



Note: This Specification has been significantly changed from the previous edition

Contents	Page		
1. Scope	1	14. Packaging and shipping of completed units	17
2. References	1	15. Prescribed jigs and methods	17
3. Abbreviations	1	16. Jigs and gauges	17
4. Definitions	1	17. Equipment identification and documentation	17
5. Introduction	2	18. Record retention	18
6. Usage of item	2	Document history	19
7. Equipment design outline	3	Document index data	19
8. Applicability	3	Attachments	
9. Critical functions	4	1. References	20
10. Performance parameters	6	2. Illustrated parts list	21
11. Equipment configuration	6	3. Critical parameters and settings	34
12. General requirements	6	4. Specification hierarchy	36
13. Overhaul definition	7		

1. Scope

This Specification is written to comply with Engineering Standard 1-202 in defining the requirements for the overhaul of Clamplock Point Mechanisms which are used extensively in the signalling system on the London Underground.

The specification hierarchy which supports these requirements is detailed in Attachment 4 to the Specification.

2. References

The text of this document cites other documents that provide information or guidance. These are listed in Attachment 1.

References to British Standards or standards in other standards systems shall be taken to include the words 'or equivalent'.

3. Abbreviations

The following abbreviations are used in this document (if from a published source this is indicated):

CPS	Critical Parameter or Setting
DCN	Design Change Notice
LH	Left Hand
LU	London Underground
OEM	Original Equipment Manufacturer
RH	Right Hand
NDT	Non Destructive Testing
MPI	Magnetic Particle Inspection

4. Definitions

The Client – The Client is the Infracore representative responsible for administering the contract under which the overhaul work is being performed.

The Contractor – The Contractor refers to the organisation responsible for the delivery of overhauled equipment.

5. Introduction

This specification has been written to detail the overhaul requirements of Clamplock Point Mechanisms which form part of the signalling system on the London Underground.

The Clamplock Point Mechanisms are classified as items of vital signalling equipment which means that they are used to perform a safety critical function directly affecting the safe movement of trains. They have been designed to be an ultra reliable piece of equipment whose mechanical integrity will be relied on throughout its extended working life. It is a mandatory requirement that every unit will perform to its original 'as manufactured' specification after it has been overhauled.

Any failure condition which causes a set of points to be free to move under the influence of a passing train or other forces, or to be detected other than in the true position in which they are, is classed as a 'wrong-side' failure. Wrong-side failures are investigated exhaustively to establish the cause of the failure. Investigations into wrong-side failures will examine materials, processes and the history of overhaul operations to establish the exact cause of the event and to ensure that no other items are likely to suffer a similar failure. An occurrence of a wrong-side failure, even if no accident or damage is caused, can be extremely costly to investigate and could result in the need to change many units in service.

Items supplied for overhaul will be complete units which may be in working order or may have failed in service. The failure mode of equipments will vary, ranging from simple causes such as wear caused by a long period in service with frequent operation, to items which have suffered severe damage. In the latter case there will be an element of salvage involved in the overhaul process. The equipment will be supplied in an 'as found' condition after being removed from its working position on the railway.

The service life of a Clamplock Point Mechanism is 15 years for items used on the passenger carrying railway, (Main Line Units). Items used in depots (Depot Units) are left in service until they fail. The shelf life of all Clamplock components is 3 years.

Figure A shows a Clamplock Unit complete with Detection Unit assembly. Figure B shows a Clamplock Groundlock mechanism.

