
5	SIN OCEAN TRADING & SERVICES PTE LTD	200200777M	19 Tuas Road Singapore 638488
6	MANTRO MARINE SERVICES PTE LTD	199402328G	211 Henderson Road #05-02 Singapore 159552
7	DOCKERS MARINE PTE LTD	200204505W	31 Jurong Port Road #01-21 Jurong Logistics Hub Singapore 619115
8	HANDLING SYSTEM CO. PTE LTD	197902951D	20 Gul Road #04-00 Singapore 629345
9	HAI SOON HENG MARINE SERVICES PTE LTD	200720800...	37 Jurong...
10			

1. DESCRIPTION OF SERVICES

Subject to the terms and conditions of this Agreement, JPPL shall provide the following general services for the Pool on terms agreed or to be agreed between the Parties: -

- Provide leasing of pooled equipment to licensed stevedoring companies and other port users for operational usage in Jurong Port and Sembawang Wharves and such other designated locations as may be approved by JPPL.
- Establishing and maintaining the inventory of the forklifts and other associated equipment in the Pool.
- Managing the forklift booking, allocation and deployment of the forklifts in the Pool.
- Performing proper handover and takeover of the forklifts in the Pool
- Appoint and manage the workshop(s) on the proper maintenance and repairs for the forklifts in the Pool.
- Billing and other financial transactions for the lease of the forklifts and payment for the services for the maintenance and other required services of the Pool.
- Implement improvements and enhancements to the forklifts in the Pool as

37 Jurong Port Road
Singapore 619110
Tel: 65 6265 0866
Fax: 65 6265 6614

With existing FLs in port, JP successfully convinced the owners to pool them without having to buy over to manage the pooled fleet.

ESTABLISHED FL STANDARDS

Comprehensive inspection by independent party (Goldbell) for the pool

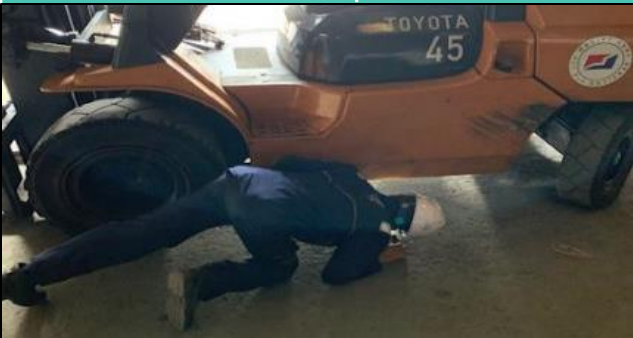
Set out **clear demarcation** of forklift pooling parking areas and **labels**



Drive Testing



Internal Inspection



Under-Carriage Inspection



FL MGMT PROCESSES ARE PUT IN PLACE



accumulated utilisation (hrs/Month)	00
44	
21	
17	
8	
1	
1	

EQUIPMENT POOL HANDOVER/TAKEOVER FORM

Company: _____

Forklift Registration Number/Model: _____

前左 前右 后左 后右 出 进

TECHNICAL CHECKS	FL	FR	RL	RR	OUT	IN
1 Brakes (刹车器)						
2 Steering Linkages (转向拉杆)						
3 Tyre Condition (轮胎)						
4 Exhaust Gas Condition (废气管)						
5 Tilting Cylinder (倾斜缸)						
6 Lifting Cylinder (升降缸)						
7 Lifting Chain (起重链)						
8 Ball Bearing (球珠)						
OPERATIONS/FUNCTIONS					OUT	IN
1 Horns (喇叭)						
2 Head Lights (大灯)						
3 Signal Lights (信号灯)						
4 Reverse Lights (倒车灯)						
5 Reverse Buzzer (倒车鸣笛器)						
6 Warning Lights (警示灯)						
7 Brake Lights (刹车灯)						
8 Parking Lights (停车灯)						
Reverse Camera/Sensor (倒车影像/感应器)						

