CLARK-HURTH COMPONENTS

MANUTENZIONE E RIPARAZIONE
WARTUNGS-UND REPARATURANLEITUNG
ENTRETIEN ET REPARATION
MAINTENANCE AND REPAIR INSTRUCTION

DRIVE AXLE
172-177
272-277-279
141

INDICE/*INHALTSVERZEICHNIS*
INDEX/*INDEX*

Introduzione 4
Manutenzione e lubrificazione 7
Freni 8
Freni/registrazione esterna 10
Freno di stazionamento/con registrazione esterna 12
Freno negativo 13
Freno di stazionamento/freno negativo 14
Epicicloidale 4,25 - 5,25 16
Mozzo ruota epicicloidale 4,25 - 5,25 17
Riduzione epicicloidale 4,25 - 5,25 18
Assale 177 - riduzione epicicloidale 6,23 19
Riduzione a portale 141 21
Snodo 272 - 277 - 279 (smontaggio) 24
Montaggio snodo 272 - 277 - 279 25
Snodo 272 - 277 - 279 (montaggio) 26
Cilindro di sterzo 277 - 279 27
Montaggio cilindro di sterzo 277 - 279 29
Supportazione pignone conico 31
Supportazione pignone conico ponti 277 - 279 37
Registrazione coppia conica ponti 272 - 172 - 177 - 141 ... 38
Cuscinetti a rulli conici del differenziale 39
Registrazione coppia conica 172 senza freno 40
Smontaggio differenziale 42
Montaggio differenziale 43
Differenziale autobloccante 44
NoSpin 46
Blocco differenziale idraulico 47
Tabelle di conversione 49
Coppie di serraggio 49
Ricerca guasti 50
Attrezzi speciali 56

Einführung 4
Wartung und Schmierstoffe 7
Bremsen 8
Bremsen/Externe Nachstellvorrichtung 10
Feststellbremse/Externe Nachstellvorrichtung 12
Federspeicherbremse 13
Feststellbremse/Federspeicherbremse 14
Planetentrieb 4,25 - 5,25 16
Radnabe planetentrieb 4,25 - 5,25 17
Planetengetriebe 4,25 - 5,25 18
Achse 177 - Planetentriebe 6,23 19
Portalgetriebe 141 21
Gelenk 272 - 277 - 279 (ausbau) 24
Einbau des gelenkes 272 - 277 - 279 25
Gelenk 272 - 277 - 279 (einbau) 26
Lenkzylinder 277 - 279 27
Einbau des lenkzylinders 277 - 279 29
Kegelritzellagerung 31
Kagelritzellagerung achsen 277 - 279 37
Einstellung Kegelund Tellerradpaar achsen 272 - 172 - 177 - 141 ... 38
Kegelrollenlager des Differentials 39
Einstellung des Kegeltriebes 172 ohne bremsen 40
Ausbau Differential 42
Einbau Differential 43
Selbstsperrdifferential 44
NoSpin 46
Hydraulische Differentialsperre 47
Umrechnungstabellen 49
Anziehdrehmomente 49
Fehlersuche 50
Sonderwerkzeuge 56

Introduction 5
Entretien et lubrifiant 7
Freins 8
Freins/Reglage exterieur 10
Frein de stationnement/Reglage exterieur 12
Frein négatif 13
Frein de stationnement/Frein négatif 14
Epicycloidal 4,25 - 5,25 16
Moyeu de roue epicycloidal 4,25 - 5,25 17
Réduction épicycloidale 4,25 - 5,25 18
Essieu 177 - Réduction épicycloidale 6,23 19
Réduction a pont 141 21
Articulation 272 - 277 - 279 (démontage) 24
Montage articulation 272 - 277 - 279 25
Articulation 272 - 277 - 279 (montage) 26
Cylindre de direction 277 - 279 27
Montage cylindre direction 277 - 279 29
Support du pignon conique 31
Support du pignon conique des ponts 277 - 279 37
Réglage du couple conique des ponts 272 - 172 - 177 - 141 38
Roulements a rouleaux coniques du differentiel 39
Réglage du couple conique 172 sans frein 40
Démontage différentiel 42
Montage différentiel 43
Différentiel autobloquant 44
NoSpin 46
Blocage hydraulique 47
Tableaux de conversion 49
Couples de serrage 49
Recherche des pannes 50
Outils spéciaux 56

Introduction 5
Maintenance and lubrication 7
Brakes 8
Brakes/External adjustment 10
Parking brake/External adjustment 12
Safety brake 13
Parking brake/Safety brake 14
Planetary 4,25 - 5,25 16
Planetary wheel hub 4,25 - 5,25 17
Epycicloidal reduction 4,25 - 5,25 18
Axle 177 - Planetary reduction 6,23 19
Final drive 141 21
Articulation 272 - 277 - 279 (disassembly) 24
Assembling articulation 272 - 277 - 279 25
Articulation 272 - 277 - 279 (assembly) 26
Steering cylinder 277 - 279 27
Steering cylinder assembly 277 - 279 29
Bevel pinion support 31
Axle bevel pinion support 277 - 279 37
Axle adjustments of bevel gear set 272 - 172 - 177 - 141 . 38
Taper roller bearings of differential 39
Adjusting bevel gear set 172 without brake 40
Disassembly of differential 42
Assembly of the differential 43
Self locking differential 44
NoSpin 45
Hydraulic differential lock 47
Conversion tables 49
Tightening torques 49
Trouble shooting 50
Special tools 56

INTRODUZIONE

Il rendimento e la continuità degli organi meccanici dipendono oltre che da una costante e corretta manutenzione anche dal tempestivo intervento, nell'eventualità di guasti o anomalie.
Nel proporre questo manuale si è considerata l'ipotesi di una revisione generale del gruppo ma è il meccanico a valutare la necessità o meno di smontare i singoli componenti nel caso di riparazione.
Il manuale è una guida rapida e sicura che consente interventi precisi, tramite le fotografie ed i disegni prospettici che illustrano le varie fasi delle operazioni.
Di seguito sono riportate tutte quelle informazioni ed avvertenze necessarie al corretto disassemblaggio, alle relative verifiche ed all'assemblaggio dei singoli componenti.
Per la rimozione del ponte differenziale dal veicolo, è necessario consultare i manuali forniti a tal proposito dal costruttore del veicolo stesso. Nel descrivere le operazioni seguenti, si presuppone che il ponte sia già rimosso dal veicolo.

IMPORTANTE: In tutte le operazioni, è consigliabile usare attrezzature idonee quali cavalletti o banchi di sostegno, martelli in plastica o rame, leve appropriate, estrattori e chiavi specifiche, al fine di facilitare il lavoro salvaguardando nel contempo le superfici lavorate e la sicurezza degli operatori stessi.
Prima di procedere al disassemblaggio delle parti è opportuno effettuare una accurata pulizia del ponte, togliendo incrostazioni ed accumuli di grasso, quindi scaricare l'olio.