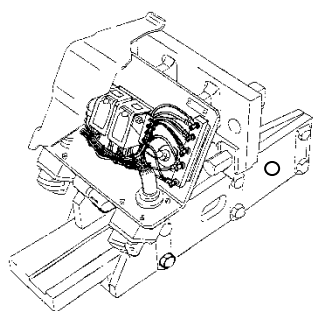


Figure A

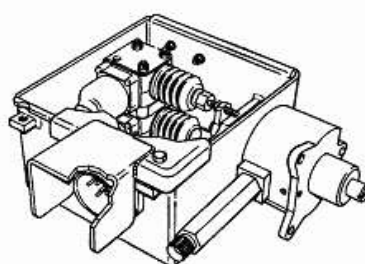


Figure B

6. Usage of item

The Clamplock Point Mechanism, hereafter referred to as 'Clamplocks', is a self-contained unit which contains locking and detecting components for a switch in a single unit. Two units are required to equip a set of points, one for each switch.

Units which are used on the passenger railway are designated 'Main Line' units and are fitted with an external Groundlock. Units used for depot working only are designated 'Depot' units and are not fitted with a Groundlock. The mechanical construction of Main Line and Depot units are similar with the only difference being in the design of the Drive Lock Slide, different number of plug connectors and wiring connections to enable the fitting of a Groundlock.

The position of the Groundlock is sensed by two limit switches which are wired into the Clamplock units. Hence a difference between Mainline and Depot units exists in the wiring of the Detection Units.

The Clamplocks are designated as Left Hand or Right Hand units where the difference relates to the side of the unit to which the Groundlock is fitted. To accommodate the different side for fitting the Groundlock on LH and RH units, the Main Line Detection Unit is also handed to provide the correct plug/socket configuration for connecting the Groundlock cable. Depot Detection Units are also handed to satisfy their LH or RH orientation relative to the Clamplock drive / detection mechanism.

7. Equipment design outline

Design features built into the Clamplock Mechanism include: -

- Construction that is designed to be ultra reliable in operation
- Construction designed to resist the considerable forces to which it will be subjected when moving and holding a set of points
- For the Clamplock Unit and the Lock and Detector Arm Assembly, an ability to configure a left-hand or right-hand configuration from the same mechanical component count
- An ability to re-furbish the main wearing components without the need to scrap major items.

A 9" stroke by 5" diameter double acting, double ended air motor, fed with compressed air at nominally 60 p.s.i., is used to work a set of Clamplock points. The motor is mounted between the sleepers across the track to provide a direct drive to the Lock Slide.

The Lock Slide engages with the Lock Arm to drive the open switch to a closed position. Once the switch is fully closed the Lock Arm is able to rise behind the stock rail and clamp the two rails together. The final part of the stroke of the Lock Slide locks the Lock Arm in the clamped position.

Adjustment of the clamping of the points is accomplished by fitting shims of varying thickness either in the Lock and Detector Arm Assembly or behind the Locking Piece of the main unit.

The position of the Lock Slide and the Lock Arm are each detected by separate limit switches to prove that the points have fully thrown and are locked in the required position.

A pneumatically operated Groundlock is fitted to Main Line units. The Groundlock is detected in the withdrawn and engaged positions by two limit switches. Wiring to the switches is terminated in a Litton Plug, attached to the stainless steel enclosure which houses the Groundlock detection switches. The Groundlock is wired to the Clamplock Unit by a 0.6m long 5-core cable which has Litton socket connections at each end.

8. Applicability

This specification applies to the following items.

Item	Stores List No.
Clamplock Mechanism, Main Line, LH	26s703
Clamplock Mechanism, Main Line, RH	26s704
Clamplock Mechanism, Depot, LH	26s812
Clamplock Mechanism, Depot, RH	26s813
Clamplock Groundlock, LH	26s640
Clamplock Groundlock, RH	26s641
Lock and Detector Arm Assembly	26s637
Switch Detection Unit, Main Line, LH	421/9820
Switch Detection Unit, Main Line, RH	421/9819



Item	Stores List No.
Switch Detection Unit, Depot, LH	421/9822
Switch Detection Unit, Depot, RH	421/9821

The Illustrated Parts List and accompanying figures, Attachment 2 to this document, forms part of this Specification.

9. Critical functions

Critical Functions of the Clamplock Point Mechanism are defined to be:-

Ultra-reliable Operation: The equipment has been designed to be a highly reliable item which will work in a hostile environment where it is mounted on the track-bed and therefore subject to high levels of vibration.

