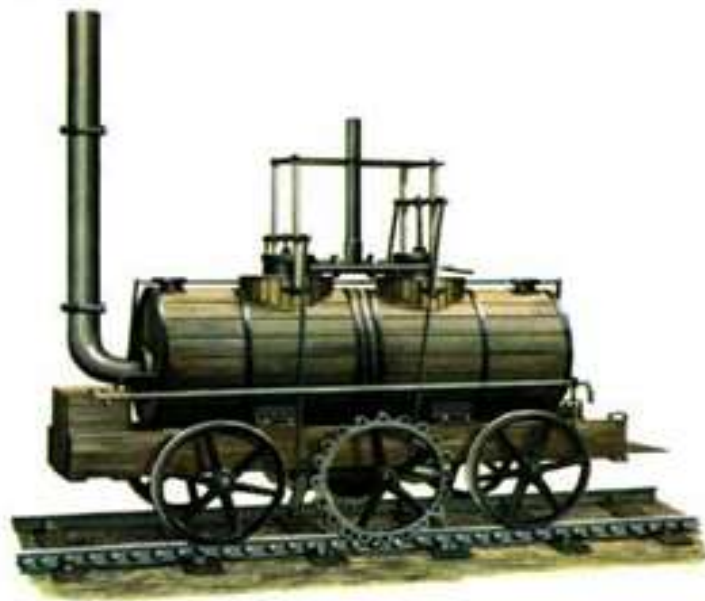


Middleton Railway Trust Ltd.

Shunter's Handbook



Issued by the Traffic Manager

14th April 2018

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v1.2 - Issued by the Traffic Manager 14th April 2018

Introduction

This handbook is designed to help people to carry out the role of a shunter in a working environment, providing guidance on how the rules & regulations from the Middleton Railway Rule Books are relevant to a shunter, and help develop an understanding of how the rules & regulations are applied in practice. This handbook can be used both as a guide in preparation for undertaking a shunting assessment (but must be used alongside practical experience), and also as a support tool for those already passed as a shunter and involved in the operation of trains. Any person wishing to receive practical training, and ultimately assessment, should consult the Traffic Manager in the first instance.

The minimum age for anyone to undertake shunting duties unsupervised is 16. Until certified competent through formal assessment, persons may only undertake shunting duties whilst supervised by a competent shunter. At all times the trainee must listen to and follow all instructions from the person supervising.

To become a certified shunter, you will need to undertake practical training and an assessment covering both theoretical and practical knowledge. The theoretical elements cover the relevant rules & regulations, whilst the practical elements cover signals (both hand and lamp), ground frames and point operation, and moving vehicles.

Once a certified shunter, you will be able to shunt unsupervised. You will be given a grade card indicating you are certified competent for shunting, which should be available at all times whilst at the railway.

This handbook cannot cover every eventuality you may encounter, and therefore must not be used alone, but in conjunction with practical experience and consultation of the Company Rulebook, General Regulations, Train Operating Regulations (TORs) and any relevant Works Instructions issued.

Beware of the unexpected happening!

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What Is ‘Shunting’?

Shunting is the process of moving locomotives and rolling stock from one location to another as part of preparing to run a train, altering the formation of a train, disposing of vehicles after a train has been run or altering the stabling position of vehicles.

Shunting must be done in a safe and controlled manner.

Learning to shunt is the first rung on the ladder for anyone wishing to become involved in train operations at the railway. Shunting may seem basic, but it is one of the most frequently undertaken tasks, and being able to shunt safely provides an essential foundation for the safe operation of trains. Any movement of railway vehicles could give rise to danger, and especially shunting, as it requires a number of considerations not involved in the day-to-day running of passenger trains at the railway.

Railway vehicles weigh many tons, but by following the correct procedures, they can be moved safely – however, they can also have a mind of their own, and could move on their own without warning if the procedures are not completed correctly.

Remember, an unbraked vehicle could move without warning or without even making a noise!

What Are The Duties Of A Shunter?

The main responsibility of the shunter is to work with the locomotive driver as his eyes and ears on the ground, ensuring movements are undertaken safely, and also keeping other people safe around train movements. The shunter instructs the driver with shunting signals, usually given by hand during daylight hours or by lamp in periods of reduced visibility. The driver must have confidence in the shunter, and so it is essential the shunter follows the correct procedures so as not to inadvertently give rise to danger. The driver remains responsible overall for train movements, but relies on the help of the shunter to act as the eyes and ears on the ground.

Shunting is an essential foundation for working safely at and around the railway and is fundamental to the safe operation of trains; being certified competent is not the end – staff must continue to practice shunting and remain vigilant to ensure all duties are performed safely.

