

APPENDIX - ‘C’

## RULES FOR WORKING (DMU) DIESEL MULTIPLE UNIT TRAINS.

## DSR1.

- (i) In addition to these rules, all general and subsidiary rules which control the movement and operation of trains shall also apply to the movement and operation of DMUs except as otherwise provided in these rules.
- (ii) Station Masters, Inspectors and staff working DMUs must have thorough knowledge of these rules.

DSR2. Definitions -

- (i) Motorman: - means a duty certified motorman of a single or a multiple unit train.
- (ii) Guards emergency brakes valve: - means a valve fitted in the driving compartments of Diesel Multiple Unit train equipped with compressed air brakes, by means of which guard can apply the brakes of the train in times of emergencies.
- (iii) Jumper: - means multiple core flexible cables connected between all coaches of Diesel Multiple Unit trains by which the control of the electrical equipment is effected from any driving compartment in use.
- (iv) Trailer coach: - Means a passenger carrying coach equipped for coupling to and operating with motor and not possessing traction motors.

DSR3. On a DMU train, only one motorman is provided for driving and he must not leave his post except for attending to defective equipment in his train and protection in front in case of accidents. On a Double or Multiple line section if adjacent line in opposite direction is obstructed or fouled Motorman himself to protect in front as per GR 6.03.

The following exceptions are permitted -

- (a) GR.4.15 (1)(a) Side Lights showing white towards the front and red towards the rear are not provided on DMUs.
- (b) G.R.-4.14(1) On DMU train only head light and Tail Lights are provided no marker light is provided.

DSR4. Width of DMU stock 3245 MM against (3048) of conventional stock.

DSR5. Work inside DMU Car Shed - It should be ensured that proper safety precautions are taken like display of red flag/ fixed light, blocking of the movement on the line by scotch block and locking the same.

DSR6. Fire -

- (i) In the event of a fire on a DMU stock, the motorman shall immediately switch off the circuit breaker and shut down the engine. The train shall be brought to a stop at once.
- (ii) The guard shall give all possible assistance to the Motorman in putting out the fire.
- (iii) The fire extinguishers of approved type shall be provided on each motor coach of a DMU when a DMU rake is turned out the Car Shed. The SSE (C&W) Incharge of the Shed shall inspect the fire extinguisher and ensure that these are in good working order.

DSR7. Every employee in the DMU must immediately inform the section controller by telephone as quickly as possible in the event of (a) accident (b) Disabling of train (c) any unusual occurrence affecting the working of trains.

DSR8. Access to the generator, engine & radiator compartments can be had only by authorised persons in possession of a special key provided for this purpose. Motorman and other official to whom such keys are issued should keep this in their personal custody to prevent unauthorised persons tampering with the equipment.

DSR9. No spanners of key except those issued by the Railway Administration should be used for operating the equipment in DMU trains.

DSR10. No unauthorised person is allowed to travel in motorman's or Guards compartment of a DMU train unless he holds a motorman or guard's compartment pass. The number of authorised persons, other than the motorman and guard (if travelling with motorman) in motorman's cabin must not be more than 3 at any time.

DSR11. The Diesel multiple unit train shall carry (a) headlight (b) one flasher light (c) one set of code lights (d) one red tail light.

Responsibility for headlights of DMU -The motorman is responsible for carrying out the correct headlights by night and ensuring that the tail lights are not exhibited in the front. The Guard is responsible for seeing that the tail light/ tail board as the case may be correctly exhibited. In case of failure of electrical red lights, the guard shall fix his hand signal lamp on the bracket provided for this purpose.

DSR12. Lighting and Fans Circuits of DMU -Guards must regulate the lighting of coaches and switch off the fans when not required. In the event of a defect in the lighting, the guard will immediately inform the motorman and the nearest Station Master to arrange for electrical staff to rectify the defects.

DSR13.

- (i) Before a DMU train is brought on to a running line after inspection or maintenance in a DMU Shed or stabling line, the brakes of the train shall be jointly checked by the motorman and the guard to ensure that the brakes are functioning normally and the brake pipe is continuous through out the train, the horn should be sounded and precautions taken to see that no one is working on DMU train before the brake test is undertaken.
- (ii) As far as possible, this joint test should be taken before the DMU train leaves the shed or stabling line. However, if specially authorised the brake test may be taken on the platform before commencement of the first trip.
- (iii) Examination and adjustment of brakes must be carefully carried out before entering service. Motorman must ensure that jumpers and hose pipes are properly secured in their dummy receptacles after coupling. He must take a careful examination of Multiple Units before taking them into service and any defect or deficiency noticed must be brought to the notice of the Supervisor and he must see that the defect card is in position and cleared of all entries unless these have been rectified and initialled to this effect.
- (iv) When taking over from another motorman, it will be his duty to ascertain whether any defect exists and the motorman handing over must acquaint him of any fault or defect likely to affect the working of the train.
- (v) The above procedure must always be carried out most carefully when putting the unit into service after stabling, also after the Two Units have been coupled up. The train crew must assist the station staff in coupling & uncoupling the units.

