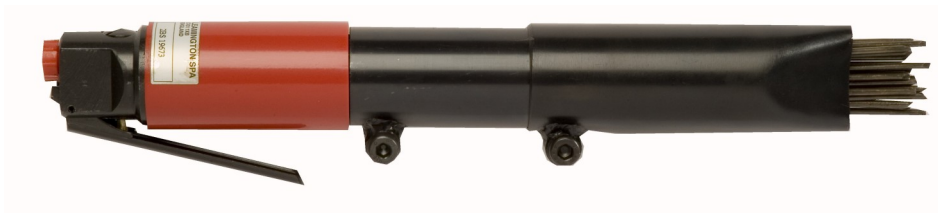


# Needle & Chisel Scalers

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## Operation and Maintenance Manual



## DECLARATION OF CONFORMITY

We,

Trelawny SPT Limited of  
Trelawny House, 13 Highdown Road, Sydenham Industrial Estate, Leamington Spa, Warwickshire, CV31  
1XT, United Kingdom,

Declare that under our sole responsibility for supply/manufacture of the product

Name of product \_\_\_\_\_

Model, Serial Number \_\_\_\_\_

Year of production \_\_\_\_\_

to which this document relates is in conformity with the provisions of the following Directive(s), Normative Documents and their relevant Standards:

<b>2006/42/EC</b>	<b>MACHINERY DIRECTIVE</b>
<b>2006/95/EC</b>	<b>LOW VOLTAGE DIRECTIVE</b> <b>(Applicable only to products using electric power)</b>
<b>EN ISO 11148-4:2012</b>	<b>HAND HELD NON-ELECTRIC</b> <b>(Non-Rotary Percussive Tools)</b>

Date and place of issue,  
24<sup>th</sup> June 2016  
Leamington Spa, England.

**CE**



Rob Chapman,  
Managing Director.

CZ	<p>Prohlášení o přizpůsobení          My, společnost Trelawny SPT Limited          podajemy daňové přiznání, že výrobek a dodávka výrobku          název výrobku          Model, výrobní číslo          Rok výroby          Pro které se průkaz týká, je přizpůsobení s zásoby od následující příkazov a jejich pohotovosti:          98/37/EC Příkaz soustrojí          73/23/EC Příkaz nízkého napětí (upotřebitelné jediné do výrobku použití elektrické energie)</p>	LT	<p>ATITIKTIES DEKLARACIJA          Mes, Trelawny SPT Limite          Prisiimdami visą atsakomybę, deklaruojame, kad tiekiamas / gaminamas produktas          Produkto pavadinimas          Modelis, serijos numeris          Pagaminimo          Kuriam taikoma ši deklaracija, atitinka šių direktyvų, norminių aktų ir su jais susijusių standartų reikalavimus:          98/37/EC Įrangos direktyva          73/23/EC Žemos įtampos direktyva (taikoma tik elektriniams įrengimams)</p>
DE	<p>Übereinstimmungserklärung          Wir, Trelawny SPT Limited          erklären, dass unter unserer alleinigen Verantwortung für die Lieferung und Herstellung des Produktes          Name des Produktes          Model, Seriennummer          Jahr der Herstellung          auf welches sich dieses Dokument bezieht, stimmt mit den Vorgaben der folgenden Direktive, normativen Dokumente und deren jeweiligen Masstabe ein:          98/37/EC Maschineriedirektive          73/23/EC Niederspannungsdirektive (nur zutreffend auf Produkte, die Strom benutzen)</p>	MT	<p>DIKJARAZZJONI TA KONFORMITA          Ahna, Trelawny SPT Limited          Niddikjaraw li ahna responsabli kompletament għal provista / manifattura tal-prodott hawn imsemmi:          Isem il-Prodott          Mudell, Serial number          Sena ta' produzzjoni          Dan id-dokument magħmul għal prodott imsemmi hawn fuq, li huwa skond il-provizjonijiet imsemmija fid-dokumenti tal-klassi tax-xogħol:          98/37/EC Machinery Directive          73/23/EC Low Voltage Directive (tapplika biss għal prodotti li jaħdmu bl-elettriku)</p>
DK	<p>Erklæring om overensstemmelse          Vi, Trelawny SPT Limited          Erklærer hermed at under vores ene forhandling ansvar for vores forhandling/produktion af produktet          Produkt navn          Model, serie nummer          Produktionsår          For hvilket dette dokument referer, at det er i overensstemmelse med bestemmelser af følgende direktiver, normative dokumenter og deres relevante standart:          98/37/EC Machinery directive          73/23/EC Low voltage directive</p>	NL	<p>EENVORMIGHEIDSVERKLARING          Wij, Trelawny SPT Limited          Verklaart dat wij de volledige verantwoordelijkheid dragen voor het leveren/fabriceren van het volgende product.          Naam van het product          Type, Serienummer          Productiejaar          En verklaren dat het product waarnaar dit document verwijst eenvormig is met de voorzeningen van de volgende Richtlijn(en), Normatieve Documenten en hun relevante Standaarden:          98/37/EC MACHINERIECHTLIJN          73/23/EC LAAGSPANNINGSRICHTLIJN (uitsluitend van toepassing bij producten die elektrische stroom gebruiken)</p>
EE	<p>TOOTE VASTAVUSE DEKLARATSIOON          Meie, Trelawny SPT Limited          Deklareerime, et vastutame järgmise varustuse/toote müügi eest          Toote nimetus          Mudel, Seeria number          Aasta toodangu          Antud dokument tõendab toote vastavust järgmistele direktiivide/le, normatiivaktidele ja nendega samaväärsetele standarditele:          98/37/EC MASINA DIREKTIIVID          73/23/EC MADALPINGE DIREKTIIVID (Kohandatakse vaid toodetele, mis kasutavad elektrivoolu)</p>	PL	<p>Deklaracja Zgodności          My, Firma Trelawny SPT Limited,          oświadczamy w naszej odpowiedzialności, że produkcja i dostawa urządzenia          Nazwa produktu          Model, numer seryjny          Rok produkcji          do którego ten dokument należy, jest zgodne z klauzulami następujących zarządzeń i ich istotnych standardów:          98/37/EC Zarządzenie mechaniczne          73/23/EC Zarządzenie niskiego napięcia elektrycznego (Zastosowanie tylko przy urządzeniach elektrycznych)</p>
ES	<p>Declaración de Conformidad          Nosotros, Trelawny SPT Limited          Declaramos que bajo nuestra completa responsabilidad de la fabricación/suministro del producto          Nombre del Producto          Modelo, No de Serie          Año de producción          A quien este documento se refiere, está de acuerdo con lo relacionado en la Directriz, Normativa Documentada y sus relevantes standards:          98/37/EC Directorio de Maquinaria          73/23/EC Directorio de Bajo Voltaje (Aplicable solamente a productos que funcionen con electricidad)</p>	PT	<p>DECLARAÇÃO DE CONFORMIDADE CE          A empresa TRELAWNY SPT LIMITED          Declara, sob sua inteira responsabilidade, que o fornecimento/fabrico do seguinte produto:          Designação do produto          Modelo, Número de Série          Ano de produção          a que esta declaração se refere, está em conformidade com o preceituado nas Directivas e Normas Comunitárias abaixo indicadas:          98/37/EC DIRECTIVA DE MÁQUINAS          73/23/EC DIRECTIVA DE BAIXA VOLTAGEM (Aplicável apenas a produtos que utilizam energia eléctrica)</p>
FI	<p>ILMOITUSVAHVISTUS          Me, Trelawny SPT Limited          Vahvistamme tuotteiden toimittamisesta/valmistamisesta          Tuotenumi          Malli, sarjanumero          Valmistusvuosi          Täällä todistuksella vahvistamme säädökset seuraviin ohje/ohjesiin, Yleisiin papereihin ja niihin liittyvät vaatimukset:          98/37/EC KONEISTON OHJEET          73/23/EC PIENJÄNNITTE OHJEET (tarvitaan ainoastaan tuotteille jotka käyttävät sähkövoimaa)</p>	RU	<p>СВИДЕТЕЛЬСТВО О СООТВЕТСТВИИ          Мы, Trelawny SPT Limited          Заявляем, что несем полную ответственность за поставку/производство нижеуказанной продукции          Наименование изделия          Модель, серийный номер          Год выпуска          на которую выдано настоящее Свидетельство, и которая соответствует положениям следующей(их) Директив(ы), нормативным документам и относящимся к ним стандартам:          98/37/EC ДИРЕКТИВА ПО МЕХАНИЗМАМ          73/23/EC ДИРЕКТИВА ПО НИЗКОВОЛЬТНОМУ ОБОРУДОВАНИЮ (распространяется только на изделия с электропитанием)</p>
FR	<p>DÉCLARATION DE CONFORMITÉ          Nous, soussignés Trelawny SPT Limited          déclarons que le produit sous-nommé          Nom du produit          Modèle et Numéro de Série          Année de production          et pour lequel nous prenons entière responsabilité pour sa fourniture et manufacture, est conforme aux clauses des directives suivantes, documents normatifs et normes qui s'y appliquent:          98/37/EC DIRECTIVE POUR LA MACHINERIE          73/23/EC DIRECTIVE POUR BAS VOLTAGE (n'est applicable qu'aux produits utilisant l'énergie électrique)</p>	SE	<p>FÖRSÄKRAN OM ÖVERENSSTÄMMELSE          Vi, TRELAWNY SPT LIMITED          FÖRKLARAR ATT VI MED ENSAMT ANSVAR ANSKAFFAT / TILLVERKAT PRODUKTEN          PRODUKTNAMN          MODELL och SERIE NUMMER          Tillverkningsår          TILL VILKEN DETTA DOKUMENT HÄNVISAR , ÄR I ÖVERENSSTÄMMELSE MED FÖLJANDE DIREKTIV , NORMATIVA DOKUMENT OCH DERAS RELEVANTA STANDARDER          98/37/EC MASKINDIREKTIV          73/23/EC LAGSTRÖMSDIREKTIV (TILLÄMPLIG PÅ ELEKTRISK DRIVNA PRODUKTER )</p>
GR	<p>ΔΗΛΩΣΗ ΠΙΣΤΟΤΗΤΑΣ          Η εταιρεία Trelawny SPT Limited          Δηλώνει ότι έχει τη μοναδική ευθύνη ως κατασκευαστρια / προμηθευτρια του παρακάτω προϊόντος περιγραφή προϊόντος          μοντέλο, αριθμός σειράς          έτος παραγωγής          και στο οποίο αναφέρεται αυτή η δήλωση, είναι συμβατό με τις προδιαγραφές που ορίζονται στις ακόλουθες Κοινοτικές Οδηγίες Ελεγκτικές Διατάξεις κι άλλες σχετικές προδιαγραφές          98/37/EC ΟΔΗΓΙΑ ΠΕΡΙ ΜΗΧΑΝΗΜΑΤΩΝ          73/23/EC ΟΔΗΓΙΑ ΠΕΡΙ ΧΑΜΗΛΗΣ ΤΑΣΗΣ (αφορά μόνον προϊόντα που λειτουργούν με ηλεκτρικό ρεύμα)</p>	SI	<p>IZJAVA O SKLADNOSTI          Trelawny SPT Limited          pod polno odgovornostjo izjavljamo, da so spodaj navedeni proizvodi, ki jih dobavljamo/proizvajamo:          Ime proizvoda          Model, serijska številka          Leto proizvodnje          na katere se ta dokument nanaša, proizvedeni v skladu z določili naslednjih direktiv, normativnih dokumentov in njihovih relevantnih standardov:          98/37/EC DIREKTIVA O STROJIH          73/23/EC DIREKTIVA O STROJIH Z NIZKO VOLTAŽO (nanaša se samo na proizvode na električni pogon)</p>
HU	<p>MEGFELŐLŐSÉGI NYILATKOZAT          Mi, A "Trelawny SPT Limited" cég          Felelősségünk tudatában kijelentjük, hogy mint a termék szállítója/ gyártója          Termék neve          Típus, Sorozatszám          Gyártási év          amelyre jelen dokumentum vonatkozik, megfelel az alábbi Irányelv(ek), Irányadó Dokumentumok előírásainak, és az azokat meghatározó szabványoknak:          98/37/EC GÉPÉSZETI IRÁNYELVEK          73/23/EC KISFESZÜLTÉGŰ IRÁNYELVEK (Csak az elektromos meghajtású gépeknél)</p>	TR	<p>UYGUNLUK BEYANI          Trelawny SPT Limited          Aşağıdaki, üretim ve tedarikinden tek başına sorumlu olduđu ürünün          Ürün adı          Model/Seri no          Üretim yılı          bu belgenin ilgili olduđu aşağıdaki yönetmeliklerin, norm belgelerinin ve ilgili standartlarının koşullarına uygun olduđunu beyan eder:          98/37/EC MAKYNALAR YONETMELYDY          73/23/EC DÜPÜK GERÝLYM YONETMELYDY (Yalnızýz elektrikle çalypan ürünlerde geçerlidir)</p>
IT	<p>DICHIARAZIONE DI CONFORMITA          La Società Trelawny SPT Limited          Dichiaro, sotto la propria responsabilità, che la fornitura / produzione del prodotto          Nome prodotto          Modello, codice          Anno di produzione          a cui si riferisce tale documento è conforme alle seguenti Direttive, ai documenti della Normativa ed ai relativi standard:          98/37/EC DIRETTIVA SULLE APPARECCHIATURE          73/23/EC DIRETTIVA SUL BASSO VOLTAGGIO (applicabile esclusivamente per i prodotti che utilizzano energia elettrica)</p>		

