

TICKETING & REVENUE

For the
attention of all
Station and
Revenue
Control staff

UNDERGROUND

Issue
119

UPDATE

August
2019

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SEPTEMBER FARES REVISION

Summer might not be quite over yet, but we are currently in the final stages of preparations for the final fares revision of 2019, which is scheduled to take place on Sunday 08 September.



Although fares set by TfL remain frozen, a number of fares that are set by other Train Operating Companies (TOCs) will be changing.

On [Pages 2-5](#) of this edition of TRU, we highlight some of the other main changes that will be taking place as part of the September Fares Revision.

One of the changes being made is a change to the price of the Off Peak cap covering Zones 1-9 + Watford Junction, which is set by [London Northwestern Railway](#) and will be increased as follows.



Zone 1 to Zone 9 + Watford Junction

Day Travelcard (Off Peak)		Adult PAYG Daily Price cap		Child PAYG Daily Price cap	
Adult	Child	Anytime	Off Peak	Anytime	Off Peak
Withdrawn		£24.60	£18.80	£12.30	£9.40

KEY STORIES INSIDE

Pages 7-9

ON TRAIN FRAUD SURVEY

In a three page [Special Feature](#), we catch-up on the recently published results of the last three surveys and the current trends in fare evasion.

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OYSTER REFUNDS

We use this month's [Oyster Explained](#) feature to focus on the recent problems which prevented some customers obtaining a refund from our POMs.

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DISCREPANCIES

In the first of a series of in-depth looks at some of our Ticketing priorities this year, we cover the subject of account discrepancies and how to avoid them!

Pages 16-17

MFM UPGRADES

We take a look at some recently completed upgrades to MFM software and some further changes that are on the horizon.

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SCU ROLLOUT

Having got the "Green light" to rollout the new SCU across the network, we update you on the plans for this and some issues we are currently addressing.

SEPTEMBER FARES REVISION

DAY TRAVELCARD RANGE REDUCED

From Sunday 08 September, the range of Day Travelcards offered by our POMS will be reduced with the withdrawal of the current Zone 1-9A, 1-9B and Z1-9C options.

From this date customers will only be offered the Zone 1-6 and Z1-9 versions.

Apart from the desire to reduce the range of magnetic tickets on offer, there was also an issue that the tickets currently on offer from POMS had different availability to the nearest equivalent offered at NR stations.

Our Zone 1-9+ Day Travelcards effectively offer unlimited travel within Zones 1-9 and zones A, B and C (as appropriate), so effectively a customer buying the Z1-9B version could travel from Zone 1 to Hertford East (Zone B), return back to Zone 1 and then travel across London to Watford Junction and then make another journey back to Zone 1 on the same ticket. The equivalent ticket bought at Hertford East, would be a Hertford to Zones 1-6 Day Travelcard which effectively only allows a return ticket between Hertford and the Zone 6 boundary and then unlimited travel within Zones 1-6.

Following the example above a customer buying the NR version would not be valid for travel beyond the Zone 6 boundary to Watford Junction and back. This has obviously become more of an issue as Oyster and contactless acceptance has been extended to NR stations beyond Zone 6.

There is no change to the arrangements for PAYG daily capping, so customers wishing to travel to locations classed as being in Zones A, B or C for capping purposes, will continue to be able to do so, using either Oyster or contactless.

One magnetic ticket product that we had hoped to discontinue as part of the September changes, the 2 and 3 Day Visitor tickets offered at gateway and tourist stations, has been given a further stay of execution and sales will continue until 02 January 2020, the next opportunity to withdraw this product.

NO MORE WALLETS

One of the other changes that we will be implementing in conjunction with the September Fares Revision is the withdrawal of Oyster card wallets from LU stations.

Since the closure of ticket offices, the consumption of wallets has been very inconsistent with some very small stations ordering quantities far in excess of the number of new cards issued by their devices, whilst other much bigger sites have complained of excessive stocks due to very low consumption. This is probably due to the fact that there isn't now an easy process to issue a wallet to customers getting a new card that might want one.

There is some evidence that some stations with high consumption rates have been leaving batches on top of POMs or in the ticket halls and some customers have then removed handfuls.

The reasons behind the decision to stop providing wallets are:

- *The cost of provision*
- *Customers switching to contactless or keeping cards elsewhere*
- *To reduce the volumes of plastic consumed & potential landfill*
- *A large drop off in demand*
- *The availability of wallets from other sources*



The process to be followed for the withdrawal of wallets will be as follows:

- *The automatic supply of wallets by Cubic will be discontinued.*
- *Any stations requiring wallets can continue to order via Mi-apps but orders will be routed to the T&R team for authorisation / processing*
- *All stations will be asked to confirm their current stock holding so the existing stock can be reallocated and used up (as we did for the old style LU ticket rolls).*

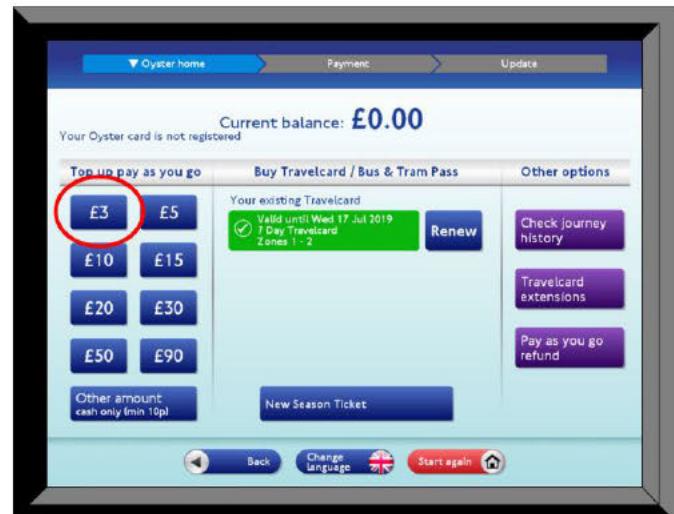
Please confirm your stations current stock of wallets by email to: TandRPerformance@tfl.gov.uk

SEPTEMBER FARES REVISION

PAYG BANKCARD TOP-UP OPTIONS

To facilitate a trial of different value PAYG top-up buttons on POMs at the stations listed below, from Sunday 08 September, the current £60 top-up button will be replaced with a new £3 option at these stations, to evaluate the impact on card payments. This lower value will not be offered when a customer selects to purchase a new Oyster card.

Results from the trial stations will be evaluated before a decision is taken on whether to offer the lower value top-up option at other stations. This cannot be implemented until January 2020 at the earliest. All other stations will continue with the current top-up values.