PREMESSA

Tutti gli organi meccanici smontati, devono essere accuratamente puliti con prodotti appropriati, quindi ripristinati o sostituiti nel caso presentino danni, usura, incrinature, grippaggi, ecc.
In particolare, verificare l'integrità di tutte quelle parti in movimento (cuscinetti, ingranaggi, coppia conica, alberi) e di tenuta (anelli OR, paraoli), soggette a maggiori sollecitazioni ed usura. È consigliabile, comunque, la sostituzione degli organi di tenuta ogni qualvolta si proceda alla revisione o riparazione dei componenti. Al momento del montaggio, gli anelli di tenuta devono essere lubrificati sui bordi di tenuta.
Nel caso della coppia conica, la sostituzione di uno dei suoi ingranaggi comporta anche la sostituzione dell'altro.
In fase di montaggio sono da rispettare scrupolosamente i giochi ed i precarichi prescritti.

MANUTENZIONE E RIPARAZIONE

Al fine di facilitare interventi sui gruppi ponti differenziali e cambi di velocità CLARK-HURTH Components, abbiamo ritenuto opportuno compilare queste istruzioni di manutenzione e riparazione.
I disegni delle attrezzature specifiche eventualmente necessarie per l'esecuzione di interventi di manutenzione e riparazione possono essere acquistati direttamente da noi: i ricambi possono essere ordinati tramite il costruttore della macchina o direttamente presso di noi.

EINFÜHRUNG

Leistung und Lebensdauer der Antriebselemente sind nicht nur von regelmässiger und ordnungsgemässer Wartung, sondern auch vom rechtzeitigen Eingreifen bei auftretenden Störungen oder Pannen abhängig.
Bei der Erstellung dieses Handbuches sind wir von einer vollständigen Überholung der Triebachse ausgegangen.
Es versteht sich, dass der Mechaniker selbst von Fall zu Fall den notwendigen Arbeitsgang wählt.
Dieses Handbuch ermöglicht während der Reparatur sicher und gezielt vorzugehen. Photos und Skizzen zeigen deutlich wie die Eingriffe vorzunehmen sind.
Nachstehend sind alle Informationen und Hinweise aufgeführt um den sachgemässen Aus- und Einbau der einzelnen Bestandteile sowie deren Überprüfung und eine korrekte Montage vornehmen zu können.
Für den Ausbau der Triebachse aus dem Fahrzeug müssen die entsprechenden Anweisungen des Fahrzeugsherstellers berücksichtigt werden. Wir gehen hier jedenfalls davon aus, daß sich die Triebachse bereits im ausgebauten, reparaturfähigen Zustand befindet.

WICHTIG: Bei allen Vorgängen ist es empfehlenswert geeignete Werkzeuge wie Stützen oder Werkbänke, Kunststoff- oder Kupferhammer, Abziehvorrichtungen und spezifische Schlüssel zu benützen um die Arbeit zu erleichtern und zu beschleunigen, sowie um bearbeitete Flächen zu schützen und, nicht zuletzt, zur Sicherheit des Monteurs.
Vor dem Ausbau die Triebachse gründlich reinigen, Verkrustungen und Fettanhäufungen entfernen, dann das Schmieröl ablassen.

VORAUSSETZUNG

Alle ausgebauten Antriebselemente müssen gründlich mit geeigneten Mitteln gereinigt, repariert bzw. ersetzt werden, wenn Beschädigungen wie Verschleißerscheinungen, Anrisse oder Freß-spuren festgestellt werden. Die Gleitelemente wie Lager, Nadelkäfige, Anlaufscheiben, die Zahnräder, das Kegel- u. Tellerradpaar, die Wellen, die Dichtelemente wie O-Ringe, die Wellendichtringe welche den Abnützungen besonders ausgesetzt sind, müssen ausführlichst überprüft werden.
Wir empfehlen die Dichtelemente bei jeder Reparatur oder Revision zu ersetzen.
Dichtringe sind vor der Montage einzufetten.
Kegel- und Tellerrad müssen gemeinsam ersetzt werden.
Beim Zusammenbau sind die vorgeschriebenen Werte für Spiele und Vorspannungen einzuhalten.

WARTUNG-UND REPARATUR

Um unseren Kunden die Reparatur von CLARK-HURTH Components Getrieben und- Triebachsen zu erleichtern, haben wir diese Wartungs-und Reparaturanleitung verfasst.
Die Zeichnungen der zur Reparatur erforderlichen, spezifischen Werkzeuge können über uns bezogen werden.
Ersatzteile können beim Hersteller des Fahrzeuges oder direkt bei uns bestellt werden.

INTRODUCTION

Le rendement et la continuité du bon fonctionnement des organes mécaniques dépendent non seulement d'un entretien constant et correct mais aussi des interventions rapides, dans l'éventualité de pannes ou anomalies.
Ce manuel considere l'hypothèse d'une révision générale du groupe, mais le mécanicien doit évaluer la nécessité de démonter les différents composants dans le cas d'une réparation.
Le manuel est un guide rapide et fiable qui décrit des interventions précises, par l'intermédiaire de photographies et de dessins montrant les différentes phases des opérations.
Pour la dépose du pont différentiel du véhicule, il est nécessaire de consulter les manuels fournis à ce propos par le constructeur du véhicule.
Pour décrire les opérations suivantes, on supposera que le pont est déjà enlevé du véhicule.

IMPORTANT: Pour toutes les opérations il est conseillé d'utiliser l'outillage approprié tel que chevalets ou bancs de soutien, maillets en plastique ou en cuivre, leviers appropriés, extracteurs et clefs spéciales, afin de faciliter le travail, sauvegardant en même temps les surfaces usinées et la sécurite des opérateurs.
Avant de procéder au démontage des organes il est opportun de nettoyer soigneusement le pont, d'ôter les incrustations et les amas de graisse et de vider l'huile des carter.

PRELIMINAIRE

Tous les organes mécaniques démontés doivent être parfaitement nettoyés avec des produits appropriés, puis réparés ou remplacés s'il présentent des dommages, usures , criques, grippages, etc.
En particulier, vérifier l'intégrité de tous les organes en mouvement (roulements, engrenages, couples coniques, arbres), et d'étanchéité (O-Ring, joints) exposés aux plus grandes sollicitations et usures.
Il est conseillé de remplacer les organes d'étanchéité chaque fois que l'on procède à la révision ou à la réparation des composants.
Au moment du montage, les joints doîvent être lubrifiés sur les bords.
Dans le cas du couple conique, le remplacement de l'un de ces engrenages comporte aussi le remplacement de l'autre.
Au montage on doit respecter scrupuleusement les précharges et les jeux prescrits.

