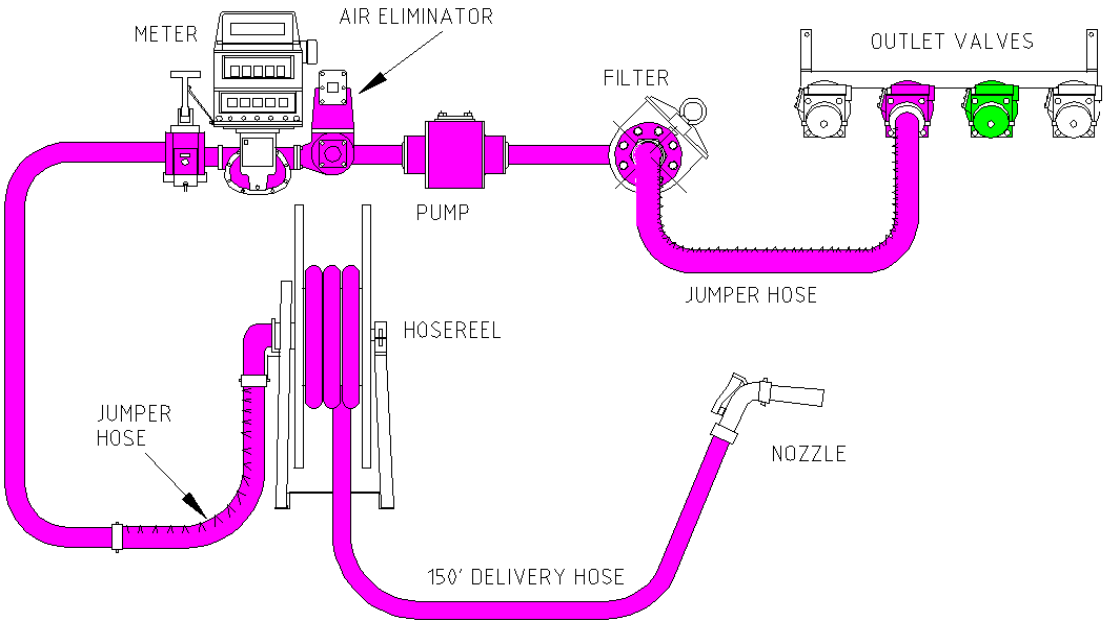
Calibration of
a delivery tanker wet line system
to minimise product contamination



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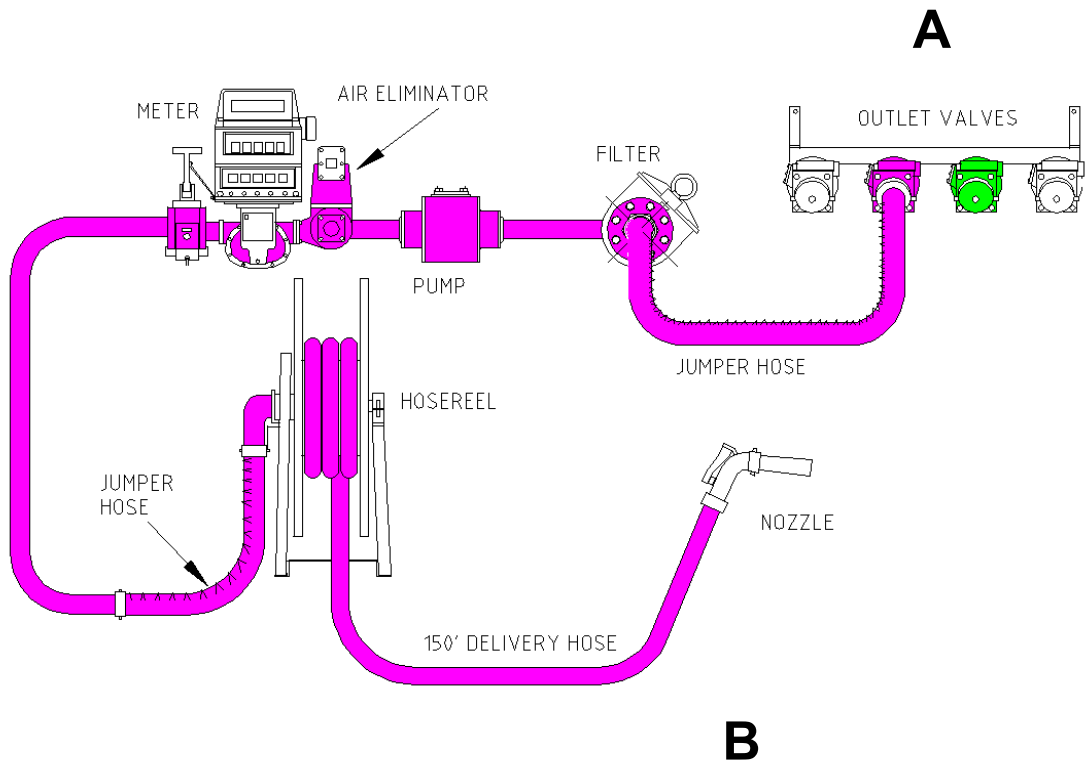
1 Foreword

By law, contamination of a taxed road fuel with a rebated fuel is forbidden, but zero contamination is impossible to achieve when using a wet line delivery system (as preferred by trading standards). Following discussions with HMCE on minimising this contamination, the Federation of Petroleum Suppliers (FPS), the Northern Ireland Oil Distributors Association (NIODA) and the Northern Ireland Oil Federation (NIOF) have developed the following procedure to provide some guidance to distributors on minimising the risk of cross-contamination when delivering rebated and non-rebated fuels from the same vehicle.