ALPERTON

BECONTREE

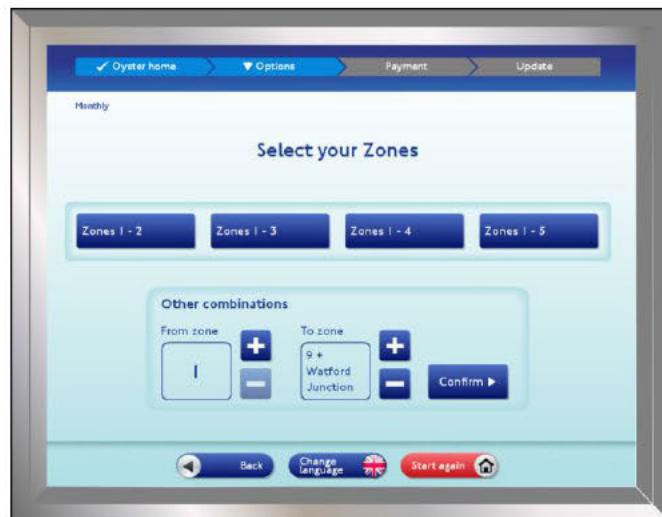
CANARY WHARF

DAGENHAM HEATHWAY

EARLS COURT

MARBLE ARCH

SOUTH HARROW



QBM FIX

An issue which will be fixed as part of the September Fares Revision involves QBMs at stations within Zone 2, which currently do not display the correct range of Travelcard zonal combinations.

This issue was highlighted by staff on the Fulham Broadway area, who pointed out that the zones offered on the QBM didn't match those on the adjacent POMs.

It was subsequently established that screens had been copied from QBMs in Zone 1, so did not offer any non-Zone 1 combinations. After the September Fares Revision all POMs should offer the same zonal ranges.

POM SCREEN CHANGES

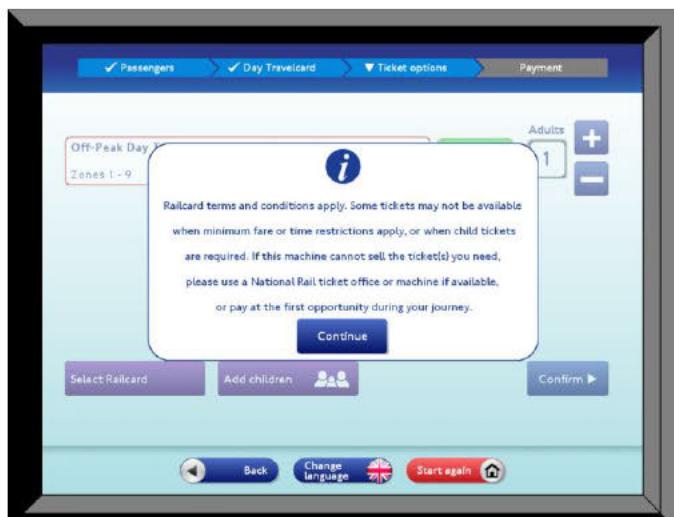
The fares revision also includes a number of minor changes to POM screens. Some of these are linked to other changes which will form part of this fares revision.

We have already outlined changes to the Day Travelcard screen opposite on [Page 2](#), as a result of the withdrawal of Day Travelcards with validity beyond the numbered zones.

The two items above will also result in changes to POM screens to accommodate the lower bankcard top-up value and the correction of the Travelcard zones offered on QBMs.

A further POM screen change which will be made from 08 September will correct an issue with the Railcard terms and conditions screen. Since this was last updated, it has been identified that in certain of the foreign language options some of the text is over-lapping and therefore cannot be read properly, this will be corrected as part of the fares revision changes.

A further POM screen change on RSLU TVMs is outlined on [Page 5](#), to accommodate the new 16-17 saver card being introduced for NR customers.



SEPTEMBER FARES REVISION

T&R BOOK CHANGES

A steady stream of recent changes and the delay to the implementation of a number of projects and planned initiatives have resulted in a further delay to the publication of updated versions of the T&R Books.

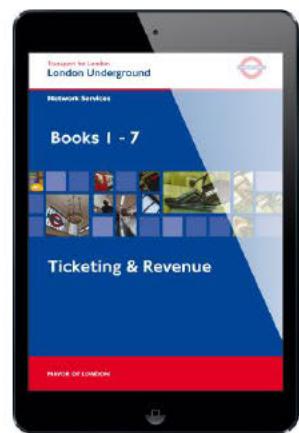
We had hoped that the revised editions of a number of the current books would be available to coincide with some of the changes being implemented in conjunction with the forthcoming September Fares Revision, but it is now looking likely that the revised editions will not be ready until the end of September.

A majority of the changes are to the current T&R Book 2 and T&R Book 8, as outlined in the table below.

The previous edition of T&R Book 5 is due to be withdrawn as much of the contents have already been integrated into other books and this will be replaced by a completely new T&R Book 5 which will include gateline issues and some of the content in the current Book 8, which will then be withdrawn.

During the last review of the books it was identified that historically a lot of information was repeated within Books 2 and 8, as Book 2 generally dealt with issues for ticket office staff and Book 8 covered issues for gateline staff. With the current station staffing model the information will be split differently with Book 2 focusing on LU ticketing and Book 5 on ticket acceptance and other procedures.

The forthcoming updates will not include T&R Book 1 or T&R Book 4 as these will be updated for the January Fares Revision.



Nature of change	T&R Book (TRB)	Effective date	Reference document
PAYG Acceptance on Heathrow Express (HEx)	TRB 2, Section 1.3	19-02-2019	HIB 07-19
Platform tickets rejected on Entry	TRB 2, Section 1.9	10-03-2019	HIB 10-19
Discounted Child Travelcards	TRB 2, Section 1.13	02-09-2018	HIB 35-18
Withdrawal of Oyster Registration Forms	TRB 2, Section 2	19-05-2019	HIB 20-19
Discount Entitlement Combinations	TRB2, Section 4	09-08-2019	HIB 32-19
Setting Privilege Discounts	TRB 2, Section 5	22-03-2019	HIB 12-19
NR Staff Travel Card reissue	TRB 2, Section 5	29-03-2019	HIB 13-19
Full Registration of new Oyster card before adding Privilege discount	TRB 2, Section 5	19-05-2019	HIB 20-19
Oyster Weekly Capping on Bus & Tram	TRB 2, Section 9	17-12-2018	HIB 50-18
PAYG Acceptance at Epsom station	TRB 2, Section 9	25-02-2019	HIB 08-19
PAYG Acceptance to Hertford North	TRB 2, Section 9	02-04-2019	HIB 13-19
PAYG Acceptance to Potters Bar and Radlett	TRB 2, Section 9	29-08-2019	HIB 34-19
Contactless Acceptance to Brookmans Park	TRB 2, Section 9	29-08-2019	HIB 34-19
Banking Incomplete Banknotes	TRB3, Section 4.7	14-06-2019	HIB 24-19
NR Tickets – Break of Journey	TRB6, Section 6.1	11-07-2019	HIB 28-19
TOC Only PRIV Cards – New Design	TRB6, Section 9.3	01-07-2019	HIB 26-19
Accepting deliveries	TRB 7, Section 5.3	30-11-2018	HIB 48-18
Chiltern Railways ITSO card launch	TRB 8, Section 6.4	14-12-2018	HIB 50-18
GWR ITSO card (soft) launch	TRB 8, Section 6.4	27-01-2019	TRU115
Cross Country ITSO card launch	TRB 8, Section 6.4	24-04-2019	HIB 17-19
Southeastern ITSO Staff Pass Acceptance	TRB 8, Section 6.4	23-08-2019	TRU119
Gateline Settings Changes	TRB Appendix 4	03-06-2019	HIB 22-19

Part 1 – In the lead article of our last edition we featured US President Donald Trump's visit to the UK. So following on with a head of state theme...