Signing In For Duty

This is a requirement of the railway to record who is on duty at the railway, and also a record of staff declarations that they are fit for their duty. Fit for duty requires people to not be under the influence of alcohol or drugs (prescription or otherwise), nor suffering fatigue or other illness that may impair their ability to safely carry out duties at the railway. At any point during the course of duty should a member feel unwell, they must immediately stop what they are doing and advise the driver or a Senior Engineer, who will arrange appropriate care and relief of duties if required.

Notices

These are displayed around the main entrance to the workshop and signing-in point, however they may also be displayed elsewhere around the railway premises as required. The key notice boards for operational staff are;

- Health & Safety and General Notices
These are on the wall to the left as you enter the workshop through the main entrance inner door.
- Operating and Traffic Notices
These are displayed above the signing-in point. It is the responsibility of all staff involved in train operations to read these before starting their duty. Any Special Traffic Notices (STN) relating to events will be displayed on this board and may provide specific instructions for operations during the event.
- Emergency Procedures and First Aid
These are available in the marked folder in the rack on the right as you enter the workshop through the main entrance inner door. A list of First Aiders is also in the folder and displayed around the workshop.

Appropriate Clothing

Whilst undertaking duties at the railway, staff are expected to wear suitable protective clothing. This normally consists of a boiler suit or bib & brace overall – ideally cotton, as nylon overalls could melt near hot surfaces such as steam engines. Stout footwear, ideally with enclosed steel toe-caps should

be worn (external toe-caps can damage the engine paintwork). Gloves are useful for hand protection, leather or industrial type being most suitable. High visibility clothing is not normally required for shunting duties but must be worn when undertaking level crossing duties or if deemed appropriate for the conditions and shunting operations being undertaken.

Responsibilities Of Staff Involved In Shunting

The locomotive driver in charge of a train has overall responsibility for its operation, including any shunting movements. The shunter is responsible for providing clear instructions and ensuring that the instructions given maintain the safety of operations and staff.

All shunters must keep a good lookout at all times, especially as the driver may not be able to see everything that the shunter can. The shunter must warn the driver if they see any reason to apprehend danger – remember, the driver will work to the shunter's signals!

Coming To A Clear Understanding

Before starting any train movements, the driver and shunter (plus any other people involved in the train movements) must come to a clear understanding of what is to be undertaken and how these movements will be safely completed. If a clear understanding is not reached, or the understanding breaks down, movements must stop until the understanding is regained. When carrying out complex shunts, it is beneficial to break them down into smaller parts and manage each part at a time, rather than attempting to agree all moves prior to starting shunting and risk confusion.

Position Of Safety

A position of safety is a position adjacent to running lines where a member of staff can safely stand clear of, and be seen by the crew of, a passing train. This is at least one metre away from the nearest running rail. Extra care must be taken when there are multiple train movements taking place to ensure that a position of safety is safe for all trains that may be moving.

In addition to members of staff being in a position of safety for passing trains, tools and equipment must also be left at least one metre from all running rails.

Persons & Obstacles Trackside

All staff involved with the operation of trains have a duty of care to any persons working near the track being traversed. A sharp lookout must be kept for people near the track, and when observed, movement stopped until the person is in a safe place. If an obstacle is observed which could foul the line or vehicle(s) being moved, then the movement must be stopped and the obstruction moved to give sufficient clearance to resume the movement. The shunter must take care when shunting in areas of limited clearance (see page 12) to ensure they do not become trapped.

Looking Out For Danger

During movements, the shunter should, where possible, be at the front of the train (in the direction of travel), and must keep a good lookout for any dangers or any other person giving a stop signal for whatever reason. If danger or a stop signal is seen, the shunter must give a clear stop signal (see pages 8 & 9) to the driver in case they have not seen the danger or stop signal themselves.

When shunting in the yard, the shunter should position themselves away from tripping and slipping hazards, and extra care must be taken when walking alongside any vehicles either stabled or moving.

When giving hand or lamp signals (see pages 8 & 9), arm movements should be exaggerated (like a windmill) to ensure that the signal is clear and that the driver can see the signal.

Remember safety first – make sure *you* are seen and always give clear signals as a driver will not move without seeing one.

Designated Shunter

Where more than one shunter is involved in a shunting operation, the driver must designate one of them as the shunter in charge. The others must then act as assistants to the shunter in charge. Signals for train movements must then only be given by the shunter in charge – with the exception of the signal to stop the train, as everyone is responsible for stopping the train in the event of an emergency.

Shunting With Multiple Locomotives

Occasionally, more than one locomotive may be used for shunting. If this is the case, then it will remain that only one shunter will be in charge. Drivers and any other shunters must work to the instructions from the designated shunter. Care must be taken to ensure signals are only given to the locomotive required to move, preferably by pointing to the locomotive concerned and ensuring that driver gives an acknowledgement signal. Any signals given must not be ambiguous, and if a driver is unable to confirm a signal is for them, they will not move.