To minimise the effect of possible cross-contamination being caused during deliveries from a vehicle carrying more than one product, it is strongly recommended that all deliveries in these circumstances should be of not less than 1,000 litres; deliveries of smaller quantities should be made in dedicated vehicles.

2 Procedure

Calibration of a delivery system consists of measuring and recording the total liquid volume of the system from the outlet valve, **A**, to the end of the delivery nozzle, **B**, (see figure below).



In order to make an effective and complete product change for the delivery system, and to minimise contamination, this volume must be known.
The entire delivery system of a vehicle (the coloured area in the figure) is first primed with kerosene (light yellow in colour) and the delivery is then changed over to marked gas oil

(red in colour); replacement of kerosene in the system is considered to be complete when the first traces of red marker dye become evident (a yellow to pale orange endpoint).

The volume, **X**, required to effect the complete replacement is recorded and this information is provided to the driver by means of a vehicle label, and maintained as a company record for that vehicle.

Carry out the method three times to ensure that the results obtained are repeatable within acceptable limits and use the highest of the total volume results obtained for the vehicle label and record (see 4 and 5).

4 Vehicle label

To enable a driver to minimise contamination, the total system volume calculated and recorded during calibration, **X**, should be made available on the calibrated vehicle. This may be achieved by siting an appropriate and durable label on the windscreen of the cab in a similar manner to the tax disc. It is important that the date of the most recent calibration is also shown.

One example of a suitable label is shown below.

Vehicle Registration: ABC1234
Company: XYZ Oil Services Ltd

Delivery system volume: [X] litres

Date last checked: 1/8/04

5 Records

A record of the initial calibration results for each vehicle should be retained in the company records; a repeat calibration check on the vehicle should be carried out at least every six months and additionally if the hose is replaced or repaired, eg following damage.

An example of a typical record is given in Appendix A.

Appendix A
Vehicle Wet-Line Volume Record Chart

Vehicle Reg	**Fleet No**
Company	**Tank No**
Record Sheet No	**Equipment**

TEST DETAILS

DATE	MODIFIED (✔)	HOSE LENGTH (m)	*VOLUME (litres)	EXAMINER	**RETEST DATE

* Volume = amount of product between faucet valve and end of delivery hose

** Retest Date - no more than 6 months after the previous test, unless vehicle has been modified, in which case it should be tested before commencing work again.

Appendix B

Procedure for delivering and recording different products from a road tanker using a wet line delivery system

B1 Principle

B1.1 The product that is in the wet line system should be known at all times so that appropriate action can be taken to minimise cross-contamination of products. A procedure similar to that given below should be used for recording this.

B2 Procedure for completing the record sheets

B2.1 Each vehicle should be provided with a record sheet, in duplicate, for completion by the driver. A new record sheet should be used each time the tanker loads.

An example of a suitable record sheet is given in Figure B1.

B2.2 Before loading the vehicle, check the product that is in the wet line system. This should be recorded on the record sheet

B3 Procedure for delivery

B3.1 *Deliveries where the oil in the wet line system is the same as that being delivered*

(a) Set the meter to a volume equal to the required delivery volume.

(b) Deliver the set volume into the customer's tank.

B3.2 *Deliveries where the product in the wet line system needs to be changed to another product for the next delivery*

(a) If the next delivery is a different product, set the meter for the volume to be delivered less the volume of the wet line system.

(b) Deliver the set volume into the customers' tank.

(c) Change the delivery system to the compartment containing the product for the next delivery. Set the meter to the volume of the wet line system and complete the delivery.

B4 Procedure for line change

B4.1 *Electronic meters with a product return system*

Set the meter equal to the volume of the wet line system and, using the product return system and a dummy printed delivery ticket, charge the system with the product for the next delivery. Mark the dummy delivery ticket with the details of the change, eg, kerosene to derv, and retain it with the record sheet.

B4.2 *Mechanical meters with product return system*

Note: Mechanical meters do not print meter tickets when using a product return system.

Set the meter equal to the volume of the wet line system and, using a dummy, handwritten delivery ticket, charge the system with the product for the next delivery. Mark the dummy ticket with the details of the change, eg, kerosene to derv, and retain it with the record sheet.

B4.3 *Electronic and mechanical meters without product return system*

Set the meter equal to the volume of the wet line system and, using a dummy printed delivery ticket meter, charge the system with the product for the next delivery. Mark the delivery ticket with the details of the change, eg, kerosene to derv, and retain it with the record sheet.

B4.4 Continue with the delivery as described in B2.

B5 Records

B5.1 The paperwork carried with the tanker for loading and deliveries should enable stock reconciliation of the load to be carried out and rapid identification of any contamination/mixing if it occurs. It should also enable identification of customers who may have contaminated product.

B5.2 The completed record sheets should be retained as part of normal business records.

Figure B1 Example of a vehicle record sheet

DRIVER LOAD RECORD SHEET

Driver Name	Depot	Vehicle registration	Fleet No	Date	Load	Wet line volume

Already on (before loading)	Drops	Ticket No	Kero	Gas oil	ULSD	ULSP
Pot 1)	1					
Pot 2)	2					
Pot 3)	3					
Pot 4)	4					
Pot 5)	5					
	6					

Loading litres	7					
Pot 1)	8					
Pot 2)	9					
Pot 3)	10					
Pot 4)	11					
Pot 5)	12					
	13					

Meter reading	14					
Finish	15					
Start	16					
Diff	17					
	18					

Pumped on	19					
Pumped off	20					
Pumped over	21					
	22					

Left on after deliveries	23					
Pot 1)	24					
Pot 2)	25					
Pot 3)	26					
Pot 4)	27					
Pot 5)		TOTAL				
Hose product (✔)						