ENTRETIEN ET REPARATION

Pour faciliter les interventions sur les ponts différentiels et les boîtes de vitesses CLARK-HURTH Components, nous avons cru opportun d'établir ces instructions d'entretien et réparation.
Les dessins des outils spéciaux qui peuvent, éventuellement servir pour l'entretien ou la réparation, peuvent être achetés directement chez nous; les pièces de rechanges peuvent être commandées au constructeur de la machine ou directement chez nous.

INTRODUCTION

The efficiency and continued operation of mechanical units depends on constant and correct maintenance and also on efficient repair work should there be a break-down or malfunction.
The instructions in this manual have been made based on a complete overhaul of the unit. However the mechanic must decide whether or not it is necessary to dismantle the individual components when only partial repair work is needed.
The manual provides a quick and sure guide which, with the use of photographs and diagrams illustrating the various phases of the operations, allows accurate work to take place. Therefore all the information needed for correct disassembly, the relative checks and assembly of each individual component, has been written down.
In order to remove the differential unit from the vehicle, the manuals provided by the vehicle manufacturer should be consulted. In describing the following operations it is presumed that the unit has already been removed from the vehicle.

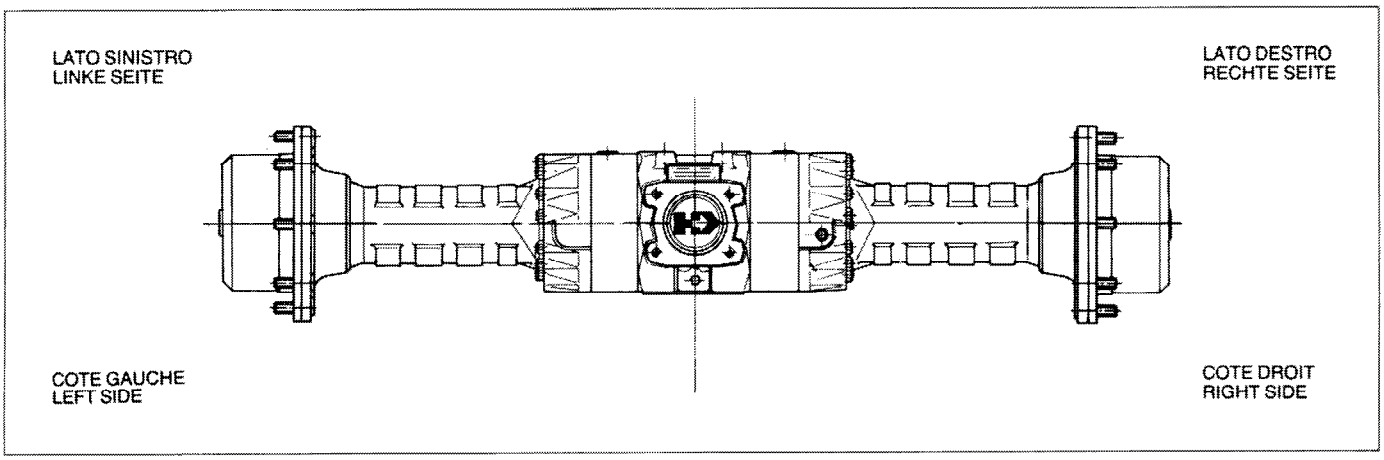
IMPORTANT: Throughout the phases of repair or maintenance work it is advisable to use proper equipment such as: trestles, or supporting benches, plastic or copper hammers, appropriate levers, extractors and specific spanners or wrenches. So that the work is facilitated and the working surfaces and the operators themselves are protected.
Before going on to disassemble the parts it is best to thoroughly clean the unit, removing any encrusted or accumulated greases and then drain the oil through the oil-draining plugs.

INTRODUCTORY STATEMENT

All the disassembled mechanical units should be thoroughly cleaned with appropriate products and then restored or replaced if damage, wear, craking or seizing have occurred.
In particular, thoroughly check the state of all moving parts (bearings, gears, crown wheel and pinion, shafts) and sealing parts, (O-rings, oil shield) which are subject to major stress and wear. In any case it is advisable to replace the seals every time a component is overhauled or repaired.
During assembly the sealing rings must be lubricated on the sealing edge. In the case of the crown wheel and pinion, replacement of one reguires the replacement of the other.
During assembly the prescribed pre-loading and backlash of the parts must be maintained.

MAINTENANCE AND REPAIR

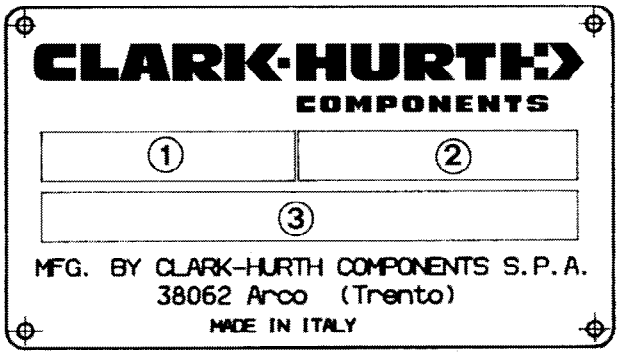
We have compiled these instructions for maintenance and repair in order to facilitate any such work on the CLARK-HURTH Components differential units and gear change units.
Drawings necessary in order to carry out maintenance and repair work can be bought directly from us.
Spare parts can be ordered either through the manufacturer of the vehicle or directly from us.

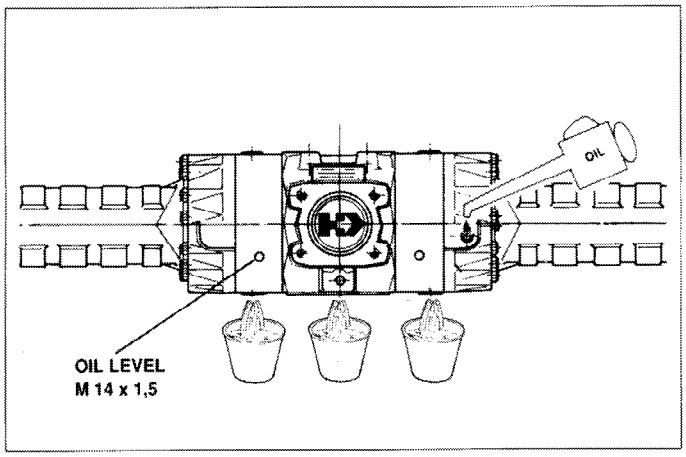


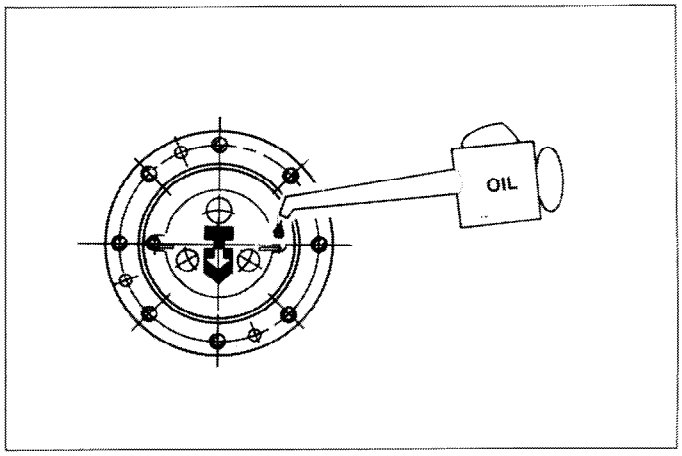
① Tipo e modello gruppo
Type und modell Antriebes
Type et modèle de ensemble
Type and model unit