Shunting Checks

Before any vehicles are moved, it is the shunter's responsibility to ensure all vehicles to be moved are in a suitable condition for movement and are coupled or uncoupled as required. Should there be any doubt regarding a vehicle's condition, the driver or a Senior Engineer must be notified.

The following checks must be made as a minimum;

- Check for 'Not to be Moved' board, usually hung on a lamp bracket or coupling. If one is in place on a vehicle requiring movement, then the responsible engineer, usually the Mechanical Engineer, must be consulted before buffering up to the vehicle in question. Unless appropriate authority is given by the responsible engineer, the vehicle in question ***must not*** be moved
- Check brakes are on before buffering up, then released before moving away. Make sure the brakes are reapplied on completion of shunting
- Check there are no chocks in front of or behind wheels. If so, remove after coupling up. Replace when finished if required
- Check no tools or equipment are lying on or around the vehicle or connected to it, that would prevent the vehicle being safely moved
- Check no battery charging cables are attached, if so remove
- Wagon doors must be checked to ensure they are secured in the closed position, with locking pins in the locked position
- Check for any defects (such as loose panels) or loads on the vehicle(s) that could give rise to danger if moved

Hand Signals



Move away from the shunter



Move towards the shunter



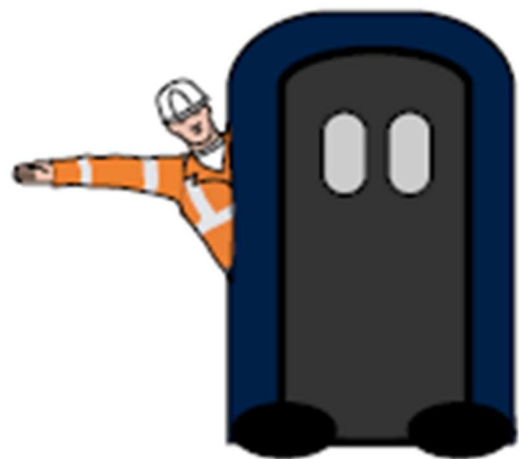
Slow down



Stop immediately



Ease up



Stop immediately when on a vehicle

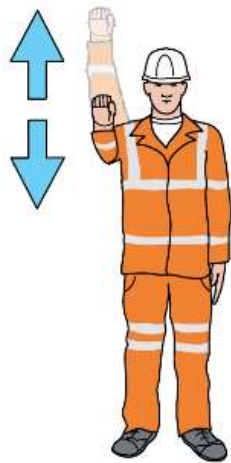
Lamp Signals



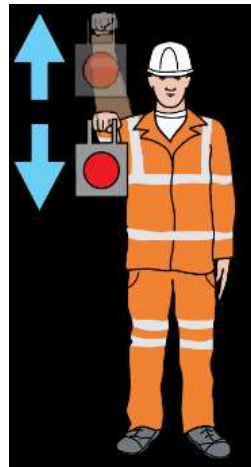
Additional Hand & Lamp Signals

The following hand / lamp signals may also require to be used whilst shunting;

- Acknowledgement Signal
One arm held vertically above the head.
- Create Vacuum



Daylight



Reduced Visibility

In addition to the prescribed signals, any RED signal or any colour light waved violently is to be used to indicate danger.

Response To Signals

All train crew must obey all signs and signals, whether the cause of the signal being given is known to them or not. Shunters must ensure they are clear from any danger posed by the proposed shunting movement prior to giving the appropriate signal to the driver. Drivers will not move off until they have been given the correct signal to do so, which they will acknowledge by sounding the horn/whistle or a hand waved as acknowledgement.

If a locomotive sounds a call attention signal (see page 11), which may be a single blast of the horn/whistle, or a series of short, sharp blasts, all persons in the immediate vicinity must immediately move to a position of safety and once in this position, respond with an acknowledgement signal.

Using Radios For Shunting

There may be circumstances where communications by radio rather than using hand or lamp signals may be more appropriate. The use of radios for shunting is likely to be infrequent, and the method of communicating via radio is covered by a supplementary Work Instruction to the Train Operating Regulations.

Use Of Lights On Vehicles

Where any movement of a train or other vehicles is required during darkness or poor visibility, lights must be displayed on the vehicles being moved such that;

- A white light is displayed on the front of the train (in direction of travel)
- A red light is displayed on the rear of the train (in direction of travel)

The guard or shunter in charge must ensure that these and any other lamps required are properly illuminated.