High Structural Integrity of structural elements of the mechanism: Considerable force (in excess of 1000 lbs.) will be exerted on the Lock Slide and into the Lock and Detector Arm Assembly during the drive part of the stroke when it is handling the full force of the point motor. It is imperative that the structural integrity is maintained under all circumstances to ensure that 'drive' is applied to the switch tips at all times. Any failure which allows free movement of the mechanism will be considered a wrong-side failure.

High Structural Integrity of Lock and Detector Arm: The Lock and Detector Arm's function is to positively clamp the closed switch to the stock rail. Once detected to be in position the switch rail is assumed to be clamped shut. Any structural failure of the Lock Arm or its attachment to the mechanism will be treated as a wrong side failure.

High Integrity electrical and mechanical detection the switch, lock and Groundlock positions: High integrity sealed limit switches are used to detect the positions of the critical components of the mechanism.

Electrical Safety. Satisfactory earthing and bonding of the Clamplock Point Mechanism is crucial to ensure that leakage paths to the case or other extraneous metalwork in the event of faults do not give rise to electric shock hazards or to a loss of vital system integrity.

The ability of the item to meet the critical functions listed above throughout its life depends on many factors, not all of which are immediately obvious to people not familiar with all aspects of the design, overhaul and use of the equipment. To ensure that the significance of certain of the detailed requirements is understood and complied with, a number of Critical Parameters or Settings have been designated throughout the text.

Attachment 3 to this Specification lists all the Critical Parameters or Settings [CPS], a reference to the section from which the requirement originates and provides a Criticality Rating of the importance of each CPS item.



The Criticality Rating is based on the severity of the consequence if there is a deviation of the subject parameter from the value specified. Numerical values have been assigned to various levels of the Criticality Rating (CR) according to the table below.

Criticality Rating (CR)	SAFETY RELATED CRITERIA	RELIABILITY RELATED CRITERIA
10	Life critical – sole dependence Occurrence of this deviation alone may lead to an incident causing death or injury.	
8	Life critical – shared dependence Occurrence of this deviation, together with a second deviation which is potentially latent (i.e. not self announcing), may lead to an incident causing death or injury.	
7	Life critical – contributory Occurrence of this deviation increases the probability of an event which may lead to an incident causing death or injury.	Service critical – sole dependence Occurrence of this deviation alone may lead directly to an incident causing major service delays, and indirectly to the danger of a life threatening incident through enforced use of manual rules for operating the railway.
6		Service critical – shared dependence Occurrence of this deviation, together with a second deviation which is potentially latent (i.e. not self-announcing), may lead directly to an incident causing major service delays, and indirectly to the danger of a life threatening incident through enforced use of manual rules for operating the railway.
5		Service critical – contributory Occurrence of this deviation increases the probability of an event which may lead to major service delays, and indirectly to the danger of a life threatening incident through enforced use of manual rules for operating the railway.
1	Not life critical	Not service critical

The criticality rating provides a scale of the importance of achieving the specified parameter and therefore of the care needed in designing the process or processes that will lead to the parameter being achieved. The design of the process or processes that will lead to the parameter being met are the responsibility of the



Contractor and they shall be designed and documented in accordance with the requirements of Engineering Standard 1-202, Signalling equipment overhaul.

10. Performance parameters

Performance parameters applicable to Clamplock Point Mechanisms are defined and quantified below.

10.1 Contact resistance

This section is applicable to the Detection Unit (items 1-53) and Groundlock Assemblies (items 3-1a/b).

The resistance of electrical connections shall be measured by a volt-drop method using a current of 0.080A derived from a 100V A.C. source flowing through the circuit. The measurement shall be made at the test equipment terminals used to energize the circuit under test. It is recognized that this method will therefore include an element of resistance contributed by the test equipment connectors.

The maximum resistance of each circuit shall be 0.15Ω.