# OPERATION

## General Information

Before operating, performing maintenance or repairing the Needle / Chisel Scaler this manual must be read and understood by the operator, if in any doubt, ask your supervisor before using this equipment.

Local safety regulations must be followed at all times. Failure to follow these instructions could result in damage to the Scaler and/or personal injury.

Trelawny SPT Limited disclaims all responsibility for damage to persons or objects arising as a consequence of incorrect handling of the tool, failure to inspect the tool for damage or other faults that may influence the operation prior to starting work, or failure to follow the safety regulations listed or applicable to the job site.

The tool is primarily designed for the removal of paint, heavy rust, and scale; it can also be used for the removal of laitance from concrete. It can be used both indoors and out. This tool must not be used in a fixture.

## Air Supply

The compressed air must be free from water and dirt. The installation of a filter/regulator/lubricator air preparation set (with moisture trap) adjacent to the tool is **strongly recommended**.

Always clear the air hose before connecting to the tool. Ensure that no moisture (condensation) is present in the air hose.

Ensure that a minimum 10mm (3/8") bore air hose is used and that all couplings are secure, leak free and in good condition.

Limit the length of air hose to 10M (33ft). Where extra length is necessary, for each additional 15M (50ft) of air hose used, the pressure drop is approximately 0.21bar (3psi).

**For safe and efficient operation the correct operating pressure is 6.2bar (90 psi).**

Do not let the operating pressure fall below 5.5bar (80p.s.i.) or rise above 6.9bar (100 psi) absolute maximum.

Preferably, the compressor should be able to supply a minimum of 4.7 L/s (10 cfm) free air for the largest Needle / Chisel Scaler and 2.8 L/s (6 cfm) for the 1B Needle / Chisel Scaler.

In particularly cold weather it is recommended that a proprietary anti-freeze lubricating oil is used.