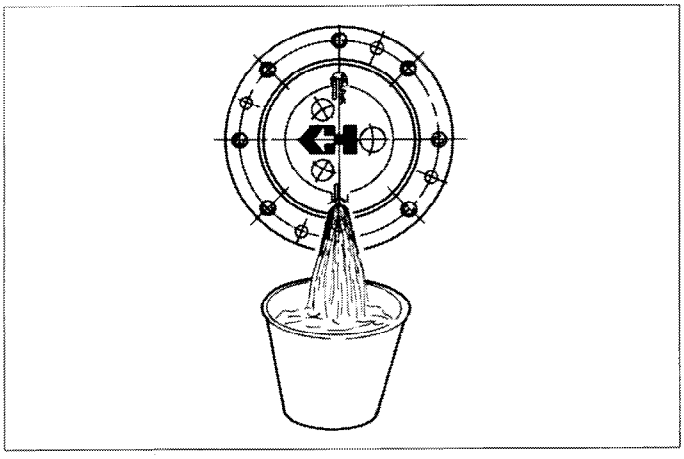
② Numero di matricola
Seriennummer
Numero de serie
Serial number

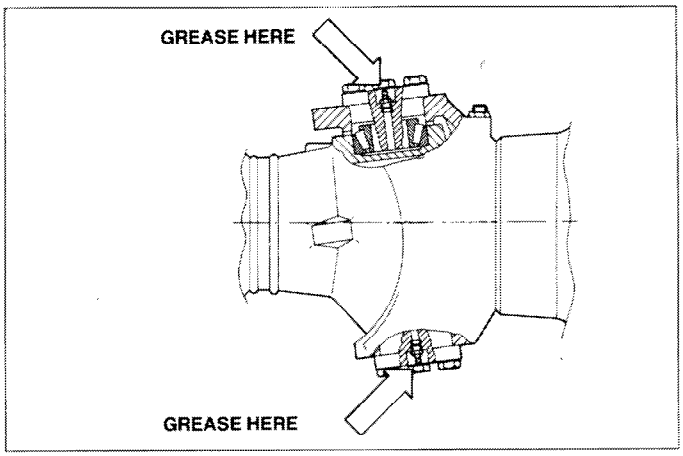
③ Lubrificante
Schmieroel
Lubrifiant
Lubricant





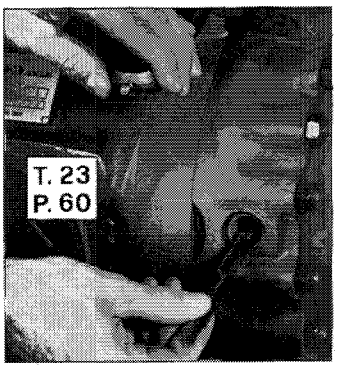


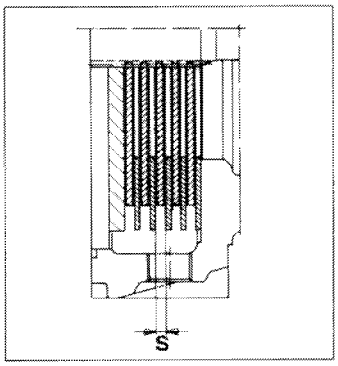




OPERAZIONE *ARBEITSVORGANG* OPERATION *OPERATION*	PERIODICITÀ *ZEITABSTAND* PERIODICITE *PERIODICITY*	LUBRIFICANTI *SCHMIERSTOFFE* LUBRIFIANTS *LUBRICANT*
- Controllo livelli: differenziale riduzioni epicicloidali - *Ölstandkontrolle: im Differential* *in den Planetenabtrieben* - Contrôle niveaux: différentiel réducteurs épicycloidaux - *Check levels: differential* *planetary reduction*	mensile ogni 200 ore *monatlich* *alle 200 Std.* mensuel toutes les 200 heures *monthly* *every 200 hours*	SAE 85 W 90 API GL4 - MIL L-2105: Con additivi per freni a bagno d'olio. *Mit Zusätzen für im Ölbad laufende Lamellen benbremsen.* Avec additifs pour freins à bain d'huile. *With additives for oil immersed disc brakes.*
- Cambio olio: differenziale riduzioni epicicloidali differenziale autobloccante - *Ölwechsel: im Differential* *in den Planetenabtrieben* *im Selbstsperrdifferential* - Vidange huile: différentiel réducteurs épicycloidaux différentiel à glissement limité - *Oil change: differential* *planetary reduction* *limited slip differential* ** e in caso di primi cenni di rumorosità *und beim Auftreten von Geräeuschen ersetzen* et dans le cas de fonctionnement bryant *and in case of noise*	ogni 800 ore ⊛ ogni 1000 ore ogni 700 ore** *alle 800 Std.* *alle 1000 Std.* *alle 700 Std.*** toutes 800 heures toutes 1000 heures toutes 700 heures** *every 800 hours* *every 1000 hours* *every 700 hours***	SAE 85 W 90 API GL5 - MIL 2105-B: Per esecuzione con coppia conica ippoide e/o con differenziale autobloccante, con additivi per freni a bagno d'olio *Für Ausführung mit Hypoid Kegel-und Tellerradpaar und/oder mit Selbssperrdifferential; mit zusätzen für im Ölbad laufende Lamellen benbremsen* Pour execution avec couple conique hypoide et/ou avec différentiel glissement limité, avec additifs pour freins à bain d'huile *For execution with hypoid bevel gear set and/or with limited slip differential; With additives for oil immersed disc brakes*
- Ingrassaggio: in condizioni normali in condizioni gravose - *Abschmieren: bei normalem Einsatz* *bei starkem Einsatz* - Graissage: en conditions normales en conditions sévères - *Greasing: under normal use* *under heavy duty use*	mensile settimanale *monatlich* *wöchentlich* mensuel hebdomadaire *montly* *weekly*	
- Registrazione freno negativo - *Einstellung der Federspeicherbremse* - Réglage du frein négatif - *Adjustment of the safety brake*	ogni 1000 ore ⊛ *alle 1000 Std.* toutes 1000 heures *every 1000 hours*	**Grasso:** Multiuso saponificato al litio. ***Fett:*** *Mehrzweckfett litiumverseift.* **Graisse:** Multi-utilisations saponnifieé au lithium. ***Grease:*** *Multipurpose lithium base.*
- Registrazione freno di servizio - *Nachstellung der Betriebsbremse* - Réglage du frein de service - *Pedal brake adjustment*	ogni 500 ore *alle 500 Std.* toutes 500 heures *every 500 hours*	
- Serraggio dadi ruota - *Schrauben nachziehen* - Serrage des écrous de roue - *Screw/bolt tight ening*	ogni 200 ore *alle 200 Std.* toutes 200 heures *every 200 hours*	
- Circuito di comando freni: - *Brem sbetätigungsanlage:* - Circuit de commande frein: - *Service brake circuit:*		Usare esclusivamente olio minerale ATF Dexron II. Accertarsi che le guarnizioni del cilindro master siano adatte a questo olio. *Nur mineralisches Öl verwenden, z.B.: ATF Dexron II. Achtung: Dichtringe des Hauptbremszylinders müssen für dieses Öl geeignet sein.* Utiliser exclusivement huile minérale ATF Dexron II. Vérifier que les joints du maître-cylindre, soient compatibles avec cette huile. *Only for mineral oil use e.g. ATF Dexron II. Make sure that master cylinder seals are suitable for mineral oil.*