10.2 Insulation resistance

This section is applicable to the Detection Unit (items 1-53) and Groundlock Assemblies (items 3-1a/b).

The Insulation Resistance between all pins of the item connected together and any other metal part of the item shall be greater than 50 MΩ when measured at 500 v DC.

The Insulation Resistance between a pin and any other unconnected pin of the item shall be greater than 50 MΩ when measured at 500 v DC.

11. Equipment configuration

An Illustrated Parts List is provided as Attachment 2 to this document, comprising an itemized list and three exploded component drawings, to describe the equipment as identified in Section 8 of this specification. The Illustrated Parts List contains all relevant drawing numbers.

The difference between LH and RH units concerns the fitting of the Side Plates, items 1-24a and 1-24b and the version of Detection Unit (item 1-53) fitted. Figure 1 is drawn for a RH unit.

The difference between Main Line and Depot units concerns the Drive Lock Slide fitted, items 1-27a/b and 1-27c/d along with its associated Detection Unit (item 1-53).

A convention of using the figure number followed by the item number has been adopted in this document to uniquely refer to specific components where necessary. Thus, item 1-26 is the Baseplate, common to all units.

The Detection Unit and the Groundlock may be supplied as individual separate items. Each item shall be overhauled to the relevant sections of this specification.

Unless specifically noted, drawings and figures used in this Specification are for reference only.

12. General requirements

12.1 Compliance with specification

No departures from the requirements of this Specification shall be permitted (either permanently or temporarily) without compliance with the relevant change control procedures.

Neither equivalence of process nor substitution of materials shall be recognised by the Client in receiving work performed against this specification. The Client shall have the immutable expectation that equipment overhauled to this version of the specification shall be 100 % compliant with the specification herein.

12.2 Workshop environment

There are no special conditions for with the workshop environment associated with the overhaul of this equipment.

Calibrated test equipment shall be used to carry out all measurements specified.

A supply of compressed air regulated over the range 30 – 60 p.s.i. is required. The air consumption is minimal.

12.3 Calibre of staff

Any staff involved in the overhaul process shall be competent in the tasks they carry out and the overhauling contractor shall demonstrate this in accordance with the requirements of Engineering Standard 1-203, Competence of personnel working on signal and control systems.

Any staff involved in the NDT process shall be qualified and certified in accordance with BS EN ISO 9712, and shall be certified by an independent accountable body.

12.4 Operator accountability

Process control documentation is required to be completed by identified certified (stamp-holding) operators and inspectors throughout the overhaul process. Each certified operator and inspector shall possess a uniquely numbered stamp which is traceable to the owner. Only competent operators shall be provided with a stamp. Records of the issue and withdrawal (if appropriate) of every stamp shall be kept and shall be made available to the Client on request. The retention period of these records is required to be indefinite.

13. Overhaul definition

Under certain failure modes of the compressed air supply system it may be possible for the air main to be charged at pressures of up to 10 bar. Pneumatically operated signalling equipment must withstand this pressure. It is not required in this Specification for the equipment to be tested at this pressure. However, the Contractor shall not perform any activity on the equipment which will impair its ability to withstand this pressure.

13.1 Full overhaul

A full overhaul will be performed on items which generally will have been in service for their full routine service life, currently nominally ten years for Main Line Units, or Depot Units which will have been removed from service as a result of a failure.

No item returned after failing in service shall be overhauled until the failure report has been reviewed and accepted by the Client in accordance with a defined arrangement agreed with the Client.

Unless stated to the contrary, all processes detailed in this specification shall be performed for each overhaul.

13.1.1 Dismantle

The mechanism shall be dismantled in a manner that shall not damage or shorten the life of any component that is required to be re-used. The life of all recyclable components is indefinite.

The items listed below shall be discarded and replaced with new items at every overhaul.