DSR14. Working of deadman's knob safety device -

- (i) Two deadman knobs have been provided in the DMU, one on the throttle handle and 2<sup>nd</sup> near the left knee of the Motorman's desk. The deadman knob has to be kept depressed both in the course of driving and during intermittent halts of the train. In order to give the Motorman a possibility of relieving the right palm by releasing the deadman knob during station stops or during driving, a knee operated mushroom headed switch has to be passed side wards to enable the deadman knob to be released, without application of emergency brakes. Before releasing the deadman's knob from the operating handle it has to be ensured that the knee operated switch is pressed by the Motorman.

- (ii) In the event of a deadman's handle becoming defective or inoperative, the motorman must stop his train immediately, call the guard and ask him to travel in the driving cab, and should inform the section controller who should take the train out of service immediately if the defect is not rectified.

DSR15. Change over the cab at the terminal stations: - At the terminal sections, the direction of travel will reverse. The operating personnel on the train will now switch their roles as motorman and guard. The leading car during the previous travel will become the trailing car (with guard) for the direction of drive and the trailing car during the previous will become leading car. The following is the procedure to be followed for effecting the change of Motorman's cab:-

In the previous leading cab: -

- (a) Release the deadman knob. This results in the operation of emergency brakes.
- (b) Shift the reversing lever to zero position.
- (c) Switch off the Motorman's lock/knob operated switch.
- (d) Operate the guard's lock/knob operated switch.

In the previous trailing cab: -

- (a) Switch back the guard's lock/knob to off position.
- (b) Operate the Motorman's lock/knob switch.
- (c) Move the reversing lever to forward position.

Note- It is the duty of the guard and the motorman to change the destination indicators at respective ends of the train.

DSR16. Stabling of DMU train: - When stabling a DMU train in the Car Shed or on a stabling line, the following procedure for putting the train out of operation should be followed: -

Operation by Motorman -

- (a) Shut off the excitation alternator by operating excitation shut off switch. Move the train operating handle to the 8<sup>th</sup> notch thereby increasing the diesel engine speed to 1800 RPM. Keep the engine running at this speed for approximately 2 minutes. This will be held in cooling down diesel engine.
- (b) Switch off the diesel engine by actuating the diesel engine push buttons at the desk.
- (c) Move the reversing order to zero position and take out the lever from the slot provided in the master controller.
- (d) Switch back the key/knob operated Motormen switch and take out the key from the Motorman's lock switch.
- (e) Take out the guard's key from the guard's lock switch/ switch off the knob.
- (f) Switch-Off the lighting and ventilation circuits.
- (g) Apply the parking brake.
- (h) Switch off the switch fuse unit.

Operation by Guard: -

- (a) Switch back the key/know-operated guard's switch and take out the key from the guard's lock switch.
- (b) Take out the Motorman's key from Motorman's lock/knob switch.
- (c) Take out the reversing lever from the master controller.
- (d) When the rake is stabled, the motorman should invariably be at the leading driving cab. Backing a DMU rake into a siding with the motorman at the rear cab is strictly prohibited.
- (e) After stabling a DMU train or handing it over to the supervisor, the motorman before going off duty should convey to the supervisor/ Incharge of the car shed or stabling line any difficulty or abnormalities noticed during the previous trips requiring immediate attention.
- (f) On arrival of the train at terminal station for stabling, the guard shall switch off the lights and fans. No multiple unit or coach may enter the shed at speed exceeding 10 KMPH and only after sounding the whistle and coming to a stand out side the shed.
- (g) Oil and water levels:- All oil and water levels shall be checked by the motorman before leaving the Car Shed . Any deficiency found should be got attended before leaving the Car Shed.

DSR17. (i) Every motorman and Guard must have with him while on duty all the equipments as per Annexure 'A'.

(ii) The guard and the motorman should also ensure that emergency telephone set is provided both in front and rear cab before starting the train.

DSR18. Coupling Unit: In coupling the unit together, the station staff/Car Shed staff will be responsible for seeing that the jumper connections are properly made. Care is to be taken not to touch the contacts or to let them come into contact with the rails, ballast or metal work of the coach when inserting jumpers in the receptacles provided. In all cases this operation will be carried out under the supervision of the motorman who will first ensure that all the motor generator sets are switched off. Guards are responsible for seeing that all lights and fans switches and the main light switches are off before units are coupled or uncoupled.

DSR19. Formation of DMU: Unless special instructions are issued to the contrary, the formation of DMU's is not to be altered. DMU are not to be used to haul ordinary train coaches.

DSR20. Shunting of Single and Multiple Unit: When shunting is to be performed, the rules contained in GR 5.14 must be complied with.