⊛ **Inizialmente dopo 100 ore di lavoro / *Erstmals nach 100 Betriebsstunden***
Initialement apres 100 heures de travail / *Initially at 100 operating hours*



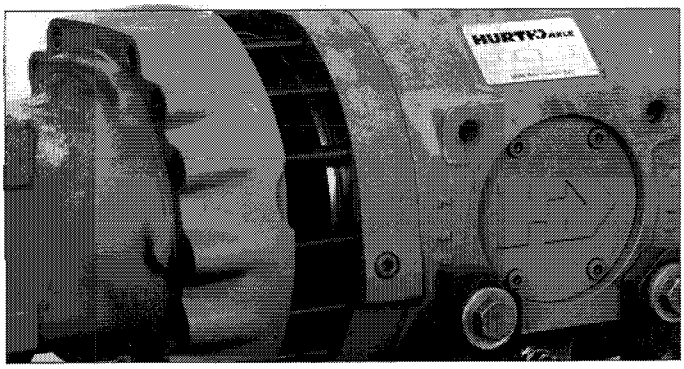


VERIFICA USURA E SOSTITUZIONE DISCHI FRENO:
UTILIZZO FINO AD UNO SPESSORE MINIMO DI S=4,5 mm.

VERSCHLEIß ÜBERPRÜFEN UND BREMSSCHEIBEN ERSETZEN:
GEBRAUCH BIS MINDESTSTÄRKE VON S=4,5 mm.

VERIFICATION D'USURE ET REMPLACEMENT DISQUES FREIN:
UTILISATION JUSQU'A UNE EPAISSEUR MIN DE S=4,5 mm.

WEAR CHECK AND REPLACEMENT OF BRAKE DISCS:
USE DISCS TILL MINIMUM THICKNESS OF S=4,5 mm.

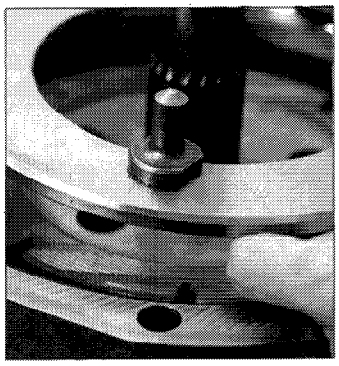


ALLENTARE I DADI DI FISSAGGIO; RIMUOVERE IL BRACCIO ORIZZONTALMENTE.

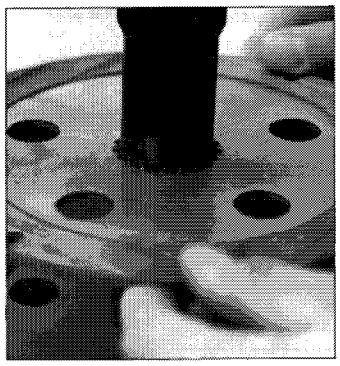
BEFESTIGUNGSMUTTERN LÖSEN UND ACHSKÖRPER WAAGERECHT ABZIEHEN.

DESSERRER LES ECROUS DE FIXATION; DEPOSER LE BRAS CARTER HORIZONTALEMENT.

LOOSEN LOCK NUTS AND REMOVE THE AXLE HOUSING HORIZONTALLY.



RIMOZIONE DEI DISCHI FRENO.
NOTE: SE I DISCHI NON SONO DA SOSTITUIRE, RIMUOVERE L'INTERO PACCO SENZA CAMBIARE LA LORO POSIZIONE.
BREMSSCHEIBEN AUSBAUEN.
ACHTUNG: WENN DIE BREMS LAMELLEN NICHT ERSETZT WERDEN MÜSSEN, DAS VOLLSTÄNDIGE PAKET AUSBAUEN OHNE DIE REIHENFOLGE ZU ÄNDERN.
DEPOSE DES DISQUES FREIN.
NOTE: SI LES DISQUES SONT EN BON ETAT ENLEVER L'ENSEMBLE DES DISQUES EN GARDANT LEUR POSITION.
REMOVE BRAKE DISCS.
NOTE: IF THE BRAKE DISCS MUST NOT BEEN REPLACED, REMOVE THE COMPLETE PACK WITHOUT CHANGING THE POSITION OF THE DISCS.

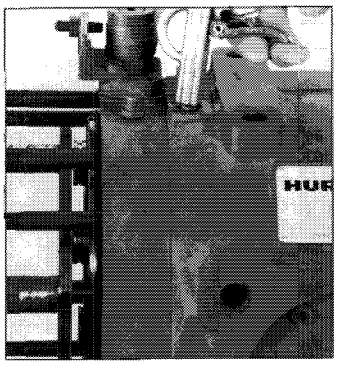


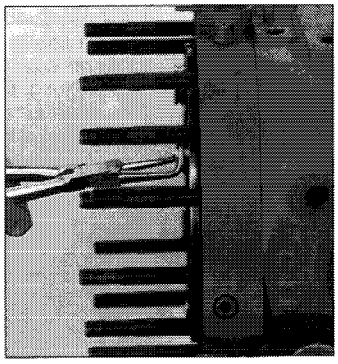
PER IL MONTAGGIO PROCEDERE IN SENSO INVERSO ALLINEANDO I FORI DI LUBRIFICAZIONE.

DER EINBAU ERFOLGT IN UMGEKEHRTER REIHENFOLGE, SCHMIERUNGSBOHRUNGEN ANREIHEN.

POUR LE MONTAGE PROCEDER EN SENS INVERSE ET ALIGNER LES TROUS DE LUBRIFICATION.