Q1) Which UK Prime Ministers have previously been featured within the TRU?

More than one answer may apply



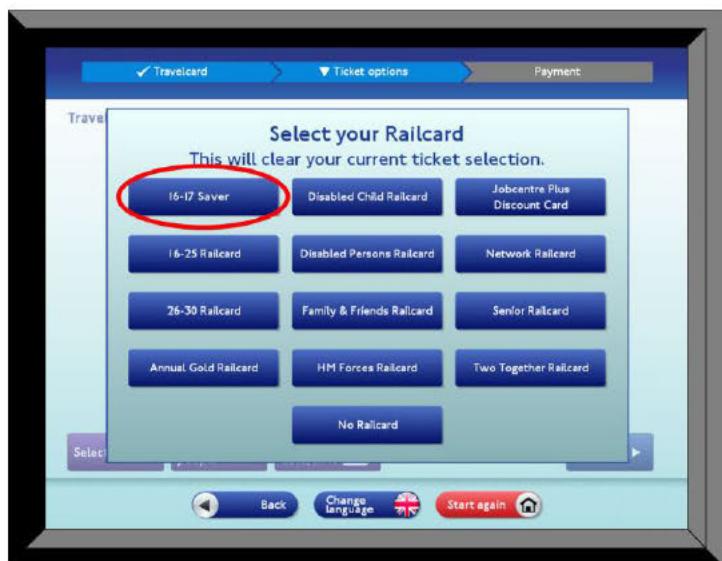
Ticketing & Revenue
T & R
Trivia
[Answers on Page 19.](#)

SEPTEMBER FARES REVISION

WHEN IS A RAILCARD NOT A RAILCARD?

On 14 August, the Department for Transport (DfT) and the Rail Delivery Group announced the launch of a new discount scheme for 16-18 year olds. Although referred to by some parties as a "16-17 Railcard" it actually isn't a Railcard as such and its official name is the 16-17 Saver card.

The new Saver cards will be on sale from 20 August at a cost of £30, to allow the purchase of tickets in advance of the scheme starting on 02 September (to coincide with the start of the new school year). They will offer holders a 50% discount on NR journeys at all times.



No discount will be offered on wholly LU journeys and the holder will not be entitled to have the NR Railcard discount entitlement added to their Oyster card. The cards however can be used to support half adult rate travel using Travelcard products issued from NR stations outside the London zones and NR tickets with Cross London validity.

On LU better options are available to holders of 16+ Oyster Photocards.

TVMs at RSLU sites will have their screens updated with the new discount added for the purchase of discounted magnetic tickets (as illustrated left) as part of the September Fares Revision changes, but LU devices at our other stations will not have this button added.

NOTTING HILL CARNIVAL

This year the Notting Hill Carnival will take place over the Bank Holiday weekend of **Sunday 25 and Monday 26 August 2019**. To minimise incomplete journeys customers must be encouraged to touch-in and touch-out where possible and Station Aliasing, Auto-fill and Selective Auto-completion will be used at stations within the Carnival area.

NOTTING HILL CARNIVAL

Aliasing to Notting Hill Gate – Using this facility, customers forced to travel to a station beyond their intended destination who cross a zonal boundary, will not be charged for the extra zone.

BAYSATER	HIGH STREET KENSINGTON	HOLLAND PARK	LADBROKE GROVE
LANCASTER GATE	LATIMER ROAD	PADDINGTON	QUEENSWAY
ROYAL OAK	SHEPHERDS BUSH MARKET	WESTBOURNE PARK	

These settings are to be applied to the following stations from the start of traffic on Sunday 25 August until close of traffic on Monday 26 August 2019.

Selective Auto-completion – will be applied at the stations below to ensure that any customers who are unable to touch-out when exiting will have their unfinished journey completed when they touch-in on their return journey;

BAYSATER	EALING BROADWAY	HIGH ST KENSINGTON	HOLLAND PARK
KENSAL GREEN	KENSAL RISE (LO)	LADBROKE GROVE	LANCASTER GATE
LATIMER ROAD	MAIDA VALE	NOTTING HILL GATE	PADDINGTON
PADDINGTON (NR)	PADDINGTON (Suburban)	QUEENS PARK	QUEENSWAY
ROYAL OAK	SHEPHERDS BUSH (Central)	SHEPHERDS BUSH MARKET	SHEPHERDS BUSH (LO)
WARWICK AVENUE	WESTBOURNE PARK		

Any customers, whose journeys are not Auto-completed, will be picked up by Data Analytics and appropriate refunds will be downloaded to these cards via the Faster Universal Load facility.

Gates should where possible be left in normal operation and must not be powered down, as this will prevent tables been loaded to the device and may cause depletion of the device battery which is used to open the paddles in the event of a power failure.



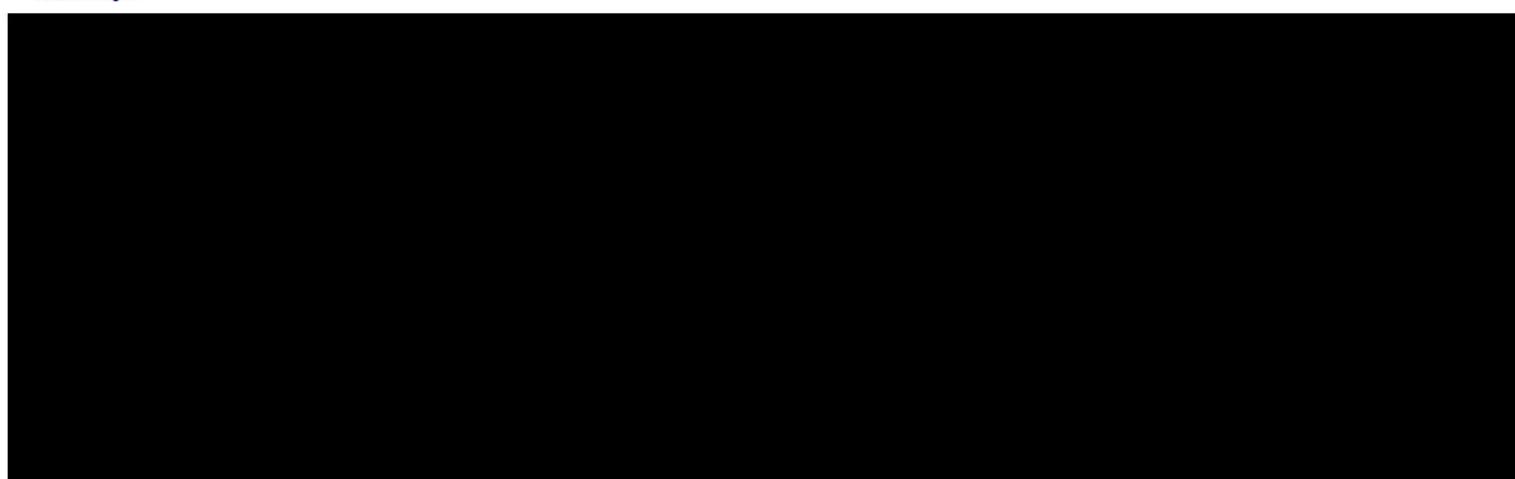
Station staff **must not** resolve incomplete journeys which occurred between 25 and 26 August, due to the risk of customers receiving a double refund. Customers must be advised to contact the Customer Contact Centre if they do not receive their refund automatically by **Monday 02 September 2019**.