## Lubrication

Oil the tool daily before use. Put a few drops of one of the following zinc free air tool lubricants through the air inlet.

SHELL S22 or R10  
CASTROL Hyspin ZZ32

See also the section on AIR SUPPLY for further information and recommendations.

## Safety

Always, read through these instructions first before use.

### Do-

Be aware that this tool is not electrically insulated.

Wear Personal Protective Equipment including safety goggles, footwear, ear defenders and gloves. In some environments it will be necessary to wear

facemasks or breathing apparatus.

Be aware that this tool can create dust and flying debris.

Keep hands and clothing away from moving parts.

Store this tool in a secure and dry environment.

Be aware of others working around you.

Ensure that this tool is lubricated daily.

**Always observe safe-working practices at all times.**

### Do not-

Allow the tool to run unattended.

Modify this tool in any way, as this will invalidate the warranty and could lead to serious injury.

Allow the tool to run continuously whilst not in contact with the surface being prepared.

Use the tool if you become tired, this can lead to physical strain or injuries; where practical; use a spring balance to take the weight of the tool.

Hold the exposed needles, whilst the tool is in use, this could cause vibration damage to the hands.

Use this tool in potentially explosive environments.

Drag this tool by the air hose.

Use petrol (gasoline), thinners or any other high flash point solvent to clean the tool.

**Please note:** Unrestrained hoses can whip dangerously if they become detached.

Care must be taken to avoid damaging or tripping over the trailing air hose.

## Risk of Hand-arm Vibration injury

These tools may cause Hand-arm Vibration Syndrome injury if their use is not adequately managed.

We advise you to carry out a risk assessment and to implement measures such as; limiting exposure time [i.e. actual trigger time, not total time at work], job rotation, ensuring the tools are used correctly, ensuring the tools are maintained according to our recommendations, and ensuring that the operators wear personal protective equipment [PPE] particularly gloves and clothing to keep them warm and dry.

Employers should consider setting up a programme of health surveillance to establish a benchmark for each operator and to detect early symptoms of vibration injury.

We are not aware of any PPE that provides protection against vibration injury by attenuating vibration emissions.

**See 'Specifications' section for vibration emission data.**

Further advice is available from our Technical Department.

We strongly advise you to visit the Health & Safety Executive website <http://www.hse.gov.uk/vibration> This site provides excellent advice and information on HAV and it includes a Hand-arm Vibration Exposure Calculator that is easy to use to work out the daily vibration exposure for each of your operators.

## Starting work

### Please note:

The carbon steel needles provided with these tools are not intended for use in a potentially explosive atmosphere.

### Prior to operating the tool check: -

That all fittings are secure, free from leaks and air hoses are in good condition.

**That the air pressure is correct for this tool 6.2 bar (90 p.s.i.).**

Put a few drops of a recommended lubricant into the air inlet of the tool.

To operate the tool, which is dependant on the type of lever fitted, for those fitted with a safety lever, first push thumb button forwards and then for both styles of lever, pull the lever towards the hand grip to start the tool, then apply the Chisel or Needles to the surface being prepared.

Note: Several types of Chisel are available for the Chisel Scaler to suit the job in hand; a Needle Scaler Attachment to convert a Chisel Scaler into a Needle Scaler is also available. See parts list for details.

**To switch off, simply release the throttle lever.**

It is advisable that gloves and personal protective equipment be worn when using this tool.

(See previous section on Risk of Vibration Injury).

Take care to avoid tripping over or damaging the air hose.

Safe use of this tool requires a solid stance and a secure foothold, the tool may be used in other postures but care must be taken to ensure the operator adopts a firm and stable position.

Maintain contact with the work surface with sufficient pressure to keep the tool from bouncing off the surface.

Handled correctly Trelawny Needle/Chisel Scalers will work quickly and efficiently.

Excessive operator pressure will not improve the tools efficiency but could cause premature tool failure and increase operator fatigue.

It could also increase the vibration emission level.

# MAINTENANCE

**Never allow the tool to run continuously whilst not in contact with the surface being prepared.**

## Maintenance

Only a competent person, in a suitably equipped workshop, must carry out maintenance.

**Disconnect the tool from the air supply before carrying out any maintenance or any of the operations in the next sections.**

Clean all debris from the exterior of the tool.

For safe efficient running and at intervals of no more than 100hrs or if operation becomes sluggish, dismantle and clean with highly refined paraffin. Immediately after cleaning, thoroughly oil the tool with one of the recommended lubricants.

## Changing Needles

Before changing or replacing needles, disconnect the air supply to the tool.

Loosen the Cap Head Screw (30) on the Intermediate Tube (28) and remove the Tube Assembly, taking care not to allow the internal components to fall out.

### Please note:

Models 1B, 2B and 2BPG have a grip thread – there is no thread in the intermediate tube. Models 3B, 3BPG & 4B have screw threads.

Take note when disassembling how all the parts inside the Intermediate Tube (28) fit together as wrong assembly will result in damage to the tool.

Remove the Needle Holder (25) and Anvil (24) as an assembly from the Intermediate Tube, check that the Return Spring (27) fitted inside the Intermediate Tube is in good condition.

Remove the Needles from the Needle Holder and replace with new Needles as per the illustration.

On assembly ensure that the small diameter of the Anvil (24) fits inside the Needle Holder (25).

Place the Return Spring over the Needles and fit the assembly into the Intermediate Tube.

Fully screw the Tube Assembly onto the Body/Cover.

Position the boss underneath and tighten the Allen Screw (30).

As the Needles wear, adjust the Front Tube by loosening the Allen Screw and adjusting the Front Tube so that approximately 1" (25mm) of Needle protrudes from the Front Tube (29) and then retighten the Allen Screw.

### Pointed tip needles

Sharpened to a nail point, these are most effective in breaking through very hard scale on surfaces where some surface indentation is permissible - or where keying (i.e. profile) of the surface is desirable.

Pointed tip needles are available in 3mm and 4mm only.

### Chisel tip needles

These are general purpose needles, flattened to a chisel like blade and are most effective in the removal of thicker material, while leaving a less pitted surface than the Pointed tip needles but still giving some surface indentation (i.e. profile).

Chisel tip needles are available in 3mm only.

### Flat tip needles

Machined to a flat tip, these needles will leave slight marking (i.e. profile) on the surface; the 2mm needles can have a burnishing effect. 2mm Needles are recommended for use on thin gauge metals and any surface where light treatment is desired.

Flat tip needles are available in three sizes - 2mm, 3mm and 4mm,

**SEE SPECIFICATION SECTION FOR QUANTITIES AND THE CORRESPONDING NEEDLE HOLDER**

**2mm Needle requires a 2mm Needle Holder & 4mm Needles require a 4mm Needle Holder.**

## Fitting the Chisel Holder

Before fitting the Chisel Holder (31), disconnect the tool from the air supply, slacken the pinch bolt on the Needle Holder Assembly and remove the Assembly, taking care not to allow the internal components to fall out.

To fit the Chisel Holder (31) ensure that the pinch bolt (30) on the Chisel Holder (31) is loose, screw the Chisel Holder (31) fully on to the Cylinder (10) or Body (13).

Then unscrew to position the boss underneath.

Turn the knurled collar on the Chisel Holder (31) until the retaining ball is fully visible; insert the Chisel (32) aligning the rebate with the ball.

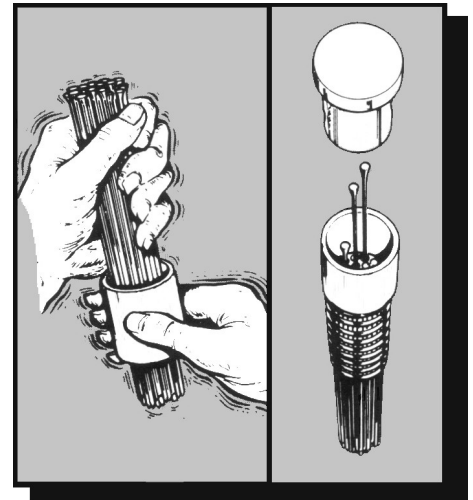
Position the midpoint of the rebate on the shank of the Chisel (32) with the retaining ball and turn the collar half a turn to lock the Chisel (32) in place.