Whistle Codes – Driver To Shunter

There is no requirement to use whistle codes for signalling purposes, however they are used for warning people of danger and can also be used to assist the shunter in carrying out their duties. Where a whistle code is to be given by a locomotive driver, the shunter and driver must ensure they have come to a clear understanding of a code that will be used.

- One blast – Used to call attention, to give a warning, or to acknowledge a signal from another member of the train crew
- A series of short sharp blasts – Driver has not received an acknowledgement or thinks you may be in a position of danger, needing you to immediately move clear and respond
- Two blasts – Train clear of turnout
- Three short blasts – Apply brakes

Line Of Sight & Remaining Visible

The shunter must ensure that he can be seen by the driver at all times during shunting, giving particular consideration to curvature of the track and other obstructions to clear visibility. If the driver cannot see the shunter, they will cease the movement until they are satisfied the shunter is in a safe position. If it is required to cross from one side of the track to the other during a shunting movement, the driver should be signalled to stop, the shunter indicate their intention to cross the track and, once acknowledgement from the driver is received, cross the track and resume shunting by giving the appropriate signal.

It is recommended that, where practicable, shunting is carried out from the front of the train (in the direction of travel). It is safest for the shunter to be riding on the vehicle at the front of the train, provided the vehicle has somewhere safe for the shunter to stand and hold on, whilst still giving signals to the locomotive driver. In such a situation, it is also easier and safer to cross from one side to the other without having to cross the track and even without ceasing the shunting movement provided a clear understanding is reached with the locomotive driver.

Limited Clearance

Limited clearance is defined as where there is reduced clearance between the track and a fixed structure, with no position of safety (e.g. water tower). The limited clearance areas will be marked with Limited Clearance signs;



Extra care must be taken when vehicles are being moved in these areas; do not stand in an area of limited clearance when train movements are being carried out in these areas, and if necessary, the shunting speed should be reduced.

Fouling Points

A fouling point is the point at which vehicles must be wholly stabled within to prevent being struck by a train passing on an adjacent line. Fouling point markers are provided in red paint on sleeper ends, however are there as an indication only, and shunters must always ensure that there is sufficient clearance for any movement taking place on adjacent lines.

Stop Boards

‘Stop’ boards are signs that mark points where trains must come to a halt before proceeding past them; they may also give other instructions, which must be obeyed before a train can proceed past the signs.

Shunting Towards Building Doors

When shunting towards any building doors, great care should be taken. Where possible, doors should be opened prior to movements being made towards them. This may not be possible with hinged doors, but where roller shutter doors are fitted, they must be opened fully before any vehicle is propelled towards the doors (this is to prevent damage to the doors should a vehicle fail to stop). In all cases where a train is approaching closed doors, allowances must be made for slackness in couplings.

Prohibited Methods Of Shunting

The following methods of shunting are prohibited as it difficult to ensure they are performed in a safe manner;

- Double shunting – The turning of some vehicles onto one line or siding and others onto another line or siding during a single movement
- Loose Shunting – When a vehicle is not coupled to the train
- Fly Shunting – When approaching a point and dropping the engine into one road, and the wagon into the other without stopping
- Prop, Pole or Rope – Shunting using either a wooden prop or pole, or a rope to push or pull another vehicle (occasionally it may be necessary to use a rope or chain to move a trolley or vehicle in an engineering environment; this is covered under engineering procedures and must only be carried out under the direct supervision of a Senior Engineer).

Types Of Couplings

At Middleton we use 3 types of coupling;

- Normal / 3 link – 3 oval links all the same size and shape.
- Instanter – 3 links, (outer 2 are oval, the middle link being pear shaped with recesses at the wide end). When close coupling to provide a smoother ride, the two outer links are moved into the recesses of the middle link to shorten the coupling.
- Screw – These are 2 links connected with a screw thread in the middle. When using these couplings, they ***must*** be screwed up after coupling, with an equal amount of thread at both sides of the centre handle. As these require manual tightening or releasing, it is not practicable to use a shunting pole (see page 16). If these couplings are not screwed up before moving, there is a risk that the coupling will act as a strut and ride up and over the top of the drawhook, uncoupling the vehicle(s) from the rest of the train – this is especially so if the couplings are stiff and has caught people out in the past and can give rise to a dangerous situation.

With all types of coupling, care must be taken when coupling by hand to avoid trapping fingers and hands. The risk of finger traps can be reduced by holding the long side of the coupling as it is attached to the drawhook. Gloves can be useful for hand protection, however are not essential.

Vacuum Connections

When coupling vacuum pipes, a visual check should be made to ensure they are not damaged and that the sealing rubbers are in place and not damaged. When coupled, the pipes should be secured together with a clip (it is not necessary to use more than one clip).

