TICKET VENDING MACHINE Model NTD500

SERVICE MANUAL

July 2003

MANUAL # 037-5

TICKET VENDING MACHINE

Model NTD500

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INTRODUCTION

This manual should be read in conjunction with the Installation and Operating Instructions manual. Abberfield produce a range of equipment for many customers, and some are on an exclusive basis. However, even where exclusive commercial arrangements exist Abberfield seek to support the agents, distributors or end customers and ensure the company's products provide trouble free service.

Provided the equipment is installed correctly it should never need service. This literature will however assist customer's if service is ever required.

The intention is to assist authorised service personnel to maintain, adjust and carry out limited repairs to the equipment. Adjustments made without an understanding of this manual will result in equipment malfunction and may not then be covered by the manufactures warranty.

However if a genuine problem exists and the equipment is being operated by fair minded people, Abberfield Industries will respect and even appreciate customer's carrying out their own repairs, without voiding the equipment warranty.

WARRANTY

The equipment is covered for one year on a return to manufacturers, carriage paid basis. Goods returned carriage charged to the receiver may not be accepted.

CUSTOMER SUPPORT

Abberfield Industries offer engineering support for all of its products. If after reading this Service Manual, further assistance is required, please contact:

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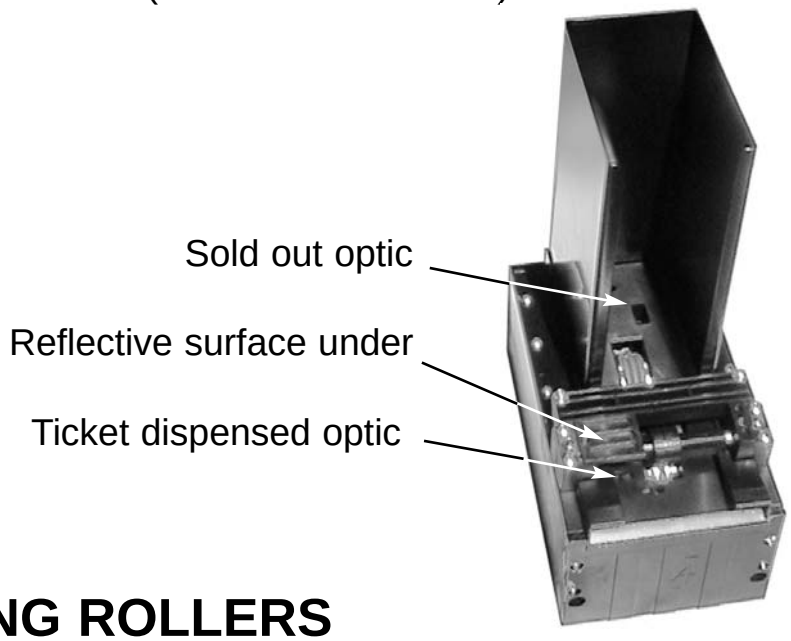
MAINTENANCE

TICKET DISPENSER

Cleaning is primarily limited to cleaning of dust and dirt from the ticket dispenser optical detectors. There are two sensors, one under the ticket stack (sold out detection) and one to the left just in front of the forward drive roller. The rear sensor needs to be brushed out or preferably blown out to remove dust collecting down the sensing hole. The front sensor (ticket dispensed) needs similar cleaning, but also needs a reflecting surface above the front roller cleaned as well (cotton bud or similar).



CLEANING ROLLERS

After considerable use it may be necessary to clean the ticket excentric rollers, using Isopropyl Alcohol, or Methylated Spirits. Only the point of contact is important and this will be evident by a build up of dirt, yet at the same time having a polished surface, on the silicon rubber tyre. To access the underside of the roller, apply a rolling pressure to the top side of the roller and clean with a rag and Isopropyl Alcohol or Methylated Spirits, as the wheel rotates.

If there is a history of tickets not being dispensed properly, or if the roller shows signs of being worn or polished, the engaging surface can be roughened with a medium grade cutting paper.

The front drive roller can be cleaned in a similar manner, but it is the rear roller that needs to maximise the grip on the ticket.

Maintenance continued...