Tighten the pinch bolt (30) using a 6mm AF Allen key. To release the Chisel (32), rotate the knurled collar until the retaining ball is fully visible and remove the Chisel (32).

### Fitting of the Needle Scaler Attachment

Before fitting the Needle Scaler Attachment, disconnect the air supply from the tool, slacken the pinch bolt on the Chisel Holder and remove Chisel Holder.

Assemble the component parts of the Needle Scaler attachment in the following order; insert the Needles (26) into the Needle Holder (25),



*Hold the needles loosely and shake the holder, needles will fall into location holes*

*The correct position of parts when changing needles*

place the Spring (27) over the Needles, insert the Anvil (24), small diameter first, into the Needle Holder (25), then place the assembly into the Intermediate Tube (28).

Check the service layout for clarification. Screw the assembly fully onto the Cylinder (10) or Body (13) and tighten the pinch bolt (30) using a 6mm AF Allen key.

Slide the Front Tube (29) on to the Intermediate Tube (28) until approximately 25mm (1") of Needle protrudes from the Front Tube (29). Tighten the pinch bolt (30) using a 6mm AF Allen key.

## Dismantling

Remove all deposits from outside of the Needle/Chisel Scaler and disconnect the tool from the air hose.

Slacken the pinch bolt on the Needle Holder Assembly or Chisel Holder and carefully unscrew from the Body/Cylinder.

Take care not to allow the internal components to fall out of the Needle Holder Assembly.

### All Valve Body Servicing

Clamp the Valve Body (6) firmly in a vice, using the flats provided, and with the Throttle Lever (7) upper most.

Using a 3mm diameter pin or punch and small hammer, remove the Throttle Lever Roll Pin (8), and remove the Throttle Lever (7).

Rotate the Valve Body (6) 180 degrees in the vice to gain access the Valve Cap (1). Unscrew the Valve Cap (1) using a screwdriver, check the Valve Cap O' Ring (2) for signs of deterioration, remove the Spring (3), push out the Valve Stem (4) and remove the valve seat O' Ring (5).

Check the Valve Stem (4) and O' Ring (5) for wear.

### Piston and Cylinder removal

To remove the Piston (9) or Cylinder from each of the three styles of Needle/Chisel Scaler, refer to the specific instructions below.

# SERVICING

## STYLE A

Hold the Body (13) firmly in a vice, with the Valve Body (6) uppermost and using a suitable wrench and using the flats provided, unscrew the Valve Body (6).

Remove the O'Ring from the Body (13) then remove the Piston (9).

Inspect all components for signs of wear, particularly the small bore of the Body, replace components as necessary.

## STYLE B

Hold the Cylinder (10) firmly in a vice, using the flats provided and with the Valve Assembly uppermost, unscrew the cover (14) from the cylinder (10).

The Cylinder (10) has been secured with a retaining compound and may require a sharp blow on the handle using a rubber mallet to break this bond.

Remove the two O'Ring seals (11) and (12) and the Piston (9).

Inspect all components for signs of wear, particularly the small bore of the Cylinder, replace components as necessary.

## STYLE C

Hold the Body (13) vertically in a vice, with the handle uppermost and unscrew the End Cap using a suitable wrench.

Remove the O'Ring (17), Piston (9) and Cylinder (10).

Inspect all components for signs of wear, particularly the small bore of the cylinder, replace components as necessary.

## Assembly

Before any assembly takes place, ensure all parts are clean and are coated in a thin film of recommended air tool lubricant.

It is strongly recommended that all the O' Rings and any other worn parts that show signs of wear be replaced using only genuine Trelawny spares.

### All Valve Body Assemblies

Clamp the Valve Body firmly in a vice, using the flats provided, and with the threaded hole uppermost.

Insert the valve seat O' Ring (5) into Valve Body (6), followed by the Valve Stem (4), Spring (3), then the Valve Cap (1) complete with its O' Ring (2), tighten the Valve Cap (1) with a screwdriver.

Rotate assembly 180 degrees in the vice.

Using a 3mm diameter pin punch locate and align the Throttle Lever (7) in position, then drive in the Throttle Lever Roll Pin (8) into the pin location.

### Piston and Cylinder Assembly

To assemble the Scaler with a new Piston (9) or Cylinder (10), refer to the specific instruction for each style.

## STYLE A

Hold the Body (13) vertically in a vice. Insert the Piston (9), small diameter first into the bore.

Fit a new O'Ring (17) onto the shoulder near the top of the body.

Screw the Valve body by hand into the Body, and then tighten using a suitable spanner using the flats provided.

## STYLE B

Fit two new O'Rings (11) and (12) onto the Cylinder (10).

Insert the Piston (9), small diameter first into the bore.

With clean, dry and oil free threads apply a bead of Loctite 243 or similar adhesive to the central portion of the Cylinder (10) threads.

Screw the Cylinder (10) fully into the Cover Assembly (14) by hand.

Then holding the Cylinder in a vice using the flats provided, tighten fully by hand, then, using a rubber mallet, tap lightly on the handle until tightened fully.

## STYLE C

Hold the body (13) vertically in a vice, with the handle uppermost, insert the Cylinder (10), small bore first into the Body (13), then the Piston (9), small diameter first, into the Cylinder (10).

Fit a new O'Ring (17) into the Body (13) to sit on top of the Cylinder (10).

Screw the End Cap (15) down by hand, then using a suitable wrench tighten fully.

## Noise and Vibration

UK employers should be aware of their duties under the Health & Safety at Work Act 1974 and the guidance given regarding hand arm vibration in the H.S.E. publication "Control the risks from hand-arm vibration" INDG175 (rev2).

(Single copies are available F.O.C. See H.S.E. web site [www.hse.gov.uk](http://www.hse.gov.uk))

Employers in the rest of the world should be aware of their duties and responsibilities as specified in local regulations.

The employer is responsible for assessing the risk to the employee under actual working conditions.

Noise level measured in accordance with EN ISO 15744: 1999

## Risk of Hand Arm Injury

Because of various factors, the range of vibration emission during intended use of these tools are expected to be between 8.5m/s<sup>2</sup> and 84m/s<sup>2</sup> dependent on the tool purchased. The vibration is dependent on the task, the operators grip, and feed force employed etc.

Vibration measured in accordance with:-

EN ISO 28927 and EN ISO 20643

Declared vibration emission values were obtained under laboratory conditions in compliance with the above stated standards and do not necessarily represent values obtained in service.

## Disposal

When the tool and its accessories are taken out of service for disposal, it is recommended that:-

They are rendered unusable to prevent improper re-use. They are dismantled into component form, segregated according to material composition and disposed of using waste recycling processes specified by local regulations.

### Note:

Flammable material such as plastic, rubber or composite materials must NOT be incinerated but should be subject to normal industrial waste disposal processes.