Electrical Connections

When connecting passenger coaches together or a brake van to passenger coaches, the electrical cables must be connected. This is a multi-pin plug on each vehicle, connected by sliding the two parts together. Battery isolator switches on the vehicles should be turned off before connecting the cables.

Applying & Releasing Vehicle Brakes

The shunter must know where rolling stock brakes are situated. Handbrakes can be any of;

- a vertical column with a bent bar or wheel on top (e.g. most steam engines and coaches)
- a vertical wheel (e.g. some diesel locos)
- a lever at the side of the frame moving in a vertical guide, with a pin or ratchet to secure (e.g. most wagons)

For bent bar/wheel handbrakes, the general rule is brakes are applied by rotating the handle in a clockwise direction and released by rotating in an anticlockwise direction. Some wagons have a brake handwheel on both sides of the wagon; only one wheel needs to be operated as both are connected. The direction of application is marked on the handwheel.

Lever brakes are applied by pushing the lever down the guide firmly and inserting the pin on engaging the ratchet to hold the lever in place. Wagons often have brake levers on both sides; it is only necessary for one lever to be engaged, but it is important to check both sides when releasing brakes.

If using brakes that are secured with a pin, ensure that when the brake is released, that the pin is hanging free and not reinserted into a hole – it may be necessary to apply the brakes in an emergency.

Once the vehicle brakes have been released and the shunting move begins, the shunter must observe the wheels of all vehicles being moved to ensure they are rotating. If, for any reason, any wheels are not rotating, the movement must be immediately stopped and the reason for the wheels not rotating investigated and resolved before continuing with the movement.

Use Of Brake Stick

A brake stick is made from a piece of wood, 3 feet long, with a third of it looking like an oblong block (2½ inches by 1¾ inches). The remaining two thirds are round resembling a pole, 1½ inches in diameter, and forming a handle. The stick is used by holding the round handle and using the rectangular piece as a lever to operate and hold down the wagon brake lever so the locking pin may be inserted, or the ratchet engaged.

A brake stick is the preferred method of applying and releasing wagon brakes. If a Brake Stick is not available, a shunting pole or other stout piece of wood may be used for applying wagon brakes, to push and hold the operating lever down whilst the locking pin is inserted, using the non-hooked end of the shunting pole. If using a shunting pole, care should be taken as it is longer and so more susceptible to bend (or break) or the hook catch something unintended.

Use Of Shunting Pole

Using a shunting pole is the preferred method of coupling and uncoupling vehicles as it is safer than going between vehicles. The shunting poles are wooden poles, 5ft in length and 1¾ inch in diameter, with a metal hook on one end. All poles are designed to pick up the right-hand coupling, as viewed by the shunter.

The hook is used to hang the coupling from one vehicle onto the drawhook of the other. Two methods can be used; either hooking the pole onto the coupling under the buffers and swinging it up onto the hook, or by putting the pole over the buffer, hooking onto the link and lifting it onto the hook. Both methods require a lot of practice, especially if vacuum pipes and other features are in the way.

The pole can also be used to uncouple. This is done by placing the pole over the buffer with the metal hook under the link. Then lifting the link off the hook using the buffer as a pivot point for the pole.

Coupling & uncoupling with a shunters pole must only be done when vehicles are at rest and the buffers touching.

Going Between Vehicles Safely

A shunting pole should be used wherever possible, but if it is unavoidable that a shunter has to go between vehicles to couple or uncouple, then the following precautions ***must*** be taken;

- all vehicles ***must*** be stationary
- the driver ***must*** then be advised directly (not via another person) that the shunter is going between the vehicles
- the driver ***must*** acknowledge the shunter's request – until the shunter receives acknowledgement, no person may go in between

When going between vehicles, extra care must be taken as to positioning of hands. Do not place hands on buffers or buffer stalks or in any other place where there could be a risk of crush if the vehicles should move. When you have finished, ensure the driver is informed that you are clear.

Shunting And Coupling & Uncoupling On Sharp Curves

There are some tight curves on site, especially in the yard and workshop road within the compound in particular. As such, consideration should be given to the vehicles being shunted and stabled on curves. Of particular note are long vehicles such as passenger coaches, and these must never be left coupled together and stabled on a tight curve.

In some instances, generally on sharp curves, the coupling cannot be uncoupled by the methods outlined on page 16 due to not being able to create ~~the~~ sufficient slack in the coupling. In such cases and only as a last resort, the following procedure must be used.

This must only be carried out by experienced shunters;

- The vehicles to be uncoupled must have the brakes applied and the vehicle chocked in the appropriate direction
- The shunter should then signal the driver to carefully move the locomotive to compress the buffers to allow the coupling to be secured or removed by a shunting pole
- In the rare instance that using a shunting pole is unsuccessful, the shunter will need to go between the vehicles while the locomotive compresses the buffers, to manually couple/uncouple.