FOR ASSEMBLY PROCEED IN REVERSE ORDER, ALIGN LUBRICATION HOLES.





IMMETTENDO ARIA COMPRESSA ESPELLERE I PISTONCINI FRENO
OPERAZIONE DA ESEGUIRE SOLO SE NECESSARIO

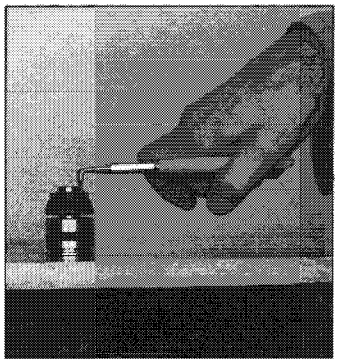
MIT DRUCKLUFT DIE BETÄTIGUNGSKOLBEN DER BREMSE AUSZUSTOßEN.
DIESER VORGANG IST NUR DANN DURCHZUFÜHREN, WENN ER ERFORDERLICH IST.

INTRODUIRE DE L'AIR COMPRIMÉ POUR EXPULSER LES PISTONS DES FREINS.
OPÉRATION À EFFECTUER UNIQUEMENT EN CAS DE NÉCESSITÉ

USE COMPRESSED AIR TO EJECT THE BRAKE PISTONS.
THIS OPERATION SHOULD ONLY BE CARRIED OUT IF NECESSARY.

SIMBOLI/*SYMBOLE*
SYMBOLS/*SYMBOLE*

	Smontaggio di sottogruppi *Zerlegen von Baugruppen* Demontage des sous-groupes *Disassembly of assembly groups*
	Montaggio di sottogruppi *Zusammenbauen von Baugruppen* Montage des sous-groupes *Reassemble to from assembly group*
	Smontaggio di particolari ingombranti *Abbauen - Ausbauen* Demontage des pieces encombrante *Remove obstruction parts*
	Montaggio di particolari ingombranti *Einbauen-Anbauen* Montage des pieces encombrantes *Reinstall-remount parts which had obstructed disassembly*
	Attenzione, indicazione importante *Achtung, wichtiger Hinweis* Attention, indication importante *Attention! Important notice*
	Controllare regolare p.e. coppie, misure, pressioni etc. *Prüfen - Einstellen z.B. Momente, Maße, Drucke u.s.cs.* Controler, regler p.e. couples, mesures, pressions ecc. *Check - adjust e.g. torque, dimensions, pressures etc.*
	T = Attrezzature speciali P = Pagina *T = Spezialwerkzeug P = Seite* T = Outils speciaux P = Page *T = Special tool P = Page*
	Rispettare direzione di montaggio *Einbaurichtung beachten* Respecter direction de montage *Note direction of installation*
	Controllare esaminare controllo visuale *Kontrollieren - Prüfen* Controler, examiner, controle visuel *Visual inspection*
	Eventualmente riutilizzabile (sostituire se necessario) *Bedingt wiederverwendbar* Eventuellement a utiliser a noveau (remplacer si nécessaire) *Possibly still serviceable, renew if necessary*
	Sostituire con ogni montaggio *Beim Zusammenbau immer erneuern* Remplacer avec chaque montage *Renew at each reassembly*
	Togliere - mettere la sicura *Entsichern - Sichern* Enlever - mettre la securite *Unlock - lock e.g. split pin, locking plate, etc.*
	Mettere la sicura, incollare (mastice liquido) *Sichern-Kleben (flüssige Dichtung)* Mettre la securite, coller (mastic liquide) *Lock - adhere (liquid sealant)*
	Evitare danni ai materiali, danni ai pezzi *Materialschaden verhüten* Eviter dommages au materiaux, dommages au pieces *Guard against material damage, damage to parts*
	Marchiare prima dello smontaggio (per il montaggio) *Vor dem Ausbau markieren (für den Zusammenbau)* Marquer avant le demontage (pour le montage) *Mark before disassembly, observe marks when reassembl.*
	Caricare - riempire (olio - lubrificante) *Einfüllen - Auffüllen - Nachfüllen (Öl-Schmiermittel)* Charger - remplir (huile - lubrifiant) *Filling - topping up - refilling e.g. oil, cooling water, etc.*
	Scaricare olio, lubrificante *Öl, bzw. SchmiermittelAblassen* Vidanger, lubrifiant *Drain off oil, lubricant*
	Tendere *Spannen* Tendre *Tighten - clamp e.g; tightening a clamping device*
bar	Inserire pressione nel circuito idraulico *Leitung unter Druck setzen* Inserer pression dans le circuit hydraulique *Apply pressure into hydraulic circuit*
	Pulire *Reinigen* Nettoyer *To clean*

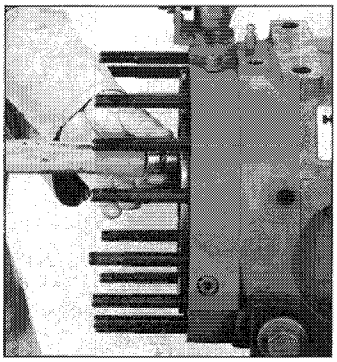


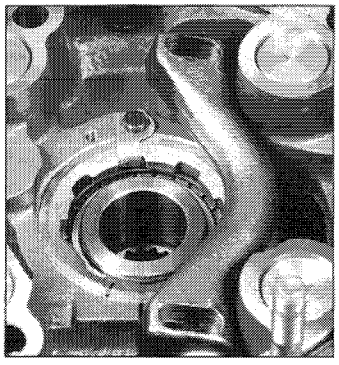
SMONTAGGIO PARTICOLARI DEI PISTONCINI.

AUSBAU VON EINZELTEILEN DER BREMSBETÄTIGUNGSKOLBEN.

DÉMONTAGE DES PIÈCES DU PISTON.

DISSASEMBLY OF PISTON PONTS.



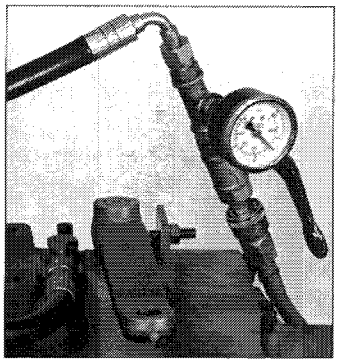


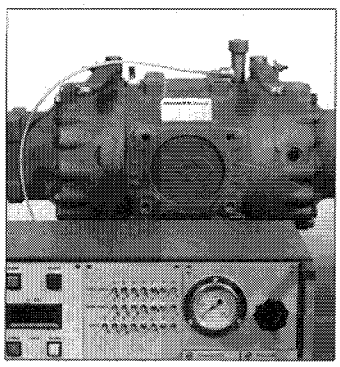
MONTAGGIO
ANCHE NEL CASO IN CUI I PISTONCINI FRENO NON SIANO STATI SMONTATI, SPINGERLI A FINE CORSA NELLA LORO SEDE.