## Machinery Directive Information

This tool has been designed and produced in accordance with the following directive:

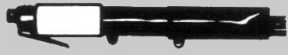
**2006/42/EC Machinery Directive**

and applicable harmonised standard:  
EN ISO 11148-4:2012

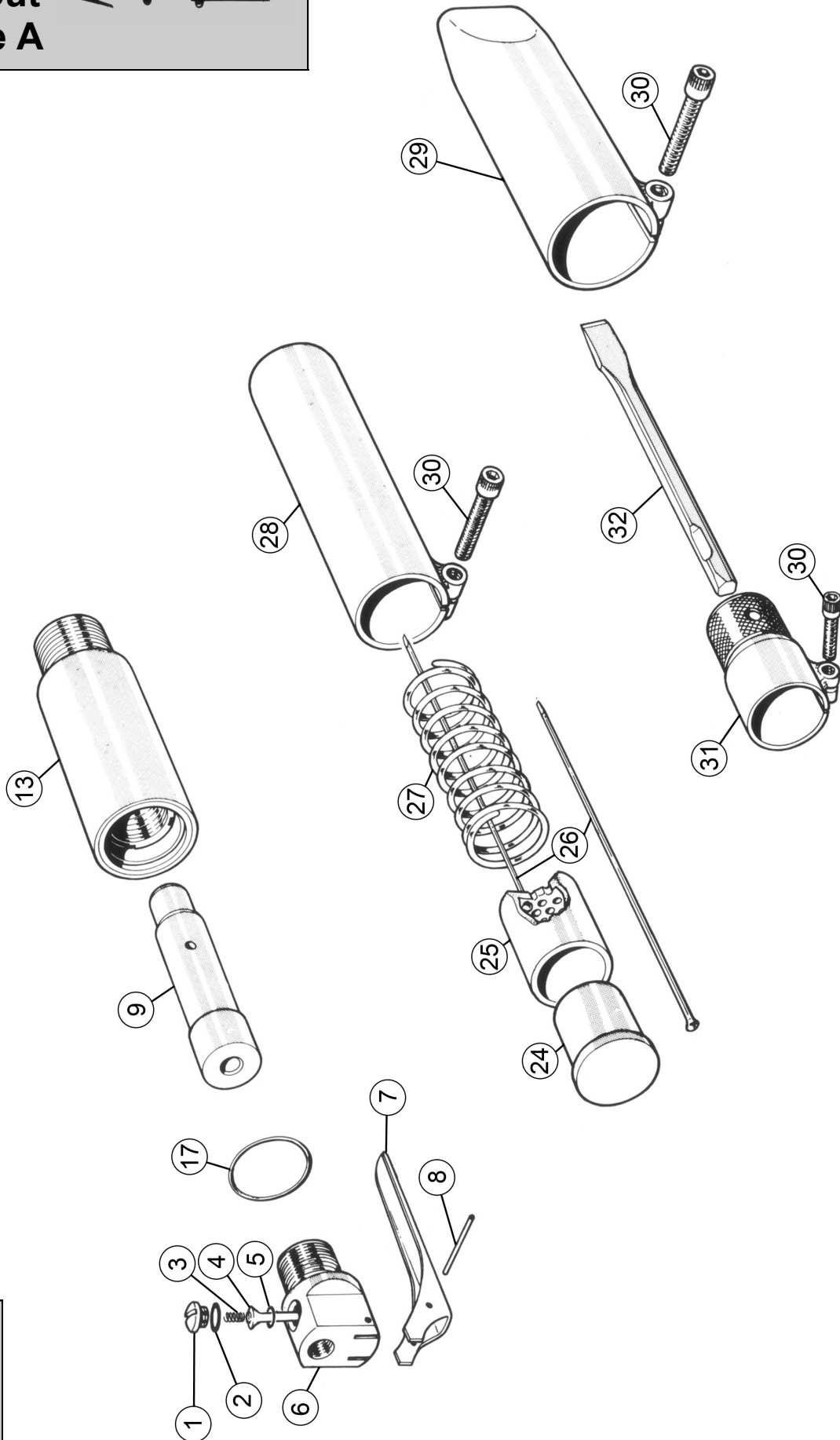
# EXPLODED VIEW

## 1B & 2B INLINE NEEDLE, CHIPPER & CHISEL SCALER

Service  
Layout  
Style A



Service  
Layout  
Style A



# 1B & 2B PARTS LIST

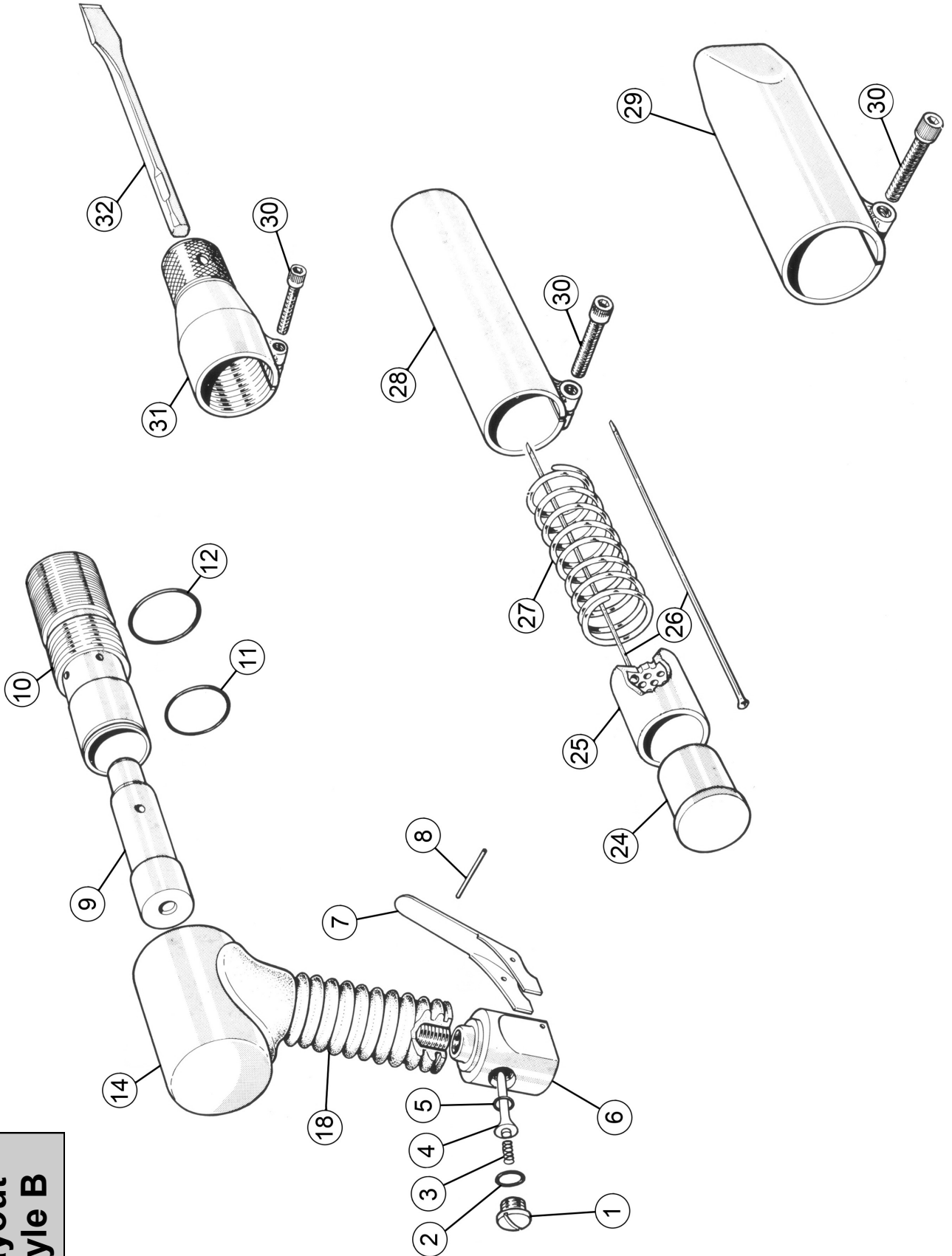
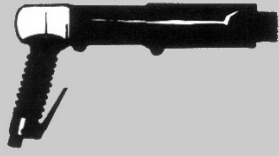
Item	Part No	Description	Item	Part No	Description
<b>Common Components</b>			<b>1B Unique Components</b>		
1	615.3021	Valve Cap	6	423.1021	Valve Body (inc 1-8) 1/4" BSP Thread
2	809.0139	O' Ring – Valve Cap		423.1521	Valve Body (inc 1-8) 1/4" NPT Thread
3	712.3022	Valve Spring	7	716.3021	Throttle Lever
4	618.3022	Valve Stem	9	612.1001	Piston
5	809.0089	O' Ring – Valve Seat	13	411.1002	Body
8	813.0108	Roll Pin	17	809.0249	O'Ring
26	442.1107	Pack of 2000 2mm Needles (Flat Tip)	24	610.1001	Anvil
	452.1110	Pack of 100 2mm Needles (Flat Tip)	25	601.1002	Needle Holder 2mm
	443.2107	Pack of 1000 3mm Needles (Chisel Tip)		601.1003	Needle Holder 3mm
	443.1107	Pack of 1000 3mm Needles (Flat Tip)	26	412.1129	6 x Needle Sets 2mm (Flat Tip)
	443.3107	Pack of 1000 3mm Needles (Pointed Tip)		413.2112	6 x Needle Sets 3mm (Chisel Tip)
	443.1307	Pack of 500 3mm Needles (Beryllium Copper)		413.1112	6 x Needle Sets 3mm (Flat Tip)
	453.2110	Pack of 100 3mm Needles (Chisel Tip)		413.3112	6 x Needle Sets 3mm (Pointed Tip)
	453.1110	Pack of 100 3mm Needles (Flat Tip)		403.1312	1 x Needle Set 3mm (Beryllium Copper - Flat Tip)
	453.3110	Pack of 100 3mm Needles (Pointed Tip)	27	712.1001	Spring - Compression
	453.1310	Pack of 100 3mm Needles (Beryllium Copper)	28	416.1032	Intermediate Tube (Includes item 30)
	444.2107	Pack of 500 4mm Needles (Chisel Tip)	29	417.1032	Straight Front Tube (Includes item 30)
	444.1107	Pack of 500 4mm Needles (Flat Tip)		418.1032	Round Front Tube (Includes item 30)
	444.3107	Pack of 500 4mm Needles (Pointed Tip)	30	806.0825	Cap Head Screw
			31	419.1241	Chisel Holder 1/2" Square
				446.1010	Service Kit (Inc. 9,17,24,25,27 & 1 Set Needles)
	454.2105	Pack of 50 4mm Needles (Chisel Tip)			
	454.1105	Pack of 50 4mm Needles (Flat Tip)	<b>2B Unique Components</b>		
	454.3105	Pack of 50 4mm Needles (Pointed Tip)	6	423.2021	Valve Body (inc 1-8) 1/4" BSP Thread
32	704.1101	Chisel 1/2" Square 7" Long x 3/4" Blade		423.2521	Valve Body (inc 1-8) 1/4" NPT Thread
	704.1103	Chisel 1/2" Square 7" Long x 2 3/4" Blade	7	716.3000	Throttle Lever
	704.1106	Chisel 1/2" Square Brick Rake	9	612.2001	Piston
	704.1110	Chisel 1/2" Square 7" Long Spark Resistant 2" Blade	13	411.2002	Body
	704.2105	Chisel 1/2" Square 7" Long Cranked x 1 3/8" Blade	17	809.5179	O'Ring
			24	610.2001	Anvil
			25	601.2002	Needle Holder 2mm
				601.2003	Needle Holder 3mm
			26	412.1151	6 x Needle Sets 2mm (Flat Tip)
				413.2119	6 x Needle Sets 3mm (Chisel Tip)
				413.1119	6 x Needle Sets 3mm (Flat Tip)
				413.3119	6 x Needle Sets 3mm (Pointed Tip)
				403.1319	1 x Needle Set 3mm (Beryllium Copper - Flat Tip)
			27	712.2001	Spring - Compression
	<b>Extras</b>		28	416.2032	Intermediate Tube (Includes item 30)
	719.1000	3/8" Bore Hose 10 Metre	29	417.2032	Straight Front Tube (Includes item 30)
	719.3000	3/8" Bore Hose 30 Metre		418.2032	Round Front Tube (Includes item 30)
	805.0601	6mm Allen Key for Caphead Screws	30	806.0830	Cap Head Screw