Great care must be taken by all involved.

Couplings Extending

When shunting, extra care must be taken when propelling vehicles. Whilst the locomotive is propelling, all the buffers are usually touching. When using 3-link or instanter couplings, as the locomotive slows down or stops, the vehicles may keep travelling as the couplings extend to their limit. This may result in the last vehicle travelling some distance after a stop instruction is given, and special consideration should be given when shunting up to fixed objects such as doors, closed gates, etc.

When shunting, remember to stop the train in plenty of time to allow for the coupling expansion – it is easier to have the train move at a slow pace to ease up to the required position than risk a collision. The partial application of vehicle brakes can be used to reduce the extent of coupling expansion.

Shunting In To And Out Of buildings

Shunting into and out of buildings is a frequent activity, and consideration must be given to carrying this out safely in both operational and public buildings.

Operational Buildings (Workshops & Running Shed)

Extra care ***must*** be taken when shunting vehicles into and out of the workshops and other operational buildings.

Before any movement of a vehicle out of a workshop space, a thorough check must be made to confirm it is safe to move. Check that there are no indications that it is not to be moved i.e. the presence of a ‘not to be moved’ board – if there is any doubt, consult with a Senior Engineer. A check must also be made for loose parts or equipment either on the vehicle or lying on the floor nearby; this particularly includes cables and airlines that may be lying across the rails or in between the frames. A check should also be made for any chocks or other obstructions under wheels; when buffering up to a vehicle that is chocked, consideration should be given as to why chocks are being used such as if the brakes are not functional. It may be required that a Senior Engineer monitors the movement of the vehicle, and any instructions issued by a Senior Engineer should be followed.

When shunting into a workshop space, the route must be checked to ensure it is clear, any staff working in the vicinity must be advised of the movement and extra care taken due to limited clearances. It may be necessary to stop the vehicle(s) at the entrance doors to ensure that it is safe to enter the workshop space.

Public Buildings (Engine House)

Shunting into and out of public buildings must not be performed whilst the public are in the respective building. Before any such shunting movement is started, arrangements must be made with the Duty Manager to ensure that any members of the public have been moved out of the display hall and that

the public access doors have been locked. Care must be taken to ensure there are no objects fouling the vehicles to be moved, and that the floor is clear of wires and particularly that rail and flangeway covers are removed and left clear. When shunting into the Engine House, the driver and shunter must give adequate consideration of the gradient on the approach to the Engine House.

On completion of shunting in public buildings, all rail and flangeway covers must be securely replaced, covering any exposed flangeways, and any equipment moved during shunting must be returned to a safe position. The Duty Manager must then be advised of the completion of shunting, and that the public may now enter the building.

Wet/Slippery Rails

At times when shunting is being done on wet or greasy rails, extra care must be taken with starting and stopping movements. Wheels can slip if the load is too great and the train will not move – and may even damage the locomotive wheels. Consideration must also be given to stopping, as vehicles are more likely to slide beyond the point where they are required to stop. It is the shunter's duty to ensure the signals given to the driver allow sufficient time to slow down and stop before the required point.

Gradients

Care must be exercised when shunting on rising or falling gradients, and particularly when the rails may also be slippery as described above. The driver will be responsible for controlling the train, but the shunter must be prepared for a signal from the driver to apply extra brakes as required, and as such it is better for the shunter to be positioned where they can apply the brakes on the vehicle at the other end of the train from the locomotive, which may be on the vehicle if it is a locomotive or brake van.

Assessing Locomotive Capability

It is the driver's responsibility to ensure the train is operated in a controlled manner. The shunter should supply the driver with any information which may be needed by the driver, such as advising the load on vehicles if this is not readily visible to the driver.

If the weight of the train to be shunted is very heavy, it may have to be divided to make the shunting easier and safer. The shunter must follow the driver's instructions for dividing the train and ensuring divided portions are stabled securely.

Points/Turnouts

All points (also known as turnouts), except those designated as spring points (e.g. Park Halt South loop spring point), must be set for the direction of travel before being traversed by any vehicle in any direction.

Point levers must only be operated when the train/locomotive is clear of the points requiring to be operated – the shunter must ensure the point blades are clear of any obstructions that would prevent them moving fully across, prior to operating the points. In particular, when shunting during snowy or frosty conditions, snow and ice can build up and obstruct the point blades, and so extra care must be taken to ensure point blades move fully across.