MAGNETIC TICKET FIXES

In TRU118 in our review of the May Fares Revision, we didn't identify an issue that had initially been highlighted to us by staff working at Stratford. In May it was identified that a number of NR magnetic tickets to London terminals from stations served by South-eastern high speed services were being rejected when customers made a break of journey at Stratford typically to go to the Westfield shopping centre.

A previous gate fix had meant that gates in the north ticket hall accepted these and allowed customers to resume their journey to Liverpool Street. This wasn't initially identified as a fares revision related issue, so our focus first of all was on a possible ticket coding issue.

Subsequent investigations established that a table had not been updated at either the January or May Fares Revisions. This issue was not just confined to Stratford as it also affected the acceptance of certain NR tickets at stations such as Farringdon. A fix was successfully applied as part of a scheduled base data load on Sunday 28 July.



ITSO STAFF CARD ACCEPTANCE

A further gate related issue was recently identified at West Brompton, Wembley Central and Harrow & Wealdstone with the acceptance of Southern and Southeastern Staff ITSO cards.

These stations are served directly by Southern services and their staff are therefore entitled to use their Staff cards for travel on Southern trains. Due to a reciprocal arrangement between Southern and Southeastern, Southeastern staff are also entitled to use these services.

Until the ITSO data held by the gates can be updated holders of the cards illustrated on the right should be allowed through the gates at the affected stations after visual inspection of their card.



SOUTHEASTERN TRAINS STAFF & DEPENDANT PASS

Part 2 – Staying on the subject of ITSO ticketing....

Q2) How would you check the validity of a customer's ITSO card?

- A Check gate POD code
- B Use a MOVie device
- C Check on POM
- D Visual inspection of card



[Answers on Page 19.](#)

SPECIAL FEATURE

SPECIAL FEATURE

SPECIAL FEATURE



Got a ticketing and revenue related question, problem or simply noticed something you think your colleagues should know about?

Why not test the knowledge of Olly - our resident ticketing guru.



From: [REDACTED]
Sent: 21 July 2019 10:53
To: Ask Olly
Subject: Privilege travel

Hi Olly,

Is there anyway we can have pictures of all the types of Privilege cards and how we are meant to set the relevant discounts on Oyster, as my colleagues and I are confused by them.

Regards



Hi [REDACTED]

Images of most of the Privilege cards that are valid on LU are shown in the current editions of [T&R Book 2](#) and [T&R Book 8](#).

This information is in the process of being updated to include the 2019/20 version of the NR Staff Travel Card. An image of which was published in the Weekly Hot Issues Bulletin in late May.

There is also a TOC only Staff Travel Card the design of which has also been changed this year, which is not valid on LU and holders of this card cannot have a Privilege discount added at LU stations.

Regards

Olly Oyster

Hi [REDACTED]

Thanks for your email and for identifying this issue.

We are currently discussing a possible change to the current procedure with the Financial Services Centre and are investigating whether all notifications could be sent via email in the future.

Thanks again for highlighting this issue.

Regards

Olly Oyster

From: [REDACTED]
Sent: 12 June 2019 16:15
To: Ask Olly
Subject: Change delivery discrepancy

Hello Olly,

I work hours when the FSC don't answer the phone.

How should I notify them per the procedure? Can this be done via the memo or be an email? Which address?

Many thanks.

Regards



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- having your own personal copy.
- access to archived copies.

- Send an email to: [REDACTED] @tube.tfl.gov.uk today.



From: [REDACTED]
Sent: 20 July 2019 08:26
To: Ask Olly
Subject: No PAYG refund box

Hi Olly,

Today I was at Putney Bridge when a customer came up to me for a refund on his Oyster cards. Of course I said it was easy until I took him to the POM and didn't see the PAYG refund box.

I rang customer services on his behalf and all I got advised was for customer to go online for refund. I tested the POM with some old refunded cards and the PAYG refund box was available on screen. I even pressed the screen as if the box was available but no joy.

The Oyster cards concerned were bought on Thursday at 10.48hrs but even a new card should have a PAYG refund box although they won't be able to cash it in straight away.

Regards



Hi [REDACTED]

Thanks for your email and highlighting the issue you had seen.

We received several similar reports from colleagues at various stations and it was subsequently established that there was an issue with the connection between our MFM's and the server that handles authorisation of POM Oyster card refunds, which can mean that a card is blocked from getting a refund until at least 48 hours has elapsed.

Some details were included in the *Hot Issues Bulletin* as soon as the cause of the issue came to light.

Cubic have recently completed the deployment of a software upgrade to all MFM's (as outlined on [Page 16](#)) which should have now resolved this problem.

Regards

Olly Oyster

Hi [REDACTED]

In cases where a POM retains a customer's money, this should now be reflected by a "Failed Sale" transaction within the SAF journal, providing detailed information on the reason, amount tendered and the amount of money lost by the customer. If there is no evidence of a loss, then we shouldn't be making a refund.

The ROLT/RLMP form can still be used in cases where a member of staff has witnessed the customer putting the money in the machine and this isn't reflected by the device or journal. We also have a current issue where if the device fails during an Oyster refund transaction, this isn't reported to the SAF, but the customer's card will have been cancelled. This is due to be addressed in a new version of MFM software, which will then send the transaction to the SAF as it does for a failed sale.

The main circumstance where the form can still be used is where the POM fails, but there is no TSID card holder available to investigate, check the SAF or make a refund to the customer.

Hope this helps in clarifying use of the form.