EINBAU
AUCH WENN DIE BREMSBETÄTIGUNGSKOLBEN NICHT AUSGEBAUT WORDEN SIND, MUß MAN SIE BIS ZUM ANSCHLAG EINDRÜCKEN.

MONTAGE
MEME DANS LE CAS OÙ LES PISTONS DE FREIN N'ONT PAS ÉTÉ DÉMONTÉS, IL FAUT LES POUSSER À FOND DANS LEUR LOGEMENT.

ASSEMBLY
EVEN IF THE BRAKE PISTONS HAVE NOT BEEN REMOVED, SEAT THEM TO THE BORE BOTTON.



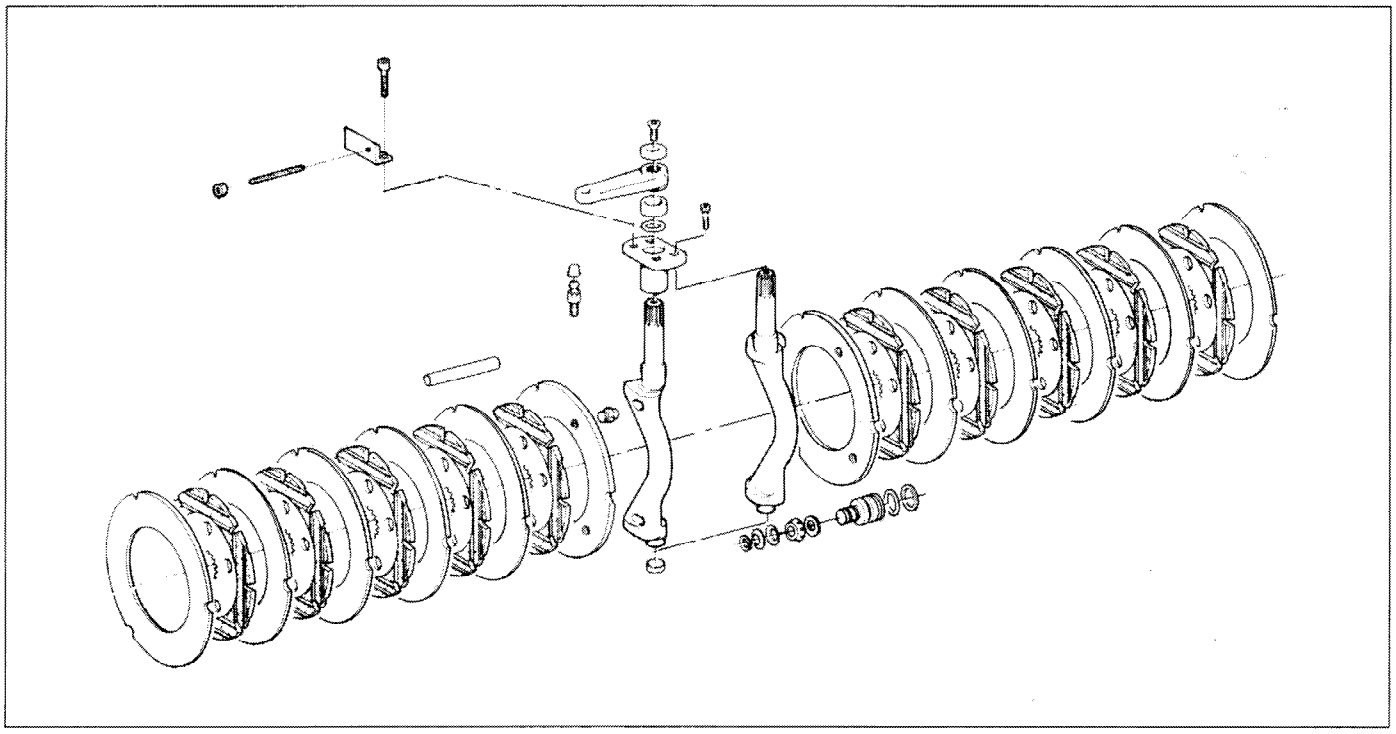


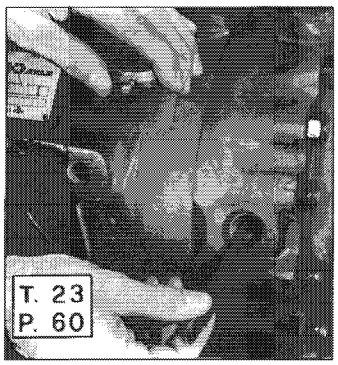
CONTROLLO TENUTA CON ARIA COMPRESSA A 0,5 - 1 bar PER UN TEMPO DI 10' PER PARTE.

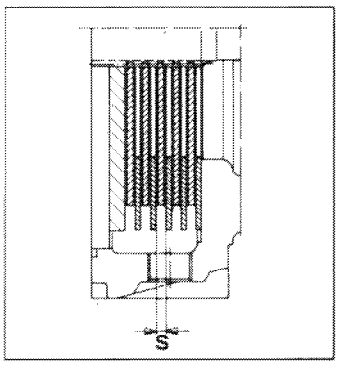
DICHTHEITSPRÜFUNG MIT 0,5 - 1 bar DRUCKLUFT FÜR 10 min. JE SEITE DURCHFÜHREN.

CONTROLER L'ETANCHEITE AVEC L'AIR COMPRIME A 0,5 - 1 bar PENDANT 10' DE CHAQUE COTE.

CHECK FOR LEAKAGE USING 0,51 bar COMPRESSED AIR FOR 10 min. PER SIDE.





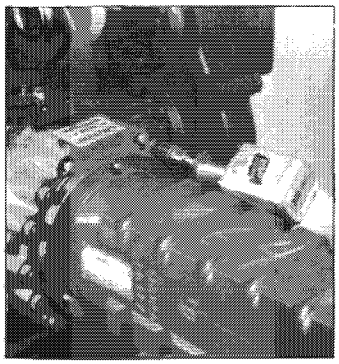


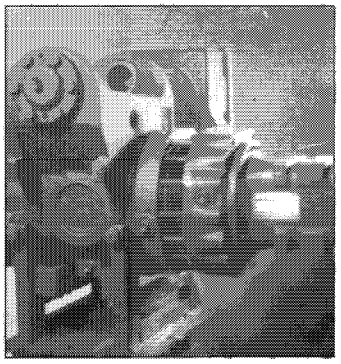
VERIFICA USURA DISCHI FRENO:
FRENARE L'ASSALE E VERIFICARE, ATTRAVERSO IL FORO CARICO OLIO, LO SPESSORE DEI DISCHI.
UTILIZZO FINO AD UNO SPESSORE MINIMO DI S=4.5 mm.