	819.2375	Adapter 1/4" BSP to 3/8" Hose Stem	31	419.2241	Chisel Holder 1/2" Square
				446.1020	Service Kit (Inc. 9,17,24,25,27 & 1 Set Needles)



# EXPLODED VIEW

## 2BPG & 3BPG PISTOL GRIP NEEDLE & CHISEL SCALER

Service  
Layout  
Style B



Service  
Layout  
Style B

# 2BPG & 3BPG PARTS LIST

Item	Part No	Description	Item	Part No	Description
<b>Common Components</b>			<b>2BPG Unique Components</b>		
1	615.3021	Valve Cap	9	612.2001	Piston
2	809.0139	O' Ring – Valve Cap	10	613.2101	Cylinder
3	712.3022	Valve Spring	11	809.0249	O'Ring (Small Dia)
4	618.3022	Valve Stem	12	809.0269	O'Ring (Large Dia)
5	809.0089	O' Ring – Valve Seat	14	425.2100	Cover
6	616.3021	Valve Body 1/4" BSP Thread	24	610.2001	Anvil
	423.3021	Valve Body Assembly (inc items 1-8) 1/4" BSP Thread	25	601.2002	Needle Holder 2mm
	423.3521	Valve Body Assembly (inc items 1-8) 1/4" NPT Thread		601.2003	Needle Holder 3mm
7	716.3000	Throttle Lever	26	412.1151	6 x Needle Sets 2mm (Flat Tip)
8	813.0108	Roll Pin		413.2119	6 x Needle Sets 3mm (Chisel Tip)
18	717.3101	Rubber Grip		413.1119	6 x Needle Sets 3mm (Flat Tip)
26	442.1107	Pack of 2000 2mm Needles (Flat Tip)		413.3119	6 x Needle Sets 3mm (Pointed Tip)
	452.1110	Pack of 100 2mm Needles (Flat Tip)		403.1319	1 x Needle Set 3mm (Beryllium Copper - Flat Tip)
	443.2107	Pack of 1000 3mm Needles (Chisel Tip)	27	712.2001	Spring - Compression
	443.1107	Pack of 1000 3mm Needles (Flat Tip)	28	416.2032	Intermediate Tube (Includes item 30)
	443.3107	Pack of 1000 3mm Needles (Pointed Tip)	29	417.2032	Straight Front Tube (Includes item 30)
	443.1307	Pack of 500 3mm Needles (Beryllium Copper)		418.2032	Round Front Tube (Includes item 30)
	453.2110	Pack of 100 3mm Needles (Chisel Tip)	30	806.0830	Cap Head Screw
	453.1110	Pack of 100 3mm Needles (Flat Tip)	31	419.2241	Chisel Holder 1/2" Square
	453.3110	Pack of 100 3mm Needles (Pointed Tip)		446.1025	Service Kit (Inc. 9,17,24,25,27 & 1 Set Needles)
	453.1310	Pack of 100 3mm Needles (Beryllium Copper)			
	444.1107	Pack of 500 4mm Needles (Flat Tip)	<b>3BPG Unique Components</b>		
	444.3107	Pack of 500 4mm Needles (Pointed Tip)	9	612.3001	Piston
	454.1105	Pack of 50 4mm Needles (Flat Tip)	10	613.3101	Cylinder
	454.3105	Pack of 50 4mm Needles (Pointed Tip)	11	809.0289	O'Ring (Small Dia)
32	704.1101	Chisel 1/2" Square 7" Long x 3/4" Blade	12	809.0299	O'Ring (Large Dia)
	704.1103	Chisel 1/2" Square 7" Long x 2 3/4" Blade	14	425.3100	Cover
	704.1106	Chisel 1/2" Square Brick Rake	24	610.3001	Anvil
	704.1110	Chisel 1/2" Square 7" Long Spark Resistant 2" Blade	25	601.3002	Needle Holder 2mm
	704.2105	Chisel 1/2" Square 7" Long Cranked x 1 3/8" Blade		601.3003	Needle Holder 3mm
			26	412.1165	6 x Needle Sets 2mm (Flat Tip)
				413.2128	6 x Needle Sets 3mm (Chisel Tip)
				413.1128	6 x Needle Sets 3mm (Flat Tip)
				413.3128	6 x Needle Sets 3mm (Pointed Tip)
				403.1328	1 x Needle Set 3mm (Beryllium Copper - Flat Tip)
	<b>Extras</b>		27	712.3001	Spring - Compression
	719.1000	3/8" Bore Hose 10 Metre	28	416.3132	Intermediate Tube (Includes item 30)
	719.3000	3/8" Bore Hose 30 Metre	29	417.3032	Straight Front Tube (Includes item 30)
	805.0601	6mm Allen Key for Caphead Screws		418.3032	Round Front Tube (Includes item 30)
	819.2375	Adapter 1/4" BSP to 3/8" Hose Stem	30	806.0830	Cap Head Screw
			31	419.3341	Chisel Holder 1/2" Square
				419.3541	Chisel Holder 5/8" Hexagon
				446.1035	Service Kit (Inc. 9,17,24,25,27 & 1 Set Needles)