Regards

Olly Oyster

From: [REDACTED]
Sent: 06 June 2019 09:14
To: Ask Olly
Subject: ROLT/RLMP forms and reference numbers

Hi Olly,

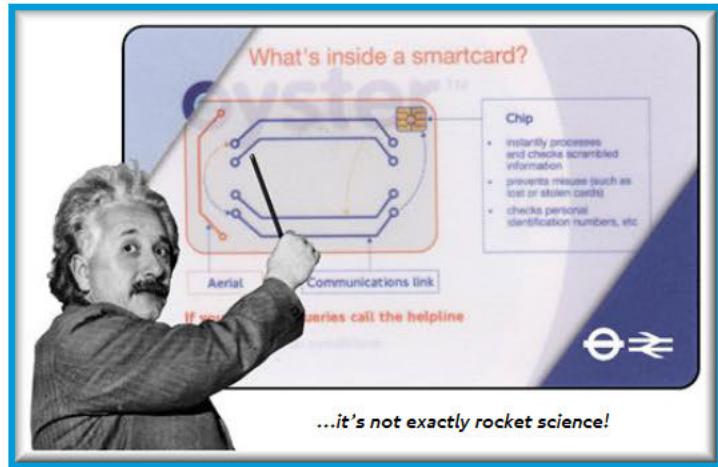
We have conflicting reports/procedures in regarding lost money in the POM's, specifically notes when there is no sign of any kept cash from the POM keypad or the SAF Journal and no error codes on the SCU.

Do we still use ROLT/RLMP forms? According to our CSM's, we don't and is there such a thing as a "Customer Service" reference number?

I would be very grateful if you could tell us the correct procedure in dealing with this matter so I can pass the correct information/procedure to my colleagues.

Regards





OYSTER EXPLAINED

For this month's Oyster Explained feature, we turn our attention to a subject which has been in the news recently. The loss of the link between MFMs, TfL TVMs and the server which processes and authorises refund requests, caused some customer inconvenience and quite a bit of confusion amongst station staff. Following this incident it became apparent that a number of people didn't have a full understanding of how the Oyster refund facility actually worked.

We therefore thought that it would be a good time to go through this process to clarify a number of common misconceptions.

OYSTER REFUNDS

So probably the best place to start is with a customer who wants a refund on an Oyster card that they no longer require. Since the closure of LU ticket offices, a facility has been added to allow customers to obtain a self-service refund from the MFMs and TVMs. This facility has some restrictions which may prevent the refund button being shown on screen:

- MFMs / TVMs must have sufficient change to be able to make the required refund. Please note that the required levels of each coin are different to those needed for the POM to be in "Change Given" mode. As a result it is possible for a POM to be in change-giving mode but not be able to offer refunds.
- Oyster cards must not have a PAYG balance of more than £10, so with a card deposit of £5, the maximum refund available is £15.
- Oyster cards must not hold an unexpired season ticket.
- Oyster cards must be of the current Desfire type. Older Mifare cards (without the D on the back) cannot obtain a refund from a POM.



When the card is presented to the device and "refund card" is selected the device will attempt to connect with a central server controlled by the TfL payments team, which checks the card against a set of rules, taking into account;

- when and where it was purchased,
- the method of payment used,
- the usage of the card since it was bought.

Unfortunately we are in a continuing and evolving struggle to counteract the actions of those determined on exploiting any perceived weakness to undertake card fraud on POMs and convert the proceeds into cash at the first opportunity.

As a result it isn't possible to be completely prescriptive around how rules are applied. However if nothing else, we can allay the myth that you can get a refund on any card as long as it is more than 24 hours old.

In the event of a customer not being able to obtain refund from a POM, after checking the criteria in the bullet points at the start of the article, the advice to the customer should be to:

- Try again later
- Contact the Customer Contact Centre – who will be able to look at the particular card and identify the exact reason a refund wasn't available to them.

Help Us to Help You - If you are raising any specific queries about Oyster refunds with the T&R team, we will only be able to investigate it properly if your message includes the full Oyster card number.

SPECIAL FEATURE

DISCREPANCIES AND HOW TO AVOID THEM

In the first of a series of features focusing on some of the 2019/20 T&R priorities, this month we focus on Account Discrepancies and how we can avoid them.

This year the number of TSID card holder discrepancies has been restored as a scorecard measure for each area. As a result there has been much more interest in both the total numbers of items and who incurred them. We therefore thought it would be a good opportunity to dispel a few myths and provide some simple tips around how to avoid errors occurring.

One common myth amongst TSID card holders is that the number of discrepancies on their account is caused by POM issues.

In reality if procedures are followed correctly, the TSID card holder only records on their account the actual amount of money they have taken out the device. Unfortunately a lot of discrepancies occur when the member of staff either accepts the POM service on the SAF, or enters a different amount to what has been counted.

Probably the most common single source of discrepancies is not recording CHD transactions on the SAF. In a recent period 10% of all discrepancies were cases where money had been added to the CHD but without recording where it had come from. In a close second place was dispensing coin to make a bulk coin bag, but not recording on the SAF the withdrawal from the CHD.



2019/20 PRIORITIES

Reducing Discrepancies
PAYG Journey resolution
Failed Card replacements
Settings Discounts
Gateline management
Ticketless travel

SO HOW DO WE AVOID A DISCREPANCY?

- **Probably one of the best tips is *not to rush*.** Pressing multiple keys will skip through screens more quickly, but means that you may miss some of the screen prompts that are displayed to highlight a possible error.
- **Don't record the same transaction twice.** If you have already recorded a service as an "offline service" and the event appears later on the SAF, don't input the amount again, but record it as zero, otherwise the SAF will expect you to account for that money as well.
- **Take care to record the right figures.** Many errors could be avoided if greater care was shown in recording the right numbers in the correct order. There are many examples each week of digits being entered in the wrong order e.g. £1,034.70 being recorded as £1,043.70.
- **Remember that there should be 2 separate SAF entries for each transaction you make.** You need to ask yourself 2 questions. *Where did the money come from? What did you do with the money?*
- **Don't ignore screen prompts.** They are there to help and highlight a possible error before it's too late. So if you get the message "Do you have anymore...." when you try to sign off, the SAF may be politely reminding you that you have forgotten to do something!
- **Make sure your transfers are in the right direction.** It's not uncommon for users to deposit money into the CHD, but recording the miscellaneous transaction as transferred from CHD or vice versa.
- **Don't make-up transactions to "balance the books".** This is never a good idea, as this effectively is a more serious matter of 'false accounting' rather than a simple error resulting in a surplus & loss letter from their manager.
- **Don't forget to include any notes or coins rejected by the CHD within your POM service total,** even though they don't appear on the CHD receipt.

A number of inexperienced staff are often worried about undertaking POM duties for fear of getting a surplus and loss notification. However you will only get one of these if you make an error or do not follow the correct procedures.

The purpose of these notifications is to highlight potential errors and avoid them happening again. The hope is that having highlighted an error, the same mistake won't be made again.