Remarks: _____

叉车检查表

SPM Handover Checked By: _____ Signature: _____ Date/日期: _____

Standard Compliance Rep: _____

叉车检查表

SPM Takeover Checked By: _____ Signature: _____ Date/日期: _____

Standard Compliance Rep: _____

Jurong Port

Booking Reference: _____

Hour Meter Out: _____

Hour Meter In: _____

Fuel Full: _____

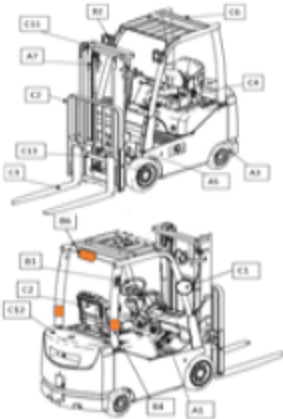
YBM NO 左 右 出 进

BODY & ACCESSORIES	L	R	OUT	IN
1 Mirrors (后视镜)				
2 Fork Back Rest (叉刀后座 B-Stem)			NA	NA
3 Forks (叉刀)				
4 Operator's Seat (驾驶员座位)				
5 Dashboard/Meters (仪表盘/仪表)				
6 Roofing Canopy (车顶)				
7 Tow Bar (牵引杆)				
8 Key (钥匙)				
9 Side Shifter (左右换挡杆)			NA	NA
10 Battery (电池)				
11 Mast (门架)				
12 Engine Hood (引擎罩)				
13 Fork Carriage/ Fork Pins (叉刀车架/叉刀销)				

Legend

OK ☒

BROKEN/CUT/MISSING/DEFECTS ☒



EPMS PHASE 1 GO LIVE DEC'21

CURRENT

WHATSAPP + EXCEL + PAPER

EPMS

WEB APP (MOBILE VIEW)

EPMS HOYSAN 1

Today

+65 8280 0067

BRC Asia (Samy-82800067)

Hire forklift:

Type of ops/location: Y10A
Forklift SWL and Quantity: 7
with fork)

Start and end time:

09-08-2021-0800hrs to 1800hrs.

Other requirements: Nil

Samuel

Hi Duty Officer

Pls deploy FL as follows :

Buana Ocean 08 (J2) - 06/08/2021
@ 0800 hrs till complete
2 x 10T (1 x OB)
1 x 16T

Thank you.

DIGITALIZATION
EFFORTS

Equipment Pooling Management System

Bookings

Currently Leased Equipments

Booking Reference Number

Key in first 3 alphabets

Requestor Name

Key in first 3 alphabets

Vessel Name/Voy

Key in first 3 alphabets

From Start Date

17/08/2021

To Start Date

DD/MM/YYYY

Filter

Clear

New Booking

Booking Reference Number	Booking Status	Action Required	Earliest Start Date	Latest End Date	Requestor Name	Type of Booking	Vessel Name/Voy
HS2108010	Pending Endorsement		27/08/2021 07:00	03/09/2021 00:00	EPMS HOYSAN 1	Vessel	G LUCKY

EPMS DUTY OFFICER1

Default Sort - Asc	
Deployed	Workshop
On Hold	New Item
On Board Equipment	
August 2021	
26	27
28	29
30	31
September 2021	
1	2
WD1808L (7T)	WD1808L
WD1795P (7T)	WD1795P
WC8982A (10T)	WC8982A
WC8014U (7T)	
WC1739H (4T-5T)	WC1739H
WD646T (10T)	
WC8218Z (4T-5T)	
WC5591P (10T)	
WD1790C (7T)	
WD758D (10T)	

Deployed Workshop On Hold New Item On Board Equipment

Phase 1 (FY21)

Phase 2 (FY22)

				Utilisation													
Ton	Compa	FL Num	Length of For	Per Mon	00	01	02	03	04	05	06						
10T(OB)	SO	WD1599P	Long Fork	206	X	X	X	X	X	X	X						
10T(OB)	SO	WD1600T	Long Fork	21	W	W	W	W	W	W	W						
10T(OB)	SO	WD470H	Long Fork	66	X	X	X	X	X	X	X						
10T(OB)	SO	WC8984U	Long Fork	162													
10T	SO	WD758D	Long Fork	180													
10T	SO	WD646T	Long Fork	192													
10T	SO	WC8992X	Long Fork	0	W	W	W	W	W	W	W						
10T(OB)	YH	WD248J	Long Fork	123													
10T(OB)	YH	WD2024A	Standard	96													
10T	YH	WD3657S	Long Fork	141	X	X	X	X	X	X							