When operating points not controlled by a ground frame, it is suggested that the shunter stands to the side of the handle. Standing in front of the handle risks injury if you slip or the handle jumps. When the points have been changed, the points must be checked to ensure that the switch blade has moved fully across to the stock rail. If not, try operating the point lever again – if this fails, the point blades should be eased across with a stout piece of wood to ensure full contact with the running rail.

Ground Frames

Ground frames are a suite of levers used to control points remotely from the set of points. There are currently two ground frames; one in Moor Road yard and one for the North turnout at Park Halt. An Annett's key is required to unlock the control lever of a ground frame before any point levers can be operated; the single line token forms an Annett's key at one end. Only authorised people may operate ground frames, or trainees under the direct supervision of an authorised person. Ground frame levers must not be operated if a train is moving over points controlled by the frame.

A full working simulation of the Moor Road yard ground frame is available on the Working Members page of the Railway website.

Facing Point Locks

There must be a locking mechanism in place to prevent the movement of points whilst a passenger train is travelling over points in the facing direction. This can be done with a clamp or a facing point lock (FPL).

The Moor Road yard ground frame has two facing point locks (main yard points and main loop points) and the Park Halt ground frame has one (North end loop points). The Dartmouth branch points are also permanently secured in the main running line direction using a facing point lock and a bolt through the switch blade and rail, which may not be removed without instruction from a Senior Engineer.

There may be other operational reasons why points require clamping in a certain direction, and these will be outlined in a Special Traffic Notice or Operating Notice as appropriate. Particular care must be taken to observe any instructions in the relevant notices or from the locomotive driver regarding points being secured by clamps during use.

Road Crossings

A shunter may be required to act as a flagman or level crossing keeper if the movement requires traversing over a level crossing, or may be asked to facilitate the operation of a level crossing during special events. When a shunter is required to act as a flagman, they must be wearing suitable high visibility clothing so that they can be seen by highway traffic.

Work instructions are provided and detail the arrangements for the operation of level crossings, and shunters should make themselves familiar with these work instructions.

When a shunter is required to act as flagman, they must stop highway and pedestrian traffic, and when satisfied that it is safe for the locomotive or train to traverse the crossing, must give a clear signal to the locomotive driver, ensuring the signal cannot be misread by a highway or pedestrian user.

Completion Of Shunting Duties

Upon completion of shunting, it is the responsibility of all shunters involved to ensure all public areas are left safe, vehicles are securely stabled, the relevant brakes are applied and equipment used during shunting replaced. All keys must be returned to their normal storage place, and any doors, gates etc. that have been opened during shunting must be secured as appropriate.

Shunting Cranes

At Middleton, we have two cranes in normal use, with different procedures for safely moving the cranes. Any movement of a crane should be regarded as out of gauge and supervised by a suitably experienced person.

Smith's 10 Ton (Yellow) Crane

This crane is not currently fitted with buffers, so extra care is required when buffering up to it to avoid the coupling hook of the crane coming into contact with the adjacent vehicle; a gap should be left to allow the coupling up process. Extra care must be taken if going between the vehicle and the crane to attach couplings, due to limited clearances between vehicles.

There are two brakes on this crane; a travel brake pedal, and a hand wheel in the cab. The travel brake can be operated from within the cab, or by operating a lever from outside, underneath the cab. The lever is marked "Inner" and is the right-hand foot pedal in the cab/lever outside the cab. The hand wheel in the cab behind the seat is not normally used, however a check that this has been released should be made.

As this crane is not symmetrical – the cab side of the crane is wider than the other side, so care must be taken when passing through limited clearance areas, particularly such as the water column. It should not be assumed that it will pass other vehicles normally stabled within fouling points and clearances must always be checked. The crane will not pass the water tank column with the jib facing northwards.

This crane must only be moved at slow walking pace due to the crane not having sprung axleboxes, and particular care taken over points. The unsprung nature of the crane makes it more susceptible to derailment if not shunted carefully.

Smith's 5 Ton (Grey) Crane

This crane is fitted with buffers, so normal shunting considerations apply to buffering and coupling up. This crane is also within loading gauge limits when parked with the jib parallel to the track in either direction.

There are 3 travelling brakes on this crane;

- Chassis mounted brake – this is a vertical hand wheel on the North end of the crane (East side of chassis); this is the normal parking brake, and is applied by turning the wheel in the direction indicated on the chassis
- Foot pedal brake in the cab – this is applied when the pedal is in the up position, and released when the pedal is down on the floor
- Vertical hand wheel in the cab – positioned below the selector lever for Derrick/travel

The normally operated parking brake is the chassis mounted brake. The other two brakes are not normally used, however checks that these have been released should be made. If in doubt regarding moving or securing any crane, consult a crane driver or Senior Engineer for clarification before undertaking any movement.

