MANUAL TRAIN OPERATION WORK INSTRUCTION

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Work description: This OCC Operation Work Instruction details the operating rules for manual train operation.		
Scope: This Work Instruction is written specifically for OCC operating staff and train staff.		
References: HNL-09500 O&M Rule Book		
PPE and precautions	**Competencies or qualifications**	**Licenses or permits required**
High Visibility Vest, Hard Hat, Safety Shoes	Train Operator, Train Controller	Train Driver
Tools and equipment required		
Train Key, Train Operator Duty Bag		

Warning

When the train is set to manual mode driving, a train driver must be present and in control of the train. The train driver must not leave the train unless authorization is granted by the Train Controller and avoid using of cell phone and other Personal Electronic Devices. If authorization has been granted by the Train Controller for the train driver to leave the train temporarily, then the train driver must apply emergency brakes before leaving the train.

Manual Train Operation - Background	Manual Train Operation requires the presence of a train driver in the cabin who must have access to the Emergency Drive Console at the cab of the train. The train driver must select one of the following train operating modes on the Master Controller Panel for manual driving.
Driving Modes	**ATO/ATP** is an automatic driving mode with driver assistance under the protection of the ATP. This mode performs automatic speed regulation and station stopping but the driver has the responsibility of closing the train doors and initiating station departure - the driver, before leaving a station, closes the train doors by the switch panel on the EDC and allows departure by depressing the Release/Depart push-button on the ATC Display. Then the vehicle automatically performs speed regulation and station stopping as in normal driverless operation until the next station. **ATP** is a manual driving mode under the protection of the ATP. This mode is not planned for operation with passenger, but it can be used to temporarily manage degraded modes during service. This mode can be used in the yard for shunting. The ATP subsystem controls safe profile generation relative to direction of travel to obstructions and civil speeds, overspeed detection, safe passenger exchange (berthing, doors locking/enabling/disabling), and other miscellaneous emergency response functions (emergency stop, emergency handles, emergency train line detection). The ATO only supports LATS communications for route indication and scheduling. Speed regulation, station stopping, and all other non-vital functions are the responsibility of the driver. The driver is given the speed profile that should be followed by the vehicle via the speed profile indicator located on the ATC Display. In this mode of operation, the train will only be allowed to move in the direction where the Emergency Drive Console is activated. The driver must depress the Release/Depart push button to allow train departure, as in ATO/ATP mode. 1. **Stop and Proceed** is a mode under the ATP model. It can be activated on the EDP for allowing the train to move in case of a loss of valid speed limit data from a track circuit. This mode limits the train's actual speed to 10 mph maximum, even when the speed commands received by the ATP are zero for both line and target speed, or no data at all. If the train's speed exceeds 10 mph for more than 2 seconds, emergency brake will be activated. While in the stop-and-proceed mode, the vehicle is continuously searching for the next track circuit frequency. Stop and Proceed mode is maintained until one of the following events occur: o A valid speed code (other than 0 mph) is received through the track circuit o An overspeed condition occurs o The driver pushed the Stop & Proceed Push-button again to finish the movementThe ATP fails or loses powerStop and Proceed must be requested from the active ATC/ATP unit, via the EDC. An indicator light on the ATC Display indicates the ATC/ATP unit has accepted the request. Note that the vehicle can be operated from either cab regardless of which ATC is active or master. All control/indications are routed based on the active cab, thus providing the appropriate signals to the active ATC

BYPASS is a manual driving mode which is fully manual without the ATC system speed supervision (ATC bypassed) nor ATP protection. This mode can only be activated by bypassing ATC using the Switch Panel. This mode is not planned for operation with passenger. It is dedicated for shunting operation or in case of ATC system degraded mode. The train speed is limited at 10 mph by the rolling stock. With the ATP equipment in Bypass, there is no ATP overspeed protection. All vehicle line inputs and outputs on the ATP are isolated. Putting one ATP unit in Bypass forces the other ATC unit to become inactive also. While in this mode, the actual speed of the vehicle is still displayed on the ATC Display. The driver has full responsibility for the proper and safe operation of the vehicle.

Warning

Changing the train operating mode must be authorized by the Train Controller. The train must be stationary before selecting the mode on the EDC.

If the stranded train is not at the proper berthing position of the station platform, Train Controller must make sure a safe path is established for the train staff to access the train. Prior to commanding the train driver to move the train, the Train Controller must make sure a manual route setting has been arranged in protecting the train movement.

In the extreme case where there is absolutely no signaling protection (not even lineside signals), the Train Controller must make sure that the limits of the train movement are fully understood by the train staff who must confirm their understanding by verbally repeating back the instruction each time. ATP and BYPASS modes driving must be strictly controlled through safety critical communications 'Authorization To Proceed'. Extracts are attached below at the end of this Work Instruction.

Note

Where possible, staff who needs to gain access to the train to attend to the problem will need the necessary Train Key, to be issued together with the Train Staff Bag to Train Operators.