SMC Payment

FORKSLIFT POOL
DEPLOYMENT CONFIRMATION

Company: Walsingham Shipping
Requestor: JASON
Contact Details: 92287932

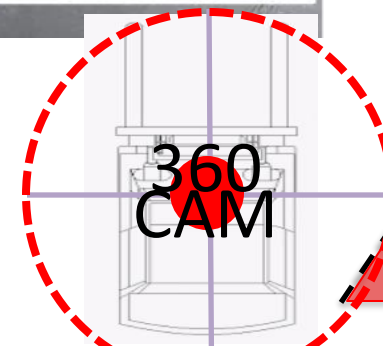
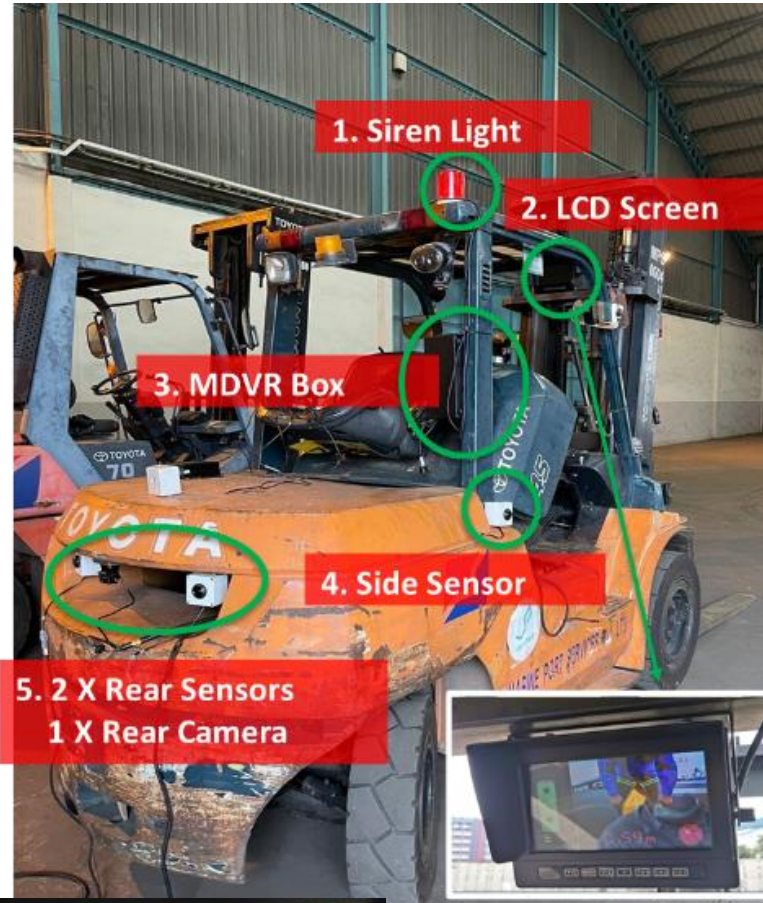
Date: 1/6/2021
Booking Reference: 001 00071101

Type of Booking: Non Vessel
Vessel Name/Voyage: VASD 8 / 11

No.	EQUIPMENT REGISTRATION NO.	CAPACITY	START DATE/TIME	END DATE/TIME	ACCESSORY	ACCESSORY LOCATION	REMARKS
1	WD1599P	10T	06/08/2021 0800	06/08/2021 1800	FLK	N/A	
2	WD1600T	10T	06/08/2021 0800	06/08/2021 1800	FLK	N/A	
3	WD470H	10T	06/08/2021 0800	06/08/2021 1800	FLK	N/A	
4	WC8984U	10T	06/08/2021 0800	06/08/2021 1800	FLK	N/A	
5	WD758D	10T	06/08/2021 0800	06/08/2021 1800	FLK	N/A	
6	WD646T	10T	06/08/2021 0800	06/08/2021 1800	FLK	N/A	
7	WC8992X	10T	06/08/2021 0800	06/08/2021 1800	FLK	N/A	
8	WD248J	10T	06/08/2021 0800	06/08/2021 1800	FLK	N/A	
9	WD2024A	10T	06/08/2021 0800	06/08/2021 1800	FLK	N/A	
10	WD3657S	10T	06/08/2021 0800	06/08/2021 1800	FLK	N/A	

