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RECOMMENDATION OF COMMITTEE FOR LONG HAUL TRAIN OPERATION

With the increase in freight traffic demands and emphasis to reduce cost of operation, Indian Railways have been concentrating for increasing through put per train. This is being achieved by improving in design and wagon having better pay to tare weight ratio, increasing number of wagons per train, increase in axle load etc. However congestion on various important routes is a constraint to meet traffic demands especially within non-commissioning of Dedicated Freight Corridor. Innovative solution have to be introduced to overcome the constraints of congestion. One important operational method which though has been tried in past but could not be introduced on large scale is RUNNING OF LONG HAUL TRAINS. Indian Railway has been attempting to run long haul train since 1985.

Running of long haul train is a common feature in developed countries like USA and Australia. Running of long haul train immediately helps in increasing through put per path considerably and thereby helps in reducing the congestion in busy route. It has added advantages by increasing the speed of rolling stocks as a result of reduction in the number of trains.

Presently trial run of long haul is being carried on NCR, WCR, ECOR, WR, SER, SCR, SECR SR, CR, NER and ECR. About 25 trains are being run daily in long haul formation on these railways. Some of the Railways have requested for Railway Board's unified instructions/policy for running such trains. In this back drop, it has been decided that a Committee consisting of EDME/Tr, EDME/Frt, EDTT(S) and DEE(RS) will finalize common instructions for running of long haul train in empty and loaded condition. Committee went through the RDSO's Mechanical Engineering Report No. M-444 of Oct 1985 and other subsequent reports and recommends as under:

1. Since running of long haul train has already started on trial basis on some of the busy section of IR (detail for Dec. is placed at Annexre-1), running of long haul train may be planned under following two scenario:

- i) Immediate -Short term
- ii) Long term- within a span of two years.

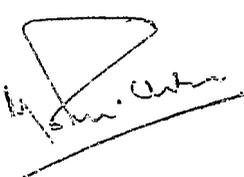
2. Short Term strategy:

2.1. Due to limitation of loop length, long haul may be defined as under:

"A composition of more than one standard train formation. The constituent trains may be either empty or loaded."

Such long haul trains will run with the common nomenclature of "Python". This shall be prefixed with train name and clearly marked in FOIS and control chart etc.. Separate colour code will be provided in FOIS and control charting to distinguish such train from other trains.

2.2. Running of long haul trains will be done on trial basis in the short term and experience gained during the trial period will be used for formulating policy for regular running of long haul trains on universal basis as a part of the long term policy. For the short term, it is proposed to prescribe basic guidelines for running of long haul



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trains. On the basis of these broad guidelines detailed instruction will be issued by the zonal Railways considering existing infrastructure and sectional specialties.

2.3. Following guidelines are proposed for running of long haul trains on short term basis:

2.3.1. Identification of Section: Concerned zonal railway, depending upon its operating requirement and operational feasibility shall identify sections for running of long haul train and notify the section and Python Formation Points.

2.3.2. Infrastructure: Python rakes shall only be formed at notified stations with TXR presence. In case its not an existing TXR point, TXR should be arranged at this point for the purpose of long-haul for issue of "Cover BPC" as defined later in these recommendations after ensuring validity of BPC of constituent rakes. Railways shall also identify the stations where this formation will be normally split in constituent trains. However in case of precedence /crossing of passenger carrying trains and also exceptional circumstances the train can be split at any station with adequate precautions.

2.3.3. Following combination of constituent trains may be permitted in forming a long haul train:

Front Load	Rear Load
Empty train	Empty train
Loaded train	Empty train
Loaded	Loaded

The constituent empty or loaded trains can be BOXN/ BCN/ Container or steel rakes. The combining rakes shall be with single pipe air brake system. However each the individual train must be having valid BPC. Maximum speed of the Python train will be restricted to lower of the maximum speed of the constituent trains in the section. For operation of loaded Long Haul trains heavier than 9000t and at speeds above 60 Kmph, RDSO shall conduct field trials with different classes of locos to determine EBD before permitting such operations.