Onboard Panels

Figure 1 - Emergency Drive Console

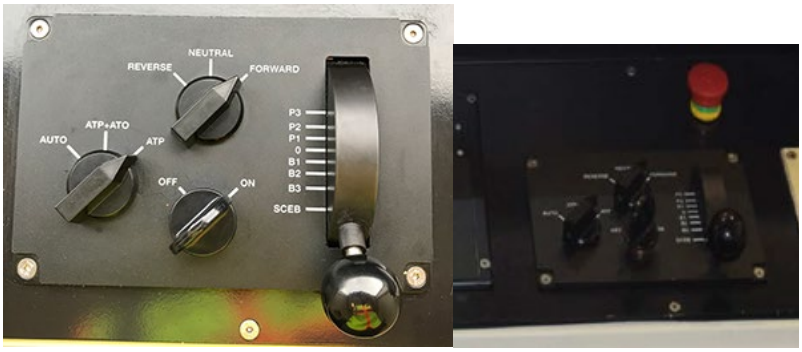

Figure 2 - Master Controller

Figure 3 - Switch Panel

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Manual Train Operation	
Train Controller	When directing a train staff to access a stranded train in between stations and to operate a train manually, you must: • Send a Train Operator to get on board the train • Plan a safe path for the Train Operator to access the stranded train • Instruct the Train Operator to open the Crew Doors from outside • After the Train Operator getting onboard, instruct him/her to close the train doors • Instruct the train staff to activate the Emergency Drive Console • Authorize the train staff to switch the Transfer Switch on the Master Controller to one of the Train Driver Modes • Verify from the ATS display that the operating mode of the train is now in the new position • Set a route for the train • Authorize the Train Operator to move the train manually to the destination when the Train Driver Mode is ATO/ATP, ATP or BYPASS following the "Authorization to Proceed". If the Train Driver Mode is ATP, authorize the Train Operator to follow the cab signal from the ATC Display of the EDC • Where required, inform Station and Trains Supervisor at the next station platform to arrange Station Agent to man and to operate the PSG locally - operate the PSG in unison with the train doors and assist passenger detrainment
Train Operator	When operate the train in manual driver mode, you must: • Bring on board the train driver bag • Make sure the Train key is with you • Follow the instructions of the Train Controller and walk along the emergency walkway to reach the train • Report to the Train Controller when you have reached the train • Open the Crew Doors from outside using the Emergency Access Device • Once inside the train, close the train doors, proceed to the front of the train, activate the Emergency Drive Console • At the Transfer Switch on the Master Controller, put the train mode to one of the train operating modes per the instruction from the Train Controller • Upon receiving authorization from the Train Controller, follow the Authorization to Proceed to drive the train in the ATP-STOP & PROCEED or BYPASS operating mode towards the next platform, respect the lineside marker, strictly observe all the switches are set correctly and signal aspect indications along the authorized route where applicable • While driving, use the Master Controller Handle to apply thrust to move the train forward while at the same time rotate the handle' top to keep the "Dead-man" mechanism inactive When the train stops at the stopping marker of the next station platform, open the train door and wait for further instruction from the Train Controller

Warning

Train staff MUST NOT operate a train manually unless authorized and instructed to do so by the Train Controller.

Warning

Train staff must always be in a position to see and be prepared to stop short of any improperly aligned point, obstruction, or any other hazardous condition.

Authorization to Proceed	Prior to moving a train in manual mode, the Train Operator must be authorized by the Train Controller and advised to stop the train at the next nominated block. The Train Controller will advise to where the train is authorized to proceed to. The instruction will include speed restrictions, stopping patterns or any conditions affecting the track. The Train Operator must repeat back the instructions to ensure an accurate understanding. Once a clear understanding has been reached the train may be moved. Any Authorization to Proceed must be authorized by the OCC Supervisor or the Train Controller. Authorization to Proceed must be for one train movement. Any additional movements will require a new Authorization to Proceed. 'Authorization to Proceed' is a verbal communication process to instruct a train staff (Train Operator) to operate the train manually under ATO/ATP, ATP or BYPASS driving modes. This verbal communication process is usually done through radio system. However, onboard Emergency Call Point can be used in the case of emergency.
Train Operator	During the process, the Train Operator must verbally repeat the instructions back each time upon being instructed by the Train Controller / Yard Controller. The content of Authorization to Proceed must contain as much of the following information as applicable and practical: 1) Train ID 2) Current location 3) The track the train is on currently (up track/ down track) 4) The track the train will be on (up track/ down track) 5) Direction that the train will be travelling in 6) Route information 7) Limits of the train movement 8) Train operating mode to be used, and driving speed 9) Any additional information to enhance safety e.g. obstacles or person(s) on the track, any temporary speed restrictions already imposed and any other irregularities on the running or the adjacent track
Train Controller / Yard Controller	• Establish a safe path for the Train Operator to reach the train • Set a route to protect the train and the Train Operator from other automatic trains • Confirm train direction with the Train Operator • Confirm the exact limits of the movement • Issue "Authorization to Proceed"

Signal Aspect

When a train must be driven in BYPASS mode without ATP inside the Yard, the Train Operator must obey to signal aspects as follows:

Train Controller / Yard Controller

Signal Aspects	Meaning
Red	Stop the train and seek further instruction from the OCC. Under manual driving operation, train driver must stop the train and wait for instructions from the Train Controller/Yard Controller.
Green	Proceed when all route conditions are satisfied so the train has the authorization to pass it and run along the route.