4:29 PM

FORKLIFTS: ↓ HUMAN-MACHINE/CARGO INTERACTIONS



Forklift Reverse Camera & Sensors

- Forklift Reverse Camera & Sensors to be installed for all with ESG Support (>50% installed)
- Future 360-degree camera with video analytics to improve ops safety



REVERSE CAMERA & SENSORS: TRAINING FOR FL OPERATORS

- Conducted first training for forklift operators and GOs
- Training will be rolled out to all forklift operators (including SCs)
- Subsequently content to be included in forklift refresher course (with JPA)

Classroom Training



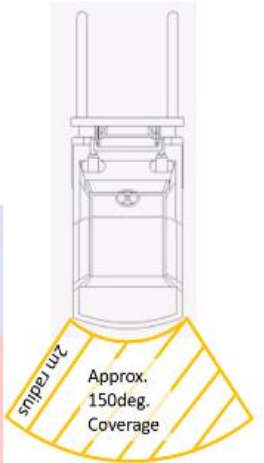
Technical Specs (Reverse Camera)

1. Camera (situated at the rear of the forklift)
 - Camera Field of View (FOV): Nettbox - 150°, Wow! Gadgets - 120°
 - **Green Circle:** Date and time (To check, for footage extraction purpose)
 - **Red Circle:** Indicates recording in progress
 - Once you see "Recording" or "HDD", video recording starts, until engine off
 - LCD screen switches on and off automatically with engine, allow few seconds for boot-up/shut down



Theory Training Content (System checks)

- New hardware additions for handover/ pre-ops check
- What to check for sensors
 1. No protruding, hanging or broken wires
 2. Sensors and brackets are not broken
 3. Conduct sensor check by walking 1.5m -2m away the rear while on reverse mode
 4. Ensure there is no blind spot in the coverage area



Practical Training at W10A



OTHER JP TRAINING PROGRAMS & INITIATIVES



1

Adoption of **MOM** and **WSH Council** recommendation of Heavy and Light Forklift differentiation within JP.

- Light Forklift: ≤ 5 ton (SWL)
 - 3-year refresher program
- Heavy Forklift: > 5 ton (SWL)
 - 3-year refresher program



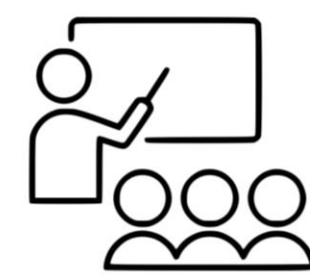
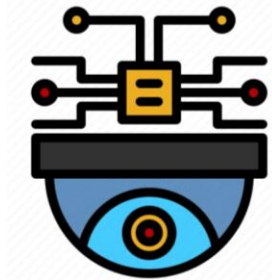
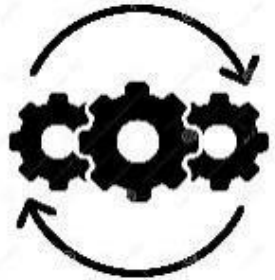
2

JP Academy In-house training capabilities for Forklift Training & Refresher Program to include JP's requirements:

- e.g.
- 2m radius safety zone of operational forklift
 - Practical sessions with common loads handled within JP

- ✓ Heighten overall safety standard and use of forklifts within JP
- ✓ Promoting good practices on use of forklifts
- ✓ Establish clearer boundary between the human and machine interface
- ✓ Forklift operators within JP consistently trained and maintain up-to-date skills set

- Pooling of forklifts in Jurong Port has enabled
 - Established **operating standards** and **maintenance regime**
 - **Well serviced** and **maintained** FLs deployed minimizes safety incidences
 - Implemented **digitalization** and **mechanization technology** to improve ops safety
 - Consistent **training** and **upskilling of FL operators** with standardized technology



- Next steps ahead
 - Introduce technologies (i.e. Artificial Intelligence) into our existing cameras to enhance safety awareness during operations.
 - Continuously train and upskill operators with new technologies deployed
 - Dynamically re-sizing and optimizing forklift while removing undesirable FLs in the pool
 - Improve on current workshop standards with new common facility for all FLs in the port

Q&A