

Shinko Manufacturing number:

CONFIDENTIAL

**OPERATION MANUAL  
Of  
OHVC**

**(INTRABAY OHT SYSTEM)**

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History

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## CHAPTER 1 General

### 1.1 Application

This document describes the operation method of OHVC.

## CHAPTER 2 SYSTEM CONFIGURATION

### 2.1 System configuration

The OHVC control the transportation of FOUP using several kinds of communication lines.

A system configuration is shown in Fig. 1.



Fig.1 System Configuration

## CHAPTER 3 SYSTEM STARTUP

### 3.1 System startup procedure

The following procedure is used for ONLINE operation of OHVC.

- (1) Apply powersource for OTH system.
- (2) Power On OHVC, and wait completion of windows startup.
- (3) Enter CTRL+ALT+DEL, and ENTER for login window(no password).
- (4) Start OHVC application program as follows.
  - a) Click and activate the process from windows console as follows,  
START-PROGRAM-OHVCSYSTEM-OHVC  
then OHVC monitor screen is displayed on the screen,  
and operation mode will be changed from startup to maintenance mode.
  - b) Login using login box (User: sdk password: \*\*\*).
- (5) Start Auto mode operation as follows.
  - a) Click operation mode box, and select Manual mode.
  - b) Entry all vehicles using vehicle entry dialog screen that  
is activated by manual command menu bar.
  - c) Click operation mode box, and select Hold mode, and select Auto mode.  
After that, all vehicles start running on the monitor screen.
  - d) Then, OHVC is able to accept and execute Remote Command from the HOST  
computer.

### 3.2 System shutdown procedure

The following procedure is used for shutdown operation of OHVC.

- (1) Termination of Auto mode operation
  - a) Click operation mode box, and select manual mode.
- (2) Shut down of OHVC
  - a) Click operation mode box, and select maintenance mode.
  - b) Click operation mode box, and select shutdown.
  - c) Shutdown windows using Windows system shutdown window.
  - d) Power off OHVC
- (3) Shutdown power source of OHT system.

### 3.3 Error recovery procedure of OHVC

- (1) OHVC is changed the control mode from Auto to Hold mode if several error occurred.  
All vehicles are stopped by OHVC.
- (2) Remove error, and perform Error reset operation by maintenance menu bar.
- (3) Perform Reentry operation by maintenance menu bar.
- (4) If need, delete transport request using Trans.Req screen and delete the request command  
from Host.
- (5) Change the OHVC mode from Paused to Auto, then all vehicle continue transportaion.