Locking Plates (all)	Asset Plates and fixings	Self Locking Nuts (all)
Spirol Pins (all)	Interconnecting Wiring (groundlock only)	Limit Switches (groundlock only)
Split Pins (all)	Pins and Socket inserts from Litton connectors (groundlock only)	Side-Plate fixing screws (1-22) Cam Follower assembly items (1-36) to (1-47)
Insulating Bushes (1-28)	Glacier Bushes (1-42)	Locking Piece (1-50)
Phosphor Bronze Bush (2-95)	Pin (2-98) ††	Heat-shrink caps (3-5)
Cable Tie (3-15)	Socket Sealing Gasket (3-21)	Return Spring (3-43)



Cup Washer (3-46)	'O'-ring Seal (3-48)	Thread caps 1/4" BSP (1-24c)
Retention Clip (2-112)		

Discarded Cam Follower items (36) to (47) inclusive shall be replaced with a new Cam Follower Kit SPX Part No. AP107013 at Assembly stage.

Earlier Dowty limit switch version Detection Units to drawing CS63492 (Main Line) & CS64254 (Depot) shall be discarded.

Later SPX (ITW switch) version Detection Units to drawing 7694-A1-110629 (Main Line) & CX40-A1-120493 (Depot) shall be returned to manufacturer SPX.

†† - Only Hard Chrome Pins shall be discarded at every overhaul. Stainless Steel Pins shall be examined before discarding worn items (see section 10.1.3.13).

The Cover Assembly (item 1-3) shall be examined as an item and only dismantled if necessary as a result of the examination.

The Key (item 3-45) shall not be removed from the Rear Plunger (item 3-44) until it has been examined for wear (see Rear Plunger examination, section 10.1.3.18).

Grub Screws (item 3-40) need not be removed from the Plunger Body (item 3-38).

Studs (item 3-39) shall not be removed from the Plunger Body unless they fail their examination.

13.1.2 Cleaning

The following shall be implemented after the clamplock has been dismantled in accordance with Section 13.1.1 above.

All components shall be cleaned and degreased using a technique suitable for that component. A 'suitable technique' shall not cause short term or long term degradation to the component nor shall any solvent used leave undesirable residues on the component which will affect the performance of the component when it forms part of an overhauled unit.

All traces of Loctite shall be removed from all internal and external threads before the examination stage. All traces of gasket material shall be removed from mating surfaces treated with gasket forming products.

The P.T.F.E. coating on two bores in the Plunger Body (item 3-38) shall be stripped and the bores polished before the examination stage.

13.1.3 Examination and gauging

All components shall be examined for the effects of excessive or unusual wear, general damage, damage caused by misuse or age, electrical arcing or tracking or overheating. All thread forms shall be checked for signs of over-tightening. Items exhibiting damage that will not be corrected by the specified re-furbishing processes shall be discarded.

All occurrences of excessive or unusual wear or damage shall be catalogued and reported to the Client. Signs of electrical tracking or arcing shall be treated as excessive wear.

The subject items of such reports and as much of the unit from which they were removed as possible, shall be saved in their as near as original condition after being discovered and shall be clearly tagged and identified and shall be made available for Client inspection if so desired.

It is critical that **only** those components specified for refurbishment should be reclaimed after failing the wear tolerances specified.

Items not meeting the examination criteria shall be discarded if there is no refurbishment process detailed for it in this Specification.

Major components and items with specific examination criteria are listed below.



All component parts set aside for use at assembly shall be to a current approved design. Modification schemes may have been commenced which may not yet have been fully implemented. Units submitted for overhaul may not be to the current build standard. Some components may therefore require to be modified or discarded.

13.1.3.1 Cover assembly (Item 1-3)

Covers shall not exhibit signs of cracking or damage.

The Gasket (item 1-7) shall be examined. They shall not exhibit any signs of damage nor shall they show signs of perishing.

Damaged Shrouds (item 1-4) may be replaced with new items (see section 13.1.4.1).