GAUGE ROLLER

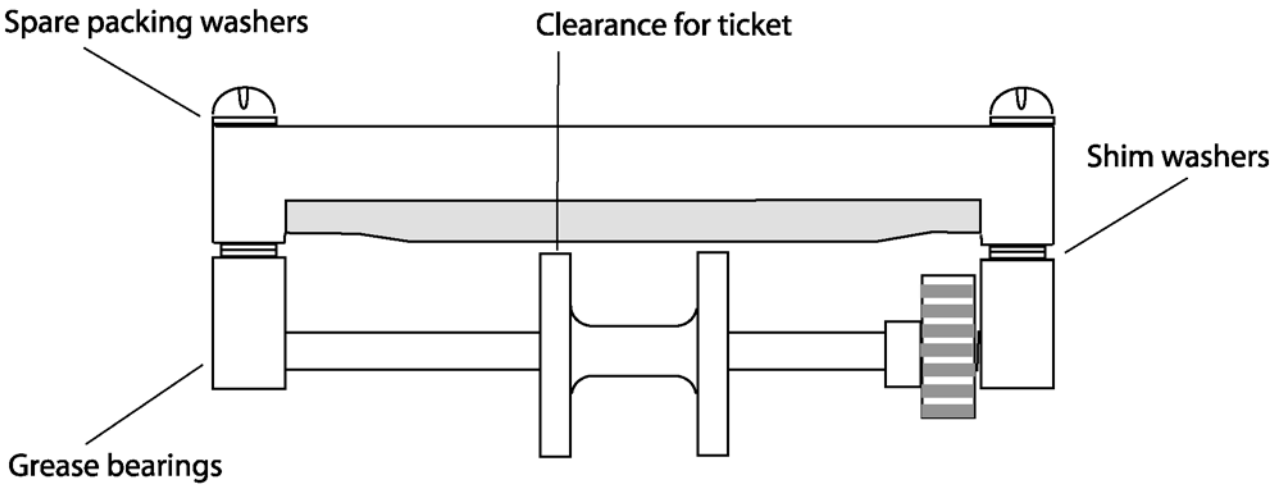
The operation of this item needs to be properly understood. The gap between the rollers and the top gauge is intended to pass the ticket whilst holding back the next ticket. Some grip is provided by the roller and for this reason it should be cleaned as well. The very best of performance is obtained by the roller having a roughened surface, preferably with very light cutting lines across the roller. To achieve this objective the gauge roller can be removed and re-worked.

To remove, take off the ticket shute and its plastic base plate.

Then follow with front pinch roller bearing caps, leaving the front top plate in place.

Now lift the gauge roller assembly up, bringing with it the top plate. It may help to use a screwdriver under the drive roller shaft and lever the gauge roller up. Once the roller is removed, it may be properly cleaned. To lightly abrade the roller, use a light to medium grit paper wrapped around a flat surface, or use a fine file and gently pass across the wheel in the direction of the drive shaft.

The best way to achieve this is to place the roller on a flat surface, also resting the top section on the surface. Then very slowly pull the gauge roller across the surface, whilst at the same time dressing the wheel. Take great care not to create flats on the wheel, this may cause jamming when dispensing a ticket.



Maintenance continued...

ADJUSTING THE GAUGE ROLLER

Test the adjustment by using a ticket (in good condition) as a feeler gauge. It should pass freely between the roller and the gauge, but with only a little free play. In use, failure to pick up a ticket usually indicates a gauge too thin (or a dirty / smooth pick up roller). Jamming with two tickets indicates a gauge too wide.

To adjust the gauge first remove the assembly from the dispenser, then add or remove shim washers, acting as ticket gap adjusters. Spare shim washers are stored under the heads of the screws on the gauge roller. If very little adjustment is required, tightening or loosening the gauge roller screws may prove sufficient.

Whilst the gauge roller is out of the dispenser, slide the roller across to expose the bearing next to the gear and apply grease to both ends of the shaft and the exposed bearing. If grease is not available use ordinary machine oil.

Then fit the top plate into the gauge roller and re-assemble, making sure that the parts are held together and square during the process. This is to ensure the circuit board optics are not damaged by the top plate that nests over the components. Also make sure that the gauge roller gear is fully engaged with the drive gear. Then re-assemble the pinch roller (greasing first) and then followed by the ticket shute. When installing the shute, make sure that the bottom lip of the shute fits into the groove on the top plate.

Of course, whilst the top plates were removed take the opportunity to brush or blow out any residual dirt.

Also, if there is a history or likelihood of infestation by ants or other insects, then place a mothball into the ticket dispenser before re-assembly. Alternatively remove the base assembly and spray with an insect repellent. Allow to dry and then re-assemble. This process is normally carried out at the time of manufacture, using a special spray that emits a vapour to coat metal parts and help prevent corrosion.