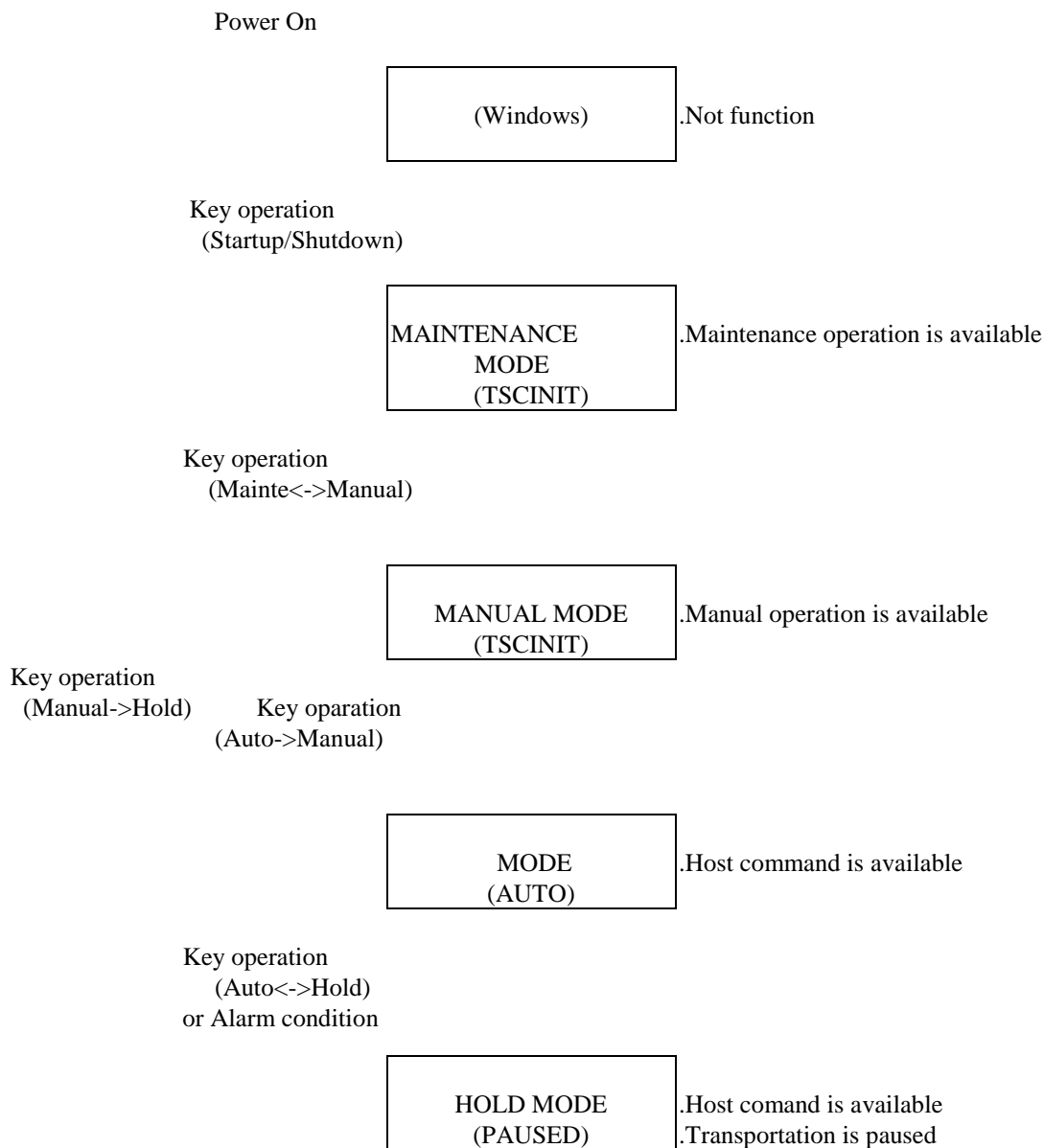


Figure.2 OHVC Mode control

## Chapter 4 Transportation Control

### 4.1 Basic transport flow

HOST	OHVC	Allocated Vehicle	FROM station		TO station	
			Vehicle	Stage	Vehicle	Stage
TRANSFER COMMAND	Check Avail. (Note)					
OK	Vehicle Dispatch Control					
Transfer Vehicle	Initiated Assigned					
	Transportcommand (From-To)					
Vehicle	Arrived		Arrival			
Trans Vehicle Carrier Vehicle	Ferring AquireStarted Installed AquireCompleted					
Vehicle	Departed		Acquiring			
Vehicle	Arrived				Arrival	
	(Load Incompletion)					
	(Recovery procedure) (Stored in Stocker)					
Vehicle	DepositStarted					Comp
Carrier Vehicle	Removed DepositCompleted				Depositing	
Vehicle	Idling Command Unassigned					
Transfer	Completed	Free run or Waiting				

Fig. 3 Basic transport flow

## Chapter 5 OHVC operation

### 5.1 Operation Mode control

#### 5.1.1 Maintenance Mode

- .Using for parameter change of OHVC.
- .Entry,Deletion of the vehicle and several parameter change using maintenance menu bar.
- .Maintenance mode is initial condition of OHVC after program started.

#### 5.1.2 Manual mode

- .Using for manual operation of the vehicle.
- .Vehicle manual running command is available using manual memu bar.

#### 5.1.3 Auto mode

- .Execute Host remote command.

#### 5.1.4 Paused mode

- .Stop auto mode transportation by Host remote command or operator command.
- .If OHVC detect the fatal error, then Paused mode is selected automatically.

#### 5.1.5 Shutdown

- .Save all controll data, and terminate OHVC application program.

Function	Outline
Operation	OHVC mode change operation
Mode	Change the OHVC operation mode
Maintenance mode	.To maintenance mode
Manual mode	.To manual mode
Auto mode	.To auto mode
Hold mode	.To hold mode
Shutdown	.Shutdown the OHVC



## 5.2 Display control

- .OHVC operation can be select by menu bar on the screen.
- .Tool bar is used for zoom up/down the root monitor screen.
- .Help is usefull for the operation without the manual.

Function	Outline
Monitor	Monitoring the OHVC
Monitor display	Monitor the data/status of the OHVC
Route monitor	.Display actual position of vehicles on the route .Vehicle color indicate the tranport condition .Zoom up/down and scroll is available for confirmation of vehicle position.
Trans.Request Monitor	.Display contents of transport request command Trans.ID/From.ST->To.ST/Priority/Alt/VehicleNo./Staus .Detailed monitor is activated by LeftDoubleClick of the mouse. .Delete screen is activated by RightDoubleClick of the mouse.
VehicleStatus Monitor	.Display vehicle status. VehicleNo./Status/TransKind/TransID/Priority/Position/ From.ST/To.ST/Foup/LoopNo. .Detailed monitor is activated by LeftDoubleClick of the mouse. .Vehicle operation screen is activated by RightDoubleClick of the mouse.
Alarm monitor	.Display latest 100 alarm event. Date&Time/Position/EventCode/AlarmContent/ .Alarm log screen displays total of 2000event cycliclky.
Controller Monitor	.Display controller status by tree format. OHVC/Vehicle/EPLC .Detailed monitor is activated by LeftDoubleClick of the mouse.