REVENUE PROJECTS

GATE UPGRADES

Recent months have seen a lot of activity in updating both software and hardware on our gates. Over the next couple of pages we give a brief update on some work that has recently been completed, together with a preview / update on some forthcoming initiatives.

E1 GATE SOFTWARE

COMPLETED ✓



As we reported in [TRU118](#), following a successful Vanguard, the planned rollout of the new software to all E1 gates across the network was successfully completed on the night of Saturday 20 July, when the new software was remotely downloaded to all gates.

E2 GATE SOFTWARE

COMPLETED ✓



Following hot on the heels of the upgrade of E1 gates and following a further successful Vanguard on a total of 93 devices, all of the other E2 gates and WAGs were successfully upgraded to the new software a week later, on the night of Sunday 27 July.

This was again achieved by a remote upgrade of all devices in one go, rather than requiring individual stations to be updated over a number of nights, as we often have to do.

This means that all three types of automatic gate have now been updated with fixes to address the LCP battery issue (Error 01) and a number of what are known as "short duration faults" on the RTD.

OYSTER OVER ETHERNET

In [TRU116](#), we outlined plans to change the route that Oyster transaction data uses to get from our gates to the central system. The delivery of this project which is called "Oyster Over the Ethernet" is approaching quickly and in preparation for this all stations were recently upgraded with new Station Computer (SC) software (as outlined on [Page 19](#)) in readiness for transactions to be re-directed onto this alternative route.



The Vanguard will be undertaken in four stages. The first stage of deployment will see a Vanguard initially at Hornchurch currently planned for 16 September. The second stage will see the Vanguard expanded to three further sites including a night tube station Fairlop later the same week, followed by a further 10 other LU sites on 23 September (as shown below). All being well up to 30 more sites will then be added 7 days after that, including more complex stations and a number of NR interchange stations.

Phase	Stations				
1	HORNCHURCH				
2	FAIRLOP	ELM PARK	EAST HAM		
3	BECONTREE	WOOD GREEN	TURNPIKE LANE	SEVEN SISTERS	TOOTING BROADWAY
	BALHAM	STOCKWELL	TOWER HILL	ALDGATE EAST	CLAPHAM COMMON
4	CANARY WHARF	GANTS HILL	NEWBURY PARK	LEYTONSTONE	WALTHAMSTOW CTRL
5	KINGS CROSS	PADDINGTON	BANK	HEATHROW T2&3	LIVERPOOL STREET

At each stage transaction data will be monitored to ensure that all information is being transmitted via the new route in a timely manner, before a decision is then taken on deployment across the network.

REVENUE PROJECTS

GATE READERS

A gate reader (RTD) upgrade to deliver the “Express Validation” upgrade for Apple users, as outlined in [TRU116](#) & [TRU118](#), is currently being tested, prior to a planned on-system Vanguard. The software which had previously been deployed to all stations, subsequently had to be reverted to the previous software version in early April, due to issues which were affecting RTD performance.



Initial results from the early stages of the current testing being undertaken by Cubic look promising and all being well this long awaited change is now likely to be deployed as a Vanguard in the autumn, with network wide deployment currently scheduled for the end of the year.

EI BEAM LOGIC UNITS

Following a successful three stage trial at a number of LU stations with EI gates, as outlined in previous editions of TRU, the deployment of modified light beam units and reflectors to other stations with EI gates has been delayed due to issues with the manufacture of the new design of shroud to be fitted over the beams to prevent dust incursion.

Initial prototype samples received by Cubic were found to need some redesign work, whilst there have also been issues with identifying a suitable material for the reflectors that the light beams bounce back off. An initial test undertaken on gates at Swiss Cottage was unsuccessful requiring a rethink on this element of the project.

EI GATE POD

In [TRU118](#) we outlined plans to Vanguard the fitting of the current E2 gate POD (Passenger Orientated Display) onto the older EI and Pneumatic gates.



The first stage of this work is the development of yet another version of EI gate software. This new version is required to allow the EI gate LCP to interact with either the current EI POD or with the E2 version. Testing of this new software has recently been completed, but we are unable to deploy this on the network until after the September Fares Revision due to the current change freeze.

It is planned to Vanguard the new software at two stations; Clapham South and Balham during week commencing Monday 08 September. Both stations will initially operate with the new gate software and existing PODs, before the new E2 style PODs are installed at Balham later that week. Balham will then operate with new software and new PODs, whilst Clapham South will continue to operate with the new software and existing PODs.

Providing no issues are identified during the Vanguard we will then deploy the new EI software to all other stations with EI type gates in readiness for the start of the POD upgrade program.

Similar Work for the Pneumatic gate POD replacement is underway and is running around a month behind the EI version.

LAL MXIDE PU

Part 3 – We've mixed up the letters in these station names. Can you work them out?

(a) GONNA REPRESS

(b)

EVIL PEAR

Is there a connection?
– You decide.
[Answers on Page 19.](#)

(c)

IMP COIL

(d)

DROP SENATOR

(e)

DRY BUNGEE PIT

Ticketing & Revenue
T & R
Trivia

REVENUE PROJECTS

POM UPGRADES

COMPLETED ✓

AFM UPGRADE COMPLETED

As reported in [TRU118](#), the AFM software upgrade was completed on schedule on Sunday 21 July.



MFM UPGRADE COMPLETED – BUT THEN NEEDS TO BE REPEATED

As reported in [TRU118](#), the software upgrade to address the PED errors 91 and 96 as implemented on other devices, was duly completed on the night of Tuesday 30 July, with all devices being completed apart from MFM31 at Highbury & Islington and MFM31 at Vauxhall which remained on the previous software due to them being fitted with the trial BNA units.

Before the programme had been completed, it was identified that a further software release would be required to address an issue which had disrupted the operation of the POM refund software. This particular issue arose as a result of a change to the security certificates used by Microsoft to control access to the servers that provide online validation for Oyster refunds on our POMs.

After this took place it was discovered that details of the previous security certificates had been hard coded into MFM and TVM software and devices were unable to communicate with the server any longer as the security certificates didn't match.

The net result was a steady stream of enquires from stations concerning customers who were unable to obtain refunds from POMs, unless their card had been in use for more than 48 hours.



Following the identification of the cause of this issue a new version of MFM software with the security certificate details updated was quickly developed, enabling us to deploy it to the first three MFMs (Liverpool Street MFM30, Canary Wharf (East) MFM 30 and Bayswater MFM 31) on the night of Wednesday 31 July. This Vanguard was then extended with a further 27 MFMs being upgraded on the night of Thursday 01 August, representing about 10% of the MFM fleet.

The stations involved were largely picked due to their high tourist usage and volumes of refunds. Following a further period of a week during which the Vanguard devices were monitored to ensure the update had not had any adverse effect and that devices were once again processing refunds as they should.