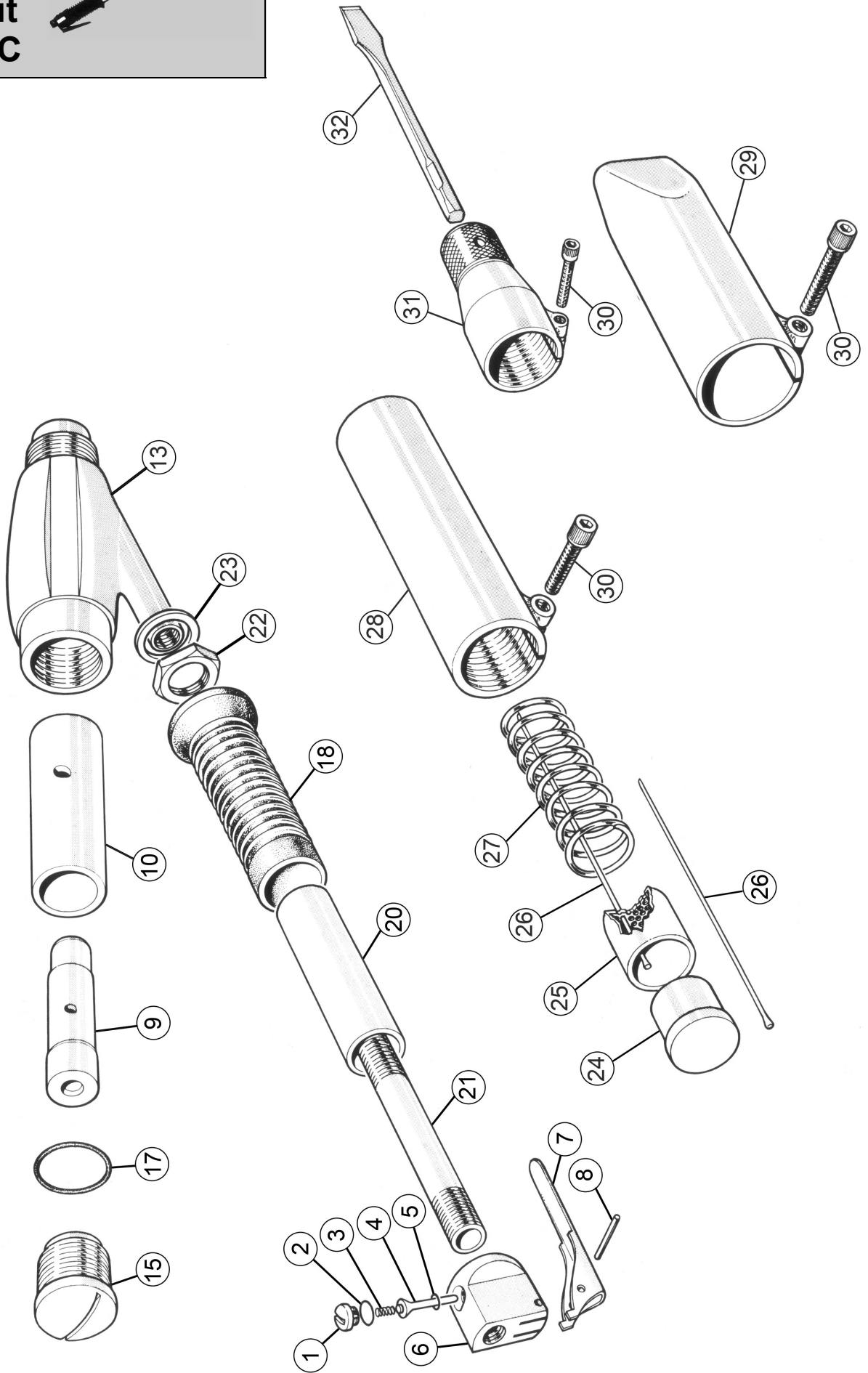
# EXPLODED VIEW

## 3B & 4B BACK HANDLE NEEDLE & CHISEL SCALER

Service  
Layout  
Style C



Service  
Layout  
Style C



# 3B & 4B PARTS LIST

Item	Part No	Description	Item	Part No	Description	
<b>Common Components</b>			<b>3B Unique Components</b>			
1	615.3021	Valve Cap	9	612.3001	Piston	
2	809.0139	O' Ring – Valve Cap	10	613.3001	Cylinder	
3	712.3022	Valve Spring	13	611.3002	Body	
4	618.3022	Valve Stem	15	615.3001	End Cap	
5	809.0089	O' Ring – Valve Seat	17	809.0269	O'Ring	
6	616.3021	Valve Body	24	610.3001	Anvil	
	423.3021	Valve Body (items 1-8) 1/4" BSP Thread	25	601.3002	Needle Holder 2mm	
	423.3521	Valve Body (items 1-8) 1/4" NPT Thread		601.3003	Needle Holder 3mm	
7	716.3000	Throttle Lever		601.3004	Needle Holder 4mm	
8	813.0108	Roll Pin	26	412.1165	6 x Needle Sets 2mm (Flat Tip)	
18	717.3011	Rubber Handle Grip		413.2128	6 x Needle Sets 3mm (Chisel Tip)	
20	624.3001	Handle Tube		413.1128	6 x Needle Sets 3mm (Flat Tip)	
21	623.3001	Centre Tube		413.3128	6 x Needle Sets 3mm (Pointed Tip)	
22	625.3001	Locknut		414.1119	6 x Needle Sets 4mm (Flat Tip)	
23	810.9000	Sealing Washer		414.3119	6 x Needle Sets 4mm (Pointed Tip)	
26	442.1107	Pack of 2000 2mm Needles (Flat Tip)		403.1328	1 x Needle Set 3mm (Beryllium Copper - Flat Tip)	
	452.1110	Pack of 100 2mm Needles (Flat Tip)	27	712.3001	Spring - Compression	
	443.2107	Pack of 1000 3mm Needles (Chisel Tip)	28	416.3032	Intermediate Tube (Includes item 30)	
	443.1107	Pack of 1000 3mm Needles (Flat Tip)	29	417.3032	Straight Front Tube (Includes item 30)	
	443.3107	Pack of 1000 3mm Needles (Pointed Tip)		418.3032	Round Front Tube (Includes item 30)	
	443.1307	Pack of 500 3mm Needles (Beryllium Copper)	30	806.0830	Cap Head Screw	
	453.2110	Pack of 100 3mm Needles (Chisel Tip)	31	419.3241	Chisel Holder 1/2" Square	
	453.1110	Pack of 100 3mm Needles (Flat Tip)		446.1030	Service Kit (Inc. 9,17,24,25,27 & 1 Set Needles)	
	453.3110	Pack of 100 3mm Needles (Pointed Tip)	<b>4B Unique Components</b>			
	453.1310	Pack of 100 3mm Needles (Beryllium Copper)	9	612.4001	Piston	
	444.1107	Pack of 500 4mm Needles (Flat Tip)	10	613.4001	Cylinder	
	444.3107	Pack of 500 4mm Needles (Pointed Tip)	13	411.4002	Body	
	454.1105	Pack of 50 4mm Needles (Flat Tip)	15	615.4001	End Cap	
	454.3105	Pack of 50 4mm Needles (Pointed Tip)	17	809.0299	O'Ring	
32	704.1101	Chisel 1/2" Square 7" Long x 3/4" Blade	24	610.4001	Anvil	
	704.1103	Chisel 1/2" Square 7" Long x 2 3/4" Blade	25	601.4003	Needle Holder 3mm	
	704.1106	Chisel 1/2" Square Brick Rake		601.4004	Needle Holder 4mm	
	704.1110	Chisel 1/2" Square 7" Long Spark Resistant 2" Blade	26	413.2149	6 x Needle Sets 3mm (Chisel Tip)	
	704.2105	Chisel 1/2" Square 7" Long Cranked x 1 3/8" Blade		413.3149	6 x Needle Sets 3mm (Pointed Tip)	
				414.1135	6 x Needle Sets 4mm (Flat Tip)	
				414.3135	6 x Needle Sets 4mm (Pointed Tip)	
<b>Extras</b>				403.1349	1 x Needle Set 3mm (Beryllium Copper - Flat Tip)	
	719.1000	3/8" Bore Hose 10 Metre		712.4031	Spring - Compression	
	719.3000	3/8" Bore Hose 30 Metre	27	416.4032	Intermediate Tube (Includes item 30)	
	805.0601	6mm Allen Key for Caphead Screws	28	417.4032	Straight Front Tube (Includes item 30)	
	819.2375	Adapter 1/4" BSP to 3/8" Hose Stem	29	418.4032	Round Front Tube (Includes item 30)	
				30	806.0835	Cap Head Screw
				31	419.4241	Chisel Holder 1/2" Square
				446.1040	Service Kit (Inc. 9,17,24,25,27 & 1 Set Needles)	

# SPECIFICATION

Model Type	1B	2B	2BPG	3B	3BPG	4B