Most probably the solution would now be thoroughly dissipated, but if at all sticky or dirty, wash the bottom plate in soapy water before re-assembly.

Maintenance continued...

If the equipment is used near water and corrosion is ever likely to be a problem, spray the inside of the base with a protector (WD40 etc), allow to dry and then over coat with an insect repellent. When re-fitting the base do not over tighten countersunk screws or splitting of the plastics may occur.

PINCH ROLLER ADJUSTMENTS

On the top of each bearing cap is an Allen headed grub screw and lock nut. This is used to set the degree of "pinch" needed to drive the ticket from the dispenser. Too little pinch and the ticket will not travel, too much pinch and the motor overloads and again the ticket may not travel.

To test use a screwdriver under each side of the pinch roller and gently lever up to ensure that the bearing shaft is in contact with the adjusters. Then pass a ticket from the front of the dispenser under the pinch roller. There should be an interference fit. Adjust if necessary, but take care not to over tighten the lock nuts, or the thread in the plastic block may be stripped and render the pinch roller inoperative. The lock nut should be little more than finger tight.

Having made the adjustments, test for proper performance by use in a vending machine.

Maintenance continued...

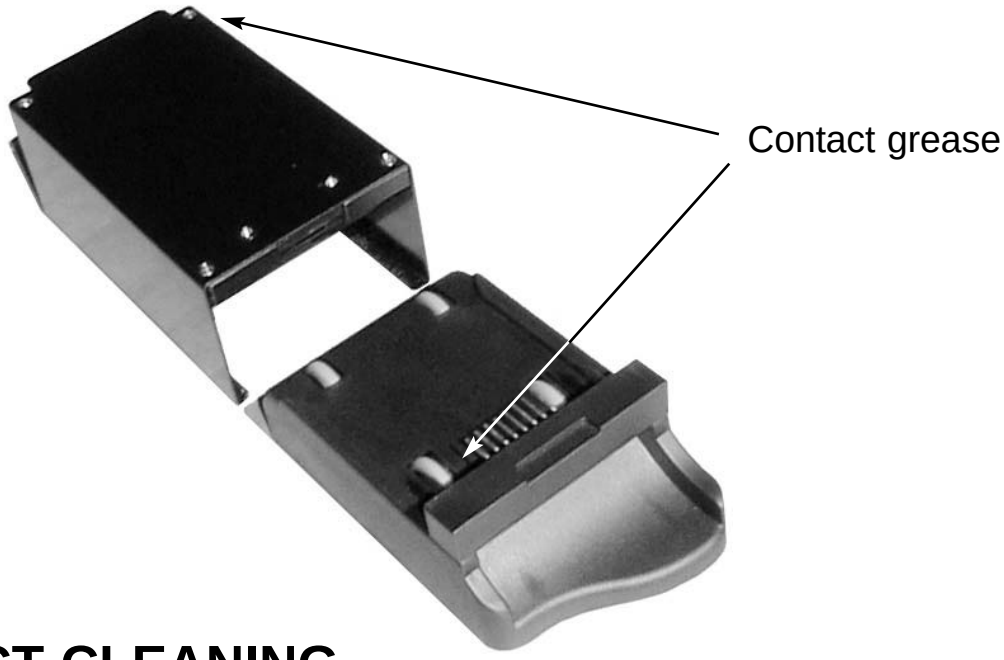
NOTE VALIDATOR

Service is limited to cleaning of the optic devices and greasing of the electrical contacts.

Removal of the note validator involves removing two screws on the top securing the validator to the metal mounting frame.

To disassemble lift the clip to the front of the note validator and pull the tongue forward. This presents two parts, the control and the motor drive module. The optical devices will be clearly evident and can be cleaned with a soft brush. **Take care not to disturb the optics in any way.**

Also clean and re-grease the electrical mating pins on the motor modules, preferably with electrical contact grease, but alternatively with petroleum jelly. This will not only help with the electrical conductivity, but will also make it easier to plug in and remove the motor module.



CONTACT CLEANING

All electrical contacts can be cleaned with Isopropyl Alcohol or Methylated Spirits and then coated with a thin wipe of contact grease (or petroleum jelly).

Contacts on both the plug and the socket should be coated and this includes each end of the ribbon cable that runs from the controller to the main back plane circuit board.