COMPLETED ✓

Approval was given for the rollout of the new software to the other 300 plus MFMs to commence from the night of Wednesday 07 August at a rate of 50 machines per night, with the final devices being completed on the night of Tuesday 13 August.



Having hopefully resolved both PED problems and the recent Oyster refund issue via the recent MFM software upgrades, this is not the end to upgrades for these devices and as briefly mentioned in [TRU118](#), a further software upgrade is in the pipeline for the end of the year, to deliver a number of fairly significant changes to the handling of Oyster refunds, donation of card balances to charity and the acceptance of additional bankcard schemes.

Further information on the timescales for the deployment of these changes will be published in future editions of TRU later this year.

TVMs ALSO GET FURTHER UPGRADE

COMPLETED ✓

In parallel to the latest MFM upgrade, as outlined above, the TfL TVMs also recently received a further software update to address the same Oyster refund issue. In a similar manner to the MFM, the software was initially released to TVM39 at Stratford (Mezzanine) on the night of Wednesday 31 July, before the Vanguard was then extended to other TVMs across the TfL network, including further LU devices at Stratford, Queens Park and Harrow & Wealdstone.

Approval was then given for the rollout to all other TVMs to start from Thursday 08 August with all LU TVMs being completed by Monday 12 August.



FURTHER MFM UPGRADES

As we briefly mentioned in our *Charity Update* feature within TRU118, even though we have had two MFM software releases in very quick succession, there are a number of pending changes that will require further major rewrites of the current software.

Timescales are going to be quite tight, as the new version will need to be developed, tested and Vanguarded between now and the beginning of December, if we are to deploy it to all devices ready for a proposed change to Oyster card deposits, which is currently planned for either after the January fares revision or in early February 2020.

The changes being packaged up for this next software upgrade also includes a new option for customers cancelling their Oyster card to be able to opt to donate their residual balance to charity rather than the device dispensing cash to them. We hope that this will not only widen the number of stations where customers can donate the proceeds of their card beyond the small number of stations that currently have Oyster card donation boxes, but may also encourage customers to get rid of unwanted cards they may have lying around with very small balances left on them.

The software release is also likely to include provision for the acceptance of a wider range of bankcard schemes in the New Year. Within the upgrade we hope to include card scheme logos on the home page, as they already do on the TVM, rather than having to rely on vinyl stickers which are frequently damaged or removed and are much more difficult to change when a card scheme is added, removed or changes its logo.

As mentioned in our feature on the recent Bank Note Acceptor trials (below), the rollout of the replacement for our current MFM note handlers will require a further software upgrade to integrate the new device into the MFM for it to work in the most effective manner. Unfortunately the timescale for delivery of the new units and the testing required, mean that it cannot be included in the next software release at the end of the year. We will therefore be looking at a further MFM software upgrade to take place in spring 2020 ahead of the vanguard and subsequent rollout of the new note units.

MFM BNA REPLACEMENT

The analysis of the recent trials of three possible designs of a new Banknote Acceptor (BNA) unit were recently completed by Cubic along with the decision that the chosen unit will be the Suzohapp 'Bill to Bill' unit which was trialled at Vauxhall.



Orders for the new units will be placed shortly, but it is unlikely that the first of these units will be rolled out until around March 2020, as new software will need to be developed to integrate the unit into the MFM and to utilise its full functionality.

For the recent trials the standard MFM software was tweaked to accommodate the 3 trial devices basically mimicking the operation of the current BNA. This was OK for the short term, but going forward the MFM will need software to specifically interact with the Suzohapp units when they are installed.

As previously reported, these new note handlers can work either as a bank note accepter (BNA) as it did during the trial or as a Bank Note Recycler (BNR) by the fitting of an additional module. Once plugged in the same software should support notes being recycled and dispensed. It is likely that we will also replace the current 100 BNR units at Gateway and busy stations with these new units as this will give all devices basically the same components and simplify the holding of spares.

Some additional recycler modules will be purchased, so it is likely that some additional MFMs at our busier stations that don't currently have BNR units may be fitted with recyclers after the BNA deployment has taken place.



REVENUE PROJECTS

SCU ROLLOUT GETS GREEN LIGHT

After some frustrating delays, we eventually managed to gain approval for the rollout of the new PC based SCU across the LU network from Sunday 11 August. However, prior to this the training equipment at Ashfield House was upgraded on the night of Thursday 08 August following a couple of nights of preparatory work which included the repositioning of the ticket hall SCU within the West Ashfield mock station, to make it easier for delegates to see the screen during training.

The rollout commenced with generally two sites per night, depending upon the total number of SCUs being installed. The programme is largely based on lines / geographical areas, but some early sites were included for other reasons e.g. Blackhorse Road was brought forward due to the Intelligent Gateline Trial taking place there.

As we mentioned within previous editions of TRU, we are taking the opportunity as part of this rollout of also tidying up and correcting a number of base data, numbering and configuration issues. This includes the splitting of WAGs onto a separate array and regrouping some other gates where a single gateline was configured into more than one array. Within the first week of the programme we also included the renumbering of the WAG at North Wembley into the recognised WAG number range and renumbered gate at Hounslow East in readiness for device change to switch the customer flows at this station. SCUs were also installed in Control Room/Station offices at Blackfriars and Hounslow East following requests from those areas when we were surveying these locations in readiness for this project.

Feedback from staff at the Vanguard stations has been very positive, with most users reporting that they found the new SCU very easy to use and a great improvement on the previous kit.

A number of minor issues were identified during the installation process and whilst the Vanguard was underway and we have been working with Cubic to address these. A number of these issues, such as the phantom status of non-existent Manual gates on an individual Gate button and the incorrect configuration of certain Gate Arrays have already been addressed. The installation script being used by the installation engineers has also been improved to highlight the correct configuration of each SCU screen and where changes need to be made on individual gates to align with the SCU.

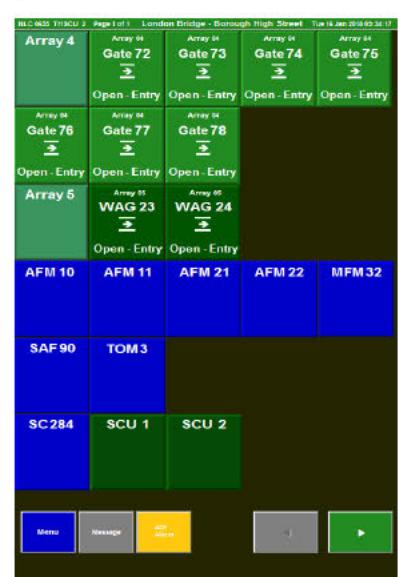
There are a couple of other issues such as the colour of the AFM buttons when they are in full service and single direction gates reporting RTD errors on non-existent second readers causing these devices to constantly appear in a degraded mode, which require a software change to be made and we are awaiting confirmation as to when this can be completed.