DSR21. Brake application:

- a. Normally the brakes should only be applied after the master controller handle (throttle) has been returned to the off position except in the case of emergency.
- b. Emergency brakes: - If any obstruction is seen on the line ahead and the train cannot be brought to a stand still by ordinary application of brakes the motorman should remove his hand from the master controller handle when the power will be out off and the brakes applied automatically. This should only be done when an emergency application of brakes is required. The brake controller handle then to be moved to the full on position and the master controller switched off.

DSR22. Working of DMU's when motorman is not operating form the front cab:

- (i) The rules contained in GR 4.21 should also be applicable for the DMU trains. The speed should not exceed 15 KMPH.
  - a. The motorman shall be in the leading driving compartment when the train is in motion or train is stationary on any running line except as otherwise prescribed in these rules.
  - b. In the case of a single or multiple unit train. If the driving apparatus in the leading driving compartment becomes defective, the train shall be driven cautiously from the nearest driving compartment which is serviceable; in this event, the Guard shall travel in the leading driving compartment and shall convey the necessary signals to the Motorman, the Guard shall also sound the horn or whistle as necessary and apply the brake in case of emergency and shall be responsible for stopping the train correctly at signals, station and obstructions.
  - (c) Before giving the starting code signal to the motorman, the guard must satisfy himself that the correct signals are shown for train to start and that the section is clear. The guard must keep a good look out and must exhibit a signal to the motorman. The absence of such signals shall indicate the danger signal and the motorman must stop at once. He must keep a good look out and be prepared to stop the train when necessary. He will also be responsible for observing all further signals en route. All caution orders, warning notices, advices and authorities regarding defective signals, authorities to proceed without line clear etc. must be first delivered to the motorman who will counter sign these before they are sent to the guard in the leading compartment. The guard will retain such documents while he is Incharge and will be responsible for seeing that the order is carried out. At the end of the run all these documents must be handed over to the motorman and his signature obtained.

DSR23.

(a) The following code of bell signals shall be given by the guard and acknowledged by the motorman: -

<u>Indication</u>	<u>Code</u>	<u>Acknowledged by</u>
1. Starting train	00	00
2. Start train when working under G.R. 4.21	00-00	00-00
3. Push back train	000	000
4. Stop train	0	0
5. Stop train when working under GR 4.21	0000	0000
6. Guard leaving the cab	000000	000000

(b) The following code of bell signals shall be given by the motorman and acknowledged by the guard: -

<u>Indication</u>	<u>Code</u>	<u>Acknowledged by</u>
1. Passing an automatic signal in ‘ON’ position as per GR 9.02.	0000-0000	0000-0000
2. Train running through station.	00	00
3. Guard required by motorman.	000-000	000-000
4. Motorman has received an authority to pass a signal at danger.	0000-00	0000-00 followed by the code to start the train
5. For testing the brakes.	00000	00000
6. Protect train in rear.	000-0000	000-0000

Note: -‘0’ means one ring.

DSR24. Disabled Train: - In the event of DMU train failing, another engine may be used to assist the disabled train, only after the motorman has certified that it is safe to be moved, and under no circumstances, a DMU train shall be used to assist a train. Since the DMU rakes are equipped with compressed air brakes, the train will be controlled by engine brakes only. The speed when hauling a disabled train must be cautious speed.

DSR25. Working of alarm bell and inter communication chain apparatus of DMU train: When in an emergency, the inter communication chain handle is pulled by a passenger a red disc shoots out in the corresponding coach and an Electrical contact is made completing the electric circuit of the alarm bell located in each driving cab. The alarm bell will continuously ring in all the cabs warning motorman to stop the train immediately. On hearing the alarm bell, the motorman should apply the emergency brakes and stop the train as per extant rules. After ascertaining the reason for alarm chain pulling, the guard should re-set the disc in the corresponding coach with the help of the pole provided in the cab.

The following articles shall comprise the prescribed equipment of guard working on DMU train, which he must carry with him at all time while performing duty:

1. One hand signal lamp (tri-colour torch 4 dry cell)
2. One set of flags (one green 2 red).
3. Two flag sticks of aluminium telescopic pipes.
4. One First Aid Box.
5. One case containing 10 detonators.
6. One fusee.
7. One whistle
8. One carriage key.
9. One watch.
10. One Working Time Table
11. One Rule Book
12. One Guard's Memo Book.

The following articles shall comprise personal equipment of motorman working on DMU train which he must carry with him at all times while performing duty: -

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| 1. Note Book/ trouble shooting diary           | 1      |
| 2. Working Time Table.                         | 1      |
| 3. Carriage Key                                | 1      |
| 4. Hand Signal flags (red & green with sticks) | 2 each |
| 5. Hand Signal Lamp (tri-colour Torch)         | 1      |
| 6. One case containing. 10 detonators          | 1      |
| 7. Fusee Signal                                | 1      |
| 8. Rule Book.                                  | 1      |
| 9. Duster                                      | 1      |
| 10. Watch                                      | 1      |