## 5.3 Log

- .OHVC is able to display several kind of Log screen at same time.
- .Each Log data is available jump,search and save function.
- .Log screen displays 100event/Page, and page up/down button is available.
- .3 level display control is available for some screen.

Function	Outline
Log	Display,Save the Log data
Log display	Display the Log data
TransportResult	.Transport Result of Host requested command Date&Time/TransKind/TransID/From.ST->To.ST/Priority /VehicleNo./Alt,etc
Alarm	.Display alarm event of vehicle and OHVC Date&Time/Position/EventCode/Content
OHVC event	.Display OHVC event:Mode change,Trans Start/End,Alarm Date&Time/EventCode/Content
Host Comm.	.Display ethernet communication log. Date&Time/Partner/Direction/MsgName/Content
Vehicle event	.Display vehicle event that is stored in the vehicle. Date&Time/EventCode/Content .Vehicle event is gathered by specific command of mainten- -ance menu bar.
Vehicle Comm.	.Display communication log with OHVC and vehicles Date&Time/VehicleNo/Direction/MsgName/Content
EPLC Comm.	.Display communication log with OHVC and EPLC Date&Time/Direction/MsgName/Content
Log operation	Operation for log data
Jump	.Jump to indicated Date&Time position
Search	.Search indicated keyword in the log Keyword:TransID,VehicleNo,EventCode,etc
Pickup	.Pickup indicated keyword in the log Keyword:TransID,VehicleNo,EventCode,etc
Save	.Save log data of indicated range to the file(FD,MO) Range(Start/End),FileName,Format(Text,CSV)

## 5.4 Statistics

Function	Outline
Statistics	Display/Save the statistics data
Display Statistics	Display several statistics data
TransportCount	.Display Transport count with From.ST-To.ST matrix.
VehicleMileage	.Display mileage of each vehicles.
VehicleAvailability	.Display availability data of each vehicle. TotalEntryTime/TotalYransportTime/TotalWaitingTime/ Etc.
VehicleTransTime	.Display MAX/MIN/AVE time of transport. TransCommandReceive to From.ST arrival TransCommandReceive to LoadCompletion TransCommandReceive to To.ST arrival TransCommandReceive to UnloadCompletion
System Maintenance data	.Display system maintenance data MTBF/MCBF/MTBA/MCBA/Uptime/MTTR/MTOL/ .This function is depend on operator input data.
Vehicle Maintenance data	.Display alarm count of each vehicle. VehicleNo./EventCode/Count
OHVC Maintenance data	.Display alarm count of OHVC. EventCode/Count
Statistics Input	.Input base data of system maintenance data. FABdown time/MaintenanceDaleyTime/etc.
Operation for statistics data	Operation for statistics data
Deletion	.Clear statistics data Range or VehicleNo. is indicate by operater
Save	.Save indicated statistics data to the file(FD,MO)

## 5.5 Manual operation

Function	Outline
Operation	Operation
Manual operation	Manual operation
Deletion of Trans.Req	.Delete the indicated transport Request from Host
Manual running	.Command for the vehicle->Run From.ST to To.ST
Continuous running test	.Continuous run,stop test of the vehicle. .This function is used for site installation test.
BarCode test	.Vehicle run by barcode test mode. .This function is used for site installation test.
Compulsory mode transition	. Terminate OHVC mode transition compulsory.
Emergency stop the vehicle	.Stop the vehicle.

## 5.6 Maintenance operation

Function	Outline
Operation	Operation
Maintenance operation	Maintenance operation
Entry	.Entry the vehicle on the route.
Exit	.Exit the vehicle from the route
DLL	.Down line the Map data to the vehicle.
VehicleEventGatherring	.Gather vehicle event data that stored in the vehicle.
ErrorReset	.Send error reset command to all vehicles.
CommunicationTest	.Execute and display result of communication test with OHVC and vehicles.
Initialize vehicle	.Request the vehicle initial condition.

5.7 Parameter setup

Function		Outline
Operation		Operation
Setup		Data setup
Parameter		
	Alternate station	.Display alternate destination table
	No-destinationTrans	.Display and setup No-destination Trans.Req table.
	User	.Setup user password and operation level.
	Date&Time	.Setup OHVC&Vehicle's Date&Time
	Route	.Setup the vehicle loop no(OHV is all ways 1).
	Color setup	.Setup the color for each status of the vehicle
	MapFileRead	.Map data file read from FD drive.

## 5.8 Engineer

Function	Outline
Operation	Operation
Engineer	Maintenance operation of maker engineer
EPLC registerMonitor	.Monitor the EPLC control register.
VehicleParameter	.Setup vehicle parameter temporary.

## 5.9 HELP

Function	Outline
HELP	HELP
Display HELP file	Display HELP file
Basic operation	.Display OHVC basic operation method
Version	.Display OHVC and Vehicle program version. .Display Map data version in the vehicle
HELP operation	HELP operation
Search	.Serach keyword in HELP file.
Save	.Save indicated page to the file(FD).