13.1.3.2 Body frame (Item 1-9)

The Body Frame shall be checked for general condition. The item shall not be distorted or twisted. All welds shall be visually inspected prior to non-destructive testing (NDT), NDT is mandatory on all variants of Clamplocks, and applies to 100% of body frames (1-9) overhauled. Only the Magnetic Particle Inspection process shall be used for inspection, in accordance with LUL Drg no. EES-A2-122881. All body frames (1-9) shall be cleaned prior to NDT inspection as outlined in section 13.1.2.

Magnet used during NDT process shall be capable of lifting a 5 kilogram safety weight.

Small burrs on corners or edges may be dressed away during refurbishment (see section 13.1.4.2)

Any body frames (1-9) found to exhibit cracks during the NDT process shall be scrapped and replaced.

13.1.3.3 Base-plate (Item 1-26)

Before examination, the Base-Plate may be dressed as described in section 13.1.4.3.

The minimum acceptable dimension of the dressed Base-Plate, measured between the centre-line of the spiro pin holes and the working slide faces, is 17.6 mm.

13.1.3.4 Drive lock slide (Item 1-27a/b/c/d)

Before examination, the Drive Lock Slide may be dressed as described in section 13.1.4.4.

The Slide shall be examined for cracks, particularly in the area of the notches where the Groundlock engages. No cracking is acceptable.

The minimum acceptable thickness of the Drive Lock Slide is 24.8 mm. The minimum acceptable width is 91.5 mm.

13.1.3.5 Cam (Item 1-32)

Before examination, the Cam may be dressed as described in section 10.1.4.5.

The minimum acceptable height of the Cam is 55.6 mm.

The maximum acceptable lead-in on the top face above the tapped hole is g.cm.

13.1.3.6 Main return spring (Item 1-34)

Springs shall not be damaged or distorted.

The free length of the spring shall be 50 ± 1 mm.

The force required to compress the spring to 25 ± 1 mm shall be 5 ± 0.25 Kg.

13.1.3.7 Auxiliary return spring (Item 1-35)

Springs shall not be damaged or distorted.

The free length of the spring shall be 57 ± 1 mm.

The force required to compress the spring to 34 ± 1 mm shall be 4.5 ± 0.25 Kg.

13.1.3.8 Detector blade (Item 2-106)

The Detector Blade shall be flat and true to within the requirements of drawing BRS-SM514/1.

The thread shall be undamaged.



All welds shall be visually sound with no corrosion or cracking visible.

13.1.3.9 Lock arm (Item 2-94)

The Lock Arm shall be flat to within the requirements of drawing BRS-SM502/2. Burrs shall be removed from all the edges before testing for flatness.

The 202 +nil -1 dimension from the bore centre to the locking face (refer to drawing BRS-SM502/2) may wear to 202.5 mm. Wear beyond this dimension shall cause the item to be refurbished.

The 189 mm dimension from the bore centre to the external corner of the operating faces (refer to drawing BRS-SM502/2) may be allowed to wear to 190 mm. Wear beyond this dimension shall cause the item to be refurbished.

13.1.3.10 Pin (Item 2-98)

The Pin shall be straight to within a limit of 0.25 mm.

The minimum acceptable diameter of all parts of the Pin is 22.05 mm. There shall be no step changes in diameter except where the pin fits the Switch Rail Bracket.

13.1.3.11 Switch rail bracket (Item 2-99)

The Switch Rail Bracket shall be examined for flatness. It shall be flat to within the limits quoted on drawing BRS – SM 502/1.

All welding shall be visually examined. It shall be free of cracking and any other signs of failure.

The maximum acceptable diameter of each bearing hole is 22.50 mm. These holes are likely to wear to an oval shape. The maximum acceptable diameter quoted applies to the major diameter of each hole.

13.1.3.12 Adjustable cam (Item 2-108)

Burrs shall be removed from all the edges before commencing examination.

Cams with worn or damaged threads shall be discarded.