Piston Diameter	18mm (0.17")	23.5mm (0.925")	23.5mm (0.925")	28.6mm (1.125")	28.6mm (1.125")	33.0mm (1.3")
Piston Stroke	30.0mm (1.18")	35.6mm (1.4")	35.6mm (1.4")	39.0mm (1.535")	39.0mm (1.535")	49.2mm (1.935")
Blows per Minute	3800	3000	3000	2200	2200	1800
Air Consumption (1/4"BSP Air Inlet)	1.42lps (3.0cfm)	2.6lps (5.5cfm)	2.6lps (5.5cfm)	3.8lps (8.0cfm)	3.8lps (8.0cfm)	4.0lps (8.5cfm)
Handle type	Straight	Straight	Pistol Grip	Back Handle	Pistol Grip	Back Handle
Overall Length - Needle Scaler	343mm (13.5")	375mm (14.75")	315mm (12.4")	465mm (18.3")	343mm (13.5")	482mm (19.0")
Overall Length - Chisel Scaler	313mm (12.3")	343mm (13.5")	260mm (10.2")	426mm (16.8")	339mm (13.4")	440mm (17.3")
Nett Weight - Needle Scaler	1.6kg (3.5lbs)	2.6kg (5.7lbs)	2.6kg (5.7lbs)	4.5kg (10.0lbs)	3.7kg (8.2lbs)	5.6kg (12.4lbs)
Nett Weight - Chisel Scaler	1.5kg (3.3lbs)	2.0kg (4.4lbs)	2.0kg (4.4lbs)	3.4kg 7.5lbs)	3.0kg (6.6lbs)	4.0kg (8.8lbs)
Quantity of Needles	2mm	29	51	51	65	65
	3mm	12	19	19	28	28
	4mm	-	-	-	19	19
Noise Level Lpa db(A) - Needle Scaler	97.4	100.3	100.3	101.5	101.5	104.4
Noise Level Lpa db(A) - Chisel Scaler	85.9	85.6	85.6	92.1	92.1	86.7
Noise Level Lwa db(A) - Needle Scaler	110.4	113.3	113.3	114.5	114.5	117.4
Noise Level Lwa db(A) - Chisel Scaler	98.9	98.6	98.6	105.1	105.1	99.7
Vibration Level AEQ - Needle Scaler H1* (k)**	11.4 (K=1.92m/s <sup>2</sup> )	13.14 (K=1.57m/s <sup>2</sup> )	15.24 (K=1.89m/s <sup>2</sup> )	15.40 (K=1.76m/s <sup>2</sup> )	19.59 (K=4.23m/s <sup>2</sup> )	24.48 (K=0.99m/s <sup>2</sup> )
Vibration Level AEQ - Needle Scaler H2* (k)**	12.37 (K=0.90m/s <sup>2</sup> )	15.31 (K=1.53m/s <sup>2</sup> )	18.57 (K=2.01m/s <sup>2</sup> )	17.51 (K=3.05m/s <sup>2</sup> )	45.57 (K=14.26m/s <sup>2</sup> )	28.76 (K=2.56m/s <sup>2</sup> )
Vibration Level AEQ - Chisel Scaler H1* (k)**	9.05 (K=2.25m/s <sup>2</sup> )	15.48 (K=2.53m/s <sup>2</sup> )	17.61 (K=2.84m/s <sup>2</sup> )	20.27 (K=4.63m/s <sup>2</sup> )	30.04 (K=4.34m/s <sup>2</sup> )	39.01 (K=9.09m/s <sup>2</sup> )
Vibration Level AEQ - Chisel Scaler H2* (k)**	8.15 (K=0.7m/s <sup>2</sup> )	19.51 (K=1.08m/s <sup>2</sup> )	32.19 (K=5.7m/s <sup>2</sup> )	22.45 (K=4.14m/s <sup>2</sup> )	41.75 (K=3.47m/s <sup>2</sup> )	53.96 (K=30.58m/s <sup>2</sup> )

H1\* Indicates that the test was taken at the primary handgrip location, next to the throttle lever.

H2\* Indicates that the test was taken at the secondary handgrip position.

(k) \*\* Equals the factor of uncertainty, which allows for variations in measurement and production. Vibration Data figures are tri-axial, which gives the total vibration emission. Because of various factors, the range of vibration emission during intended use can vary.

The vibration is dependent on the task, the operators grip, and feed force employed etc.

NOTE: The above vibration levels were obtained from tri-axial measurements to comply with the requirements of "The Control of Vibration at Work Regulations 2005" and the revisions to the (8662) now EN ISO 28927-9:2005 and EN ISO 20643:2005 series of standards. These values are at least 1.4 times larger than the values obtained from single axis measurements.

\*Based on European Union Council Directive 2002/44/EC (Physical Agents (Vibration) Directive) and applicable harmonised standard: EN ISO 1 1148-4:2012

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This applies to trademarks, model denominations, part numbers and drawings.

Use only genuine Trelawny spares.

**The use of non-Trelawny spare parts invalidates the warranty.**





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