As mentioned in [TRU118](#), one of the key features of the new SCU is the ability to change gateline configurations to three pre-set formats. Ahead of the rollout the T&R team will contact each area to confirm their required gate settings. To date it has proved quite difficult to get the information from some area, so it is probably worth thinking about your requirements in advance.

Although the three possible gate configurations are titled "*Maximum Entry*", "*Maximum Exit*" and "*Custom setting*" they are actually flexible and can be used to set three different gate arrangements for different times of the day or customer flows.

Within the first month of the rollout plan we have already used the arrangement to allow a reversal of the normal customer flow during building work at Paddington (Main) and for all gates to be set on exit during the night at Blackfriars, to prevent customers entering the LU area of the station from the NR areas which are served by the all night Thameslink service.

So it's time to get your thinking caps on as to how this additional feature could help the operation of your station!



SC UPGRADE

On top of the various other upgrades outlined earlier within the Project Update section of this edition, we have also recently completed the deployment of an updated version of Station Computer (SC) software.

Following on from our lead article in [TRU118](#) which focused on a major failure of a large number of SCs across the network on Monday 03 June, new software has now been installed at all LU sites. The latest software build contains changes to the way in which the SC manages Faster Universal Load (FUL) files, as it was this that caused the failures at the beginning of June, due to large volumes of executed files being retained by the SC.

Since this problem was identified, Cubic have been manually removing old files to avoid devices getting overloaded and locking up. The new software will enable the SC to manage its own files without the need for this manual intervention.

The new SC software also includes other changes which will facilitate the forthcoming switch of Oyster transaction data being sent via an Ethernet connection, as outlined on [Page 14](#).

Following an initial Vanguard which saw the upgrading each of the SCs at London Bridge on Tuesday 30 July, a further batch of LU sites earmarked for the ‘Oyster Over Ethernet Vanguard’, were upgraded on Tuesday 06 August. The rollout of the new software was then completed remotely by Cubic during traffic hours (between 1100 and 15.00 hours) with batches of stations being upgraded daily between Monday 12 August and Wednesday 21 August.

This particular upgrade was undertaken during the day, to avoid possible conflicts with processes that are run at night, which include the updating of “Hot Lists” and “End of Day” processing as upgrading the SC during the night may have resulted in devices not receiving the correct hot list tables or transaction end of day reports being delayed.

BANKCARD TRANSACTIONS REROUTED

In a similar initiative to the Oyster Over Ethernet change mentioned above, we are also looking to make changes to the routing of bankcard transactions from our POMs, to use the same infrastructure that is currently used for the transmission of contactless payment transactions processed by gates and PVals.

It is hoped that this switch to a more resilient platform will improve the reliability of the connection used for obtaining approval and transmitting completed transactions and reduce instances of the PED (bankcard reader on the POM) reporting an Error 92 when it loses its connection to the bank card processor.

A Vanguard was planned to take place at Blackfriars on the night of Thursday 22 August, but this had to be postponed due to some technical issues and a new date is yet to be confirmed.



ANSWERS TO T&R TRIVIA

Pt.1 Boris Johnson (when London Mayor)
Winston Churchill (featured on polymer £5 note)

Pt.2 A & C Check the gate POD or check the card on the RTD of a POM

Pt.3 LAL MIXIDE PU

(a) PARSONS GREEN

(b) PERIVALE

(c) PIMLICO

(d) PRESTON ROAD

(e) PUTNEY BRIDGE

Is there a connection?
– All are stations that begin with the letter “P”.

How did you do?

...AND FINALLY!

PAYG EXTENSIONS RUNNING LATE!

In [TRU118](#), we outlined plans to extend PAYG acceptance on the Thameslink and Great Northern routes during August.

Shortly before the first of these dates it was announced that due to some technical issues the expansion of PAYG acceptance to Potters Bar and Radlett would be delayed by just over a week, to allow for further testing.

At the time of writing, both of these locations will be extended to the PAYG network on Thursday 29 August, as will a planned extension for contactless payment to Brookmans Park on Great Northern, but Oyster cards will not be valid at this station. For capping purposes, all stations will be located within Zone B.

TOC		Station	Date	Information	PAYG Acceptance for	
Thameslink	Great Northern	POTTERS BAR	Thursday 29 August 2019	For customer facing purposes, these stations are outside the Zones and 'special fares' apply. For internal purposes both stations are classed as being in Zone 11/B		
Thameslink		RADLETT				
	Great Northern	BROOKMANS PARK				

BNR RELIABILITY

A common subject of feedback from various stations over the last few months has been the reliability of the Bank Note Recycler (BNR) units on our busier MFMs. In an effort to improve this, Cubic are looking to deploy some updated firmware used by the BNR itself. The most significant element of the changes included is a change to the way that the device handles a rejected note.

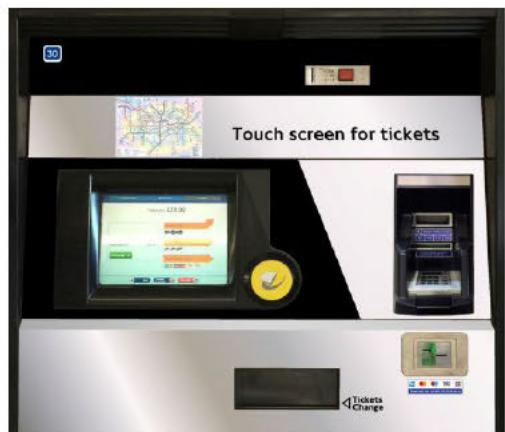
Currently in many cases the device attempts to reject the note through the entry bezel, which requires the mechanism to reverse the note along the route it had come.

This is never a good idea as there is an increased risk of a jam occurring particularly if the note has skewed out of alignment. Within the latest firmware the unit will attempt to continue the note forward and reject it via the note dispense bezel. In this way the note only moves in one direction. It is hoped that the new firmware will also reduce the level of Error 190s reported on these devices.

The first devices to be upgraded with this new firmware were the four MFMs at London Bridge which had previously had a very poor record of reliability. These devices were updated on Tuesday 20 August, but during the installation of the firmware, it was identified that two of the four devices would not accept any £20 notes.

It was subsequently established that this condition had previously occurred on other BNR units at the station and had generally been resolved by Cubic changing the whole BNR unit.

This issue is now being investigated by Cubic and is likely to delay the deployment of the new firmware to the other 96 MFNs with BNR units.



LOOKING AHEAD TO TRU120

Our next edition of TRU sees us reach another landmark with the 120th edition.

The next edition will cover September / October and is scheduled to be published towards the end of September and will include:

- A review of the September Fares Revision
- A further look at one of our 2019/20 T&R priorities
- Updates on a large number of projects which are scheduled to kick-off after the fares revision



Plus a selection of other regular features, some Trivia questions to keep you amused and some more of the recent letters from Olly Oyster's inbox – please keep them coming!!