When shunting cranes, the jib and hook project beyond the buffers; this is a particularly important consideration when shunting up to buildings or other vehicles. Cranes must never be shunted together; when it is required to move two cranes, each one must be moved separately.

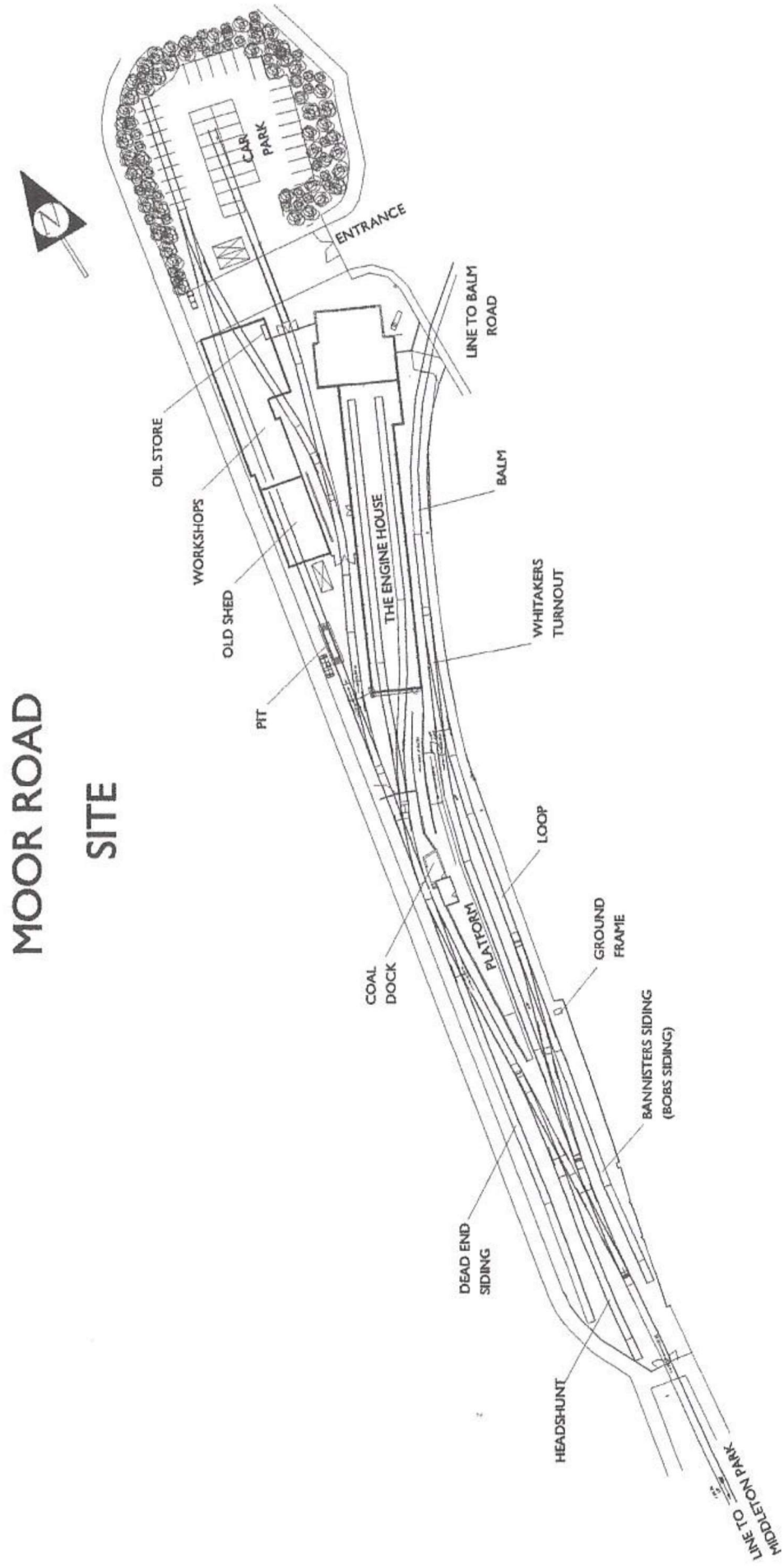
Crane Movements Outside Of Moor Road Yard

If taking either crane outside of Moor Road yard, the crane jib must be sufficiently lowered to clear overhead obstructions such as the tunnel, bridges, overhead wires and any trees which may be overhanging the line.

Any crane being used as part of an engineering train outside of Moor Road yard must have a locomotive positioned to the North end of the train to act as braking. If this is not practicable, the crane must remain coupled to the engineering train at all times.

It should be noted that the Smith's 10 ton crane will only pass through the motorway tunnel with the jib pointing northwards.

Moor Road Yard Site Plan



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