The minimum acceptable height of the cam is 55.50 mm. Items worn below this limit may be refurbished. (See section 13.1.4.9)

13.1.3.13 Groundlock box (Item 3-4a/b)

The Box shall be examined for cracked welds and for the secure attachment of the three Limit Switch mounting studs and Lid securing lugs. Lugs shall conform to drawing CS63048. Replace parts as necessary (see section 13.1.4.10).

Holes for the attachment of the Asset Label shall be in accordance with drawing CS63048. Boxes shall be modified as necessary if holes are not in the required position.

The maximum acceptable width of the keyway slot is 4.1 mm. The maximum acceptable diameter of the bore through the support bracket is 20.1 mm.

13.1.3.14 Groundlock box lid (Item 3-2a/b)

The Lid (item 3-2) shall be checked for distortion and secure attachment of Socket shroud and clips. Replace parts as necessary (see section 13.1.4.11).

13.1.3.15 Connector sockets (Item 3-16)

The Connector Sockets (item 3-16) shall be examined for signs of wear, particularly to the bayonet pins and thread.

13.1.3.16 Terminal block (Item 3-9a/b)

The Terminal Block shall be examined for signs of cracking, damage caused by water and electrical tracking and arcing. Any sign of electrical tracking or arcing shall be treated as excessive wear and shall be reported to the Client in accordance with the requirements of section 13.1.3 of this Specification.



13.1.3.17 Plunger body (Item 3-38)

The three fixing bolt lugs shall be undamaged and in line with the fixing plane of the item. The front locating boss shall be free of burrs. The air inlet boss shall be undamaged and the thread sound.

The air passage shall be free of swarf and dirt.

The maximum acceptable diameter of the main bore is 42.10 mm. This is the diameter of a stripped and polished bore before the new P.T.F.E. coating is applied.

The maximum acceptable diameter of the front sealing bore is 19.05 mm. This is the diameter of a stripped and polished bore before the new P.T.F.E. coating is applied.

The maximum acceptable diameter of the Lock Plunger bore is 12.70 mm.

The threads of the Studs shall be undamaged and they shall be tight in their holes. Renew if necessary.

13.1.3.18 Rear plunger (Item 3-44)

Check that the item is to current design. Spanner flats have been added to this component.

The minimum acceptable diameter of the bearing section of the item is 18.85 mm.

The minimum acceptable width of the attached Key (item 3-45) is 2.90 mm. It shall be firmly seated in the locating pocket. Replace loose or worn items.

13.1.3.19 Front plunger (Item 3-47)

Check that item is to current design. The diameter and thickness of the Cup Washer locating spigot has been amended. Plungers may be machined to bring them into accordance with drawing AS63754^E.

Spanner flats have been added to this component.

Check that edges of 'O'-ring seating groove are undamaged.

The minimum acceptable diameter of the front bearing section of the Plunger is 18.85 mm. The finish shall be smooth and unscored.

13.1.3.20 Lock plunger (Item 3-49)

The component shall not be distorted or otherwise damaged.

13.1.4 Refurbishment

The refurbishment processes detailed below are the only acceptable processes that may be applied to reclaim component parts.

Where it is deemed uneconomic to refurbish any part, the Contractor may, at his discretion, replace the worn component with a new item.

13.1.4.1 Cover assembly (Item 1-3)

New Shrouds (item 1-4) may be fitted providing the Cover material around the rivet holes is sound, otherwise the Cover shall be discarded.

13.1.4.2 Body frame (Item 1-9)

Small burrs on corners and edges of the members may be removed by filing or linishing.

All body frames (1-9) shall be subsequently cleaned, as specified in section 13.1.2 following NDT testing.

13.1.4.3 Base-plate (Item 1-26)

The operating surfaces may be linished smooth with 100 grit emery cloth and any small burrs removed by filing.

13.1.4.4 Drive lock slide (Item 1-27a/b/c/d)

The operating surfaces may be linished smooth with 100 grit emery cloth and any small burrs removed by filing.