2.3.4. **TXR Requirement:** TXR shall be arranged for issue of "Cover BPC". TXR staff shall check brake continuity of amalgamated train and will issue Cover BPC mentioning BPC particular including originating brake power of the individual rakes and also brake pressure in the leading loco and the last vehicle. This BPC will be handed over to driver of leading trains. However, BPCs of two constituent trains will remain with respective drivers and in case of absence of middle driver, with the guard of the respective constituent train. Air pressure in the leading locomotive shall be 5.0 kg /cm² and minimum



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pressure in the trailing brake van 4.7 kg/cm² . ~~This provision will be reviewed after three months~~

- 2.3.5. It is understood that points zone on Indian Railway are track circuited and are connected to the block instruments. This facility will ensure prevention of any possible rear end side collision due to blockage of fouling mark and beyond area. However, for the station where point zone has not been track circuited or in case of failure of track circuit or block instruments at the station, line clear to following trains will not be granted unless long haul train has cleared the signal overlap of home signal.
- 2.3.6. Identified sections for Long Haul run will be provided additional, special T/G board for long haul trains.
- 2.3.7. Communication: Pre-tested walkie-talkie sets of adequate power will be supplied to the Driver and Guard for reliable communication during run and to the TXR during the course of formation. Whistle code as per G&SR shall also be used by drivers for communication between driver(s) and guard .
- 2.3.8. During the running if the walkie- talkie communication fails the long haul movement will be terminated at the next Station. Long haul train shall not be operated during communication failure.
- 2.3.9. Locomotives : It should be ensured that RB/DB of leading locomotives are in working condition. Long Haul Loco-operation without use of distributed power system:

(These instructions are valid only for short-term Long Haul operation)

	BP creation	Powering	Braking	Emergency braking
Leading Loco (s)	Yes	Yes	Yes	Yes
Middle Loco(s)	No*	Yes / No#	No	Yes

*This should be ensured by cutting off C-2 Relay valve on the Middle unit manually. C-2 Relay valve setting should be restored at the time of separation of two constituent trains so that the rear train gets charged in a normal manner.
 # May be selected on the basis of load hauled.

- 2.3.10. In case of loaded-loaded or Loaded-Empty combinations hauled by Electric Locomotives, at least five compressors of the leading MU unit will be in ON condition. Locomotives in the middle of the Python rake are not permitted to charge the brake pipe. Leading locomotive will work the train and trailing locomotives will be just a piped vehicle that can provide additional power when required.
- 2.3.11. Before restarting the train after brake application, it shall be ensured that the Brake pipe pressure in the leading loco is 5.0 kg/CM² and the last Brake van

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is 4.7 kg/CM². The guard in the trailing brake van shall confirm to the Driver in the leading locomotive on the Walkie-talkie set the pressure in the last brake van before starting the train .

2.3.12. **Staff Training:** For running of long haul trains Crew and guard will be imparted one day familiarization on running of long haul trains by a team of supervisors/officers from operation and traction.. Long Haul Fitness Training should be made a part of the Loco Pilot / Guard Refresher curriculum. Similarly station staffs of the section over this long haul train will also be trained on long haul operation .

2.3.13. Guard of leading train will travel in its brake van or the middle locomotive cab and guard of trailing train will remain in the trailing brake van.

Long Term Strategy:

Following methodology is suggested for long term movement plan of long haul train on IR network :

1. **Introduction of twin pipe on goods train:** This may be started from BCNHL, BOXNHL and BLC type wagons to begin with and later adopted on all BOXN type and BCN type wagons. Single pipe system has problem of brake pressure fading and propagation delays in application and release of brakes . In case of emergency braking, release is seen to take longer than 950 seconds in initial trial. This would become a limitation in unrestricted adoption of long-haul. Hence, BCN type, BOXN Type & Flat wagons and locomotives should be converted to twin pipe within next five years .
2. **LOCOTROL :-** Manual system of ensuring coordination between front and middle locomotives in a long haul train has limitations and possibilities of errors. Also, the two Traction units are not able to work fully in a synchronized mode, ie, powering, releasing and applying brakes together without use of a second crew in the middle loco set. Use of distributed power system involving use of LOCOTROL type systems should be adopted universally on all locomotives. However since existing LOCOTROL is not a portable device, railways may have to draw a strategy to confine long haul locomotive in a closed circuit or alternatively portability of LOCOTROL may have to be examined. In case portable LOCOTROL is not practicable, LOCOTROL may be made a part of locomotives.
3. **Infrastructure:** Indian Railways aim is for running of long haul trains on regular measure. Therefore as a long term strategy Railways should expeditiously construct longer loop at a distance of 50kms to avoid any detention of coaching trains enroute and to maintain order of precedence. It is proposed that longer loops may be constructed on a priority on a section where doubling/tripling/quadrupling of section is on way. These longer loops can be constructed at convenient stations where such constructions do not require construction of bridges/culvert, etc. These longer loops subsequently can be converted as a part of running line, etc.

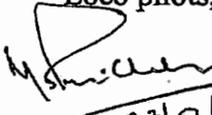


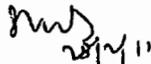
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4. **Training of Staff:** - To develop a confidence among the staff, it is necessary that they are properly trained for running of long haul train. On the basis of experience gained, a separate module on running of long haul trains will be developed by ZTS and taught to Loco pilots, guards and Station Staff as a part of their refresher and initial training.


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