DIE ABNÜTZUNG DER UND BREMSSCHEIBEN ÜBERPRÜFEN:
DIE ACHSE BREMSEN UND DURCH DIE ÖLEINFÜLLÖFFNUNG DIE SCHEIBENSTÄRKE ÜBERPRÜFEN.
GEBRAUCH BIS MINDESTSTÄRKE VON S=4,5 mm.

VERIFICATION D'USURE DISQUES FREIN:
FREINER L'ESSIEU ET VERIFIER L'EPAISSEUR DES DISQUES, À TRAVERS LE TROU DE REMPLISSAGE.
UTILISATION JUSQU'A UNE EPAISSEUR MIN DE S=4,5 mm.

WEAR CHECK OF BRAKE DISCS:
BRAKE THE AXLE AND CHECK THE THICKNESS OF THE DISKS THROUGH THE OIL FILL HOLE.
USE DISCS TILL MINIMUM THICKNESS OF S=4,5 mm.



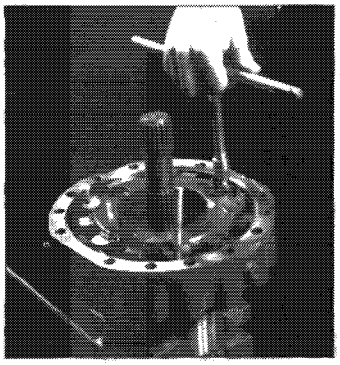


RIMOZIONE DISCHI FRENO
ALLENTARE I DADI DI FISSAGGIO; RIMUOVERE IL BRACCIO ORIZZONTALMENTE.

BREMSSCHEIBEN AUSBAUEN
BEFESTIGUNGSMUTTERN LÖSEN UND ACHSKÖRPER WAAGERECHT ABZIEHEN.

DEPOSE DES DISQUES FREIN
DESSERRER LES ECROUS DE FIXATION; DEPOSER LE BRAS CARTER HORIZONTALEMENT.

REMOVE BRAKE DISCS
LOOSEN LOCK NUTS AND REMOVE THE AXLE HOUSING HORIZONTALLY.

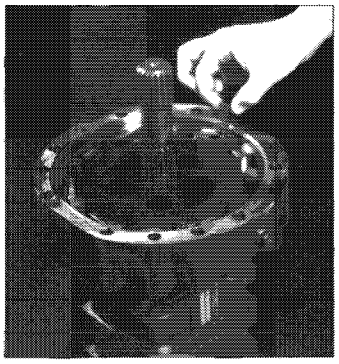


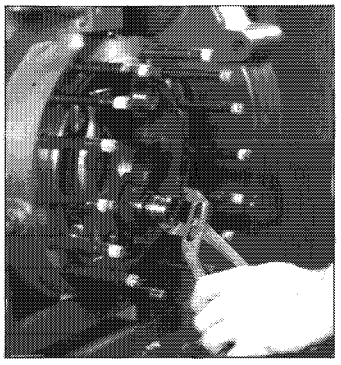
ALLENTARE LE 3 VITI DI REGISTRO: RIMUOVERE IL SPINGIDISCO.
NOTE: SE I DISCHI NON SONO DA SOSTITUIRE, RIMUOVERE L'INTERO PACCO SENZA CAMBIARE LA LORO POSIZIONE.

DIE 3 EINSTELLSCHRAUBEN LOCKERN: DEN SCHEIBENDRÜCKER ABNEHMEN.
ACHTUNG: WENN DIE BREMS LAMELLEN NICHT ERSETZT WERDEN MÜSSEN, DAS VOLLSTÄNDIGE PAKET AUSBAUEN OHNE DIE REIHENFOLGE ZU ÄNDERN.

DESSERRER LES 3 VIS DE RÉGLAGE: DÉPOSER LE PLATEAU DE PRESSION.
NOTE: SI LES DISQUES SONT EN BON ETAT ENLEVER L'ENSEMBLE DES DISQUES EN GARDANT LEUR POSITION.

LOOSEN THE 3 ADJUSTER SCREWS: REMOVE THE PRESSURE PLATE.
NOTE: IF THE BRAKE DISCS MUST NOT BEEN REPLACED, REMOVE THE COMPLETE PACK WITHOUT CHANGING THE POSITION OF THE DISCS.



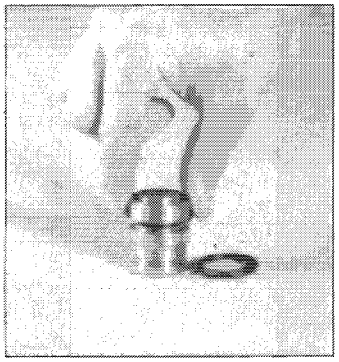


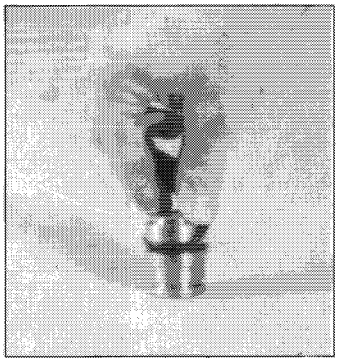
VERIFICARE L'EFFICENZA DELLE MOLLE. RIMUOVERE IL PISTONCINO FRENO.

DIE FUNKTIONSTÜCHTIGKEIT DER FEDERN ÜBERPRÜFEN DEN BREMSENSTEUERKOLBEN ABNEHMEN.

VÉRIFIER L'EFFICACITÉ DES RESSORTS. DÉPOSER LE PETIT PISTON DU FREIN.

CHECK THAT THE SPRINGS ARE EFFICIENT. REMOVE THE BRAKE PLUNGER.



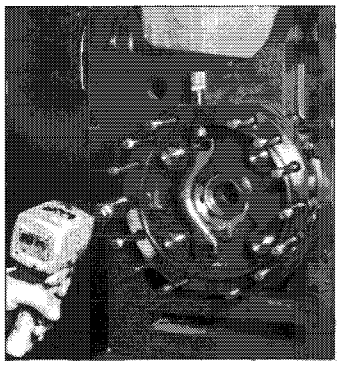
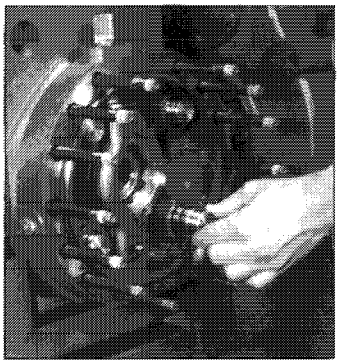


MONTAGGIO PISTONCINI FRENO
MONTARE L'ANELLO ANTIESTRUSIONE VERSO L'ESTERNO E POI L'ANELLO OR DI SEGUITO.

MONTAGE BREMSSTEUERKOLBEN
DEN RUTSCHFESTEN RING NACH AUßEN GERICHTET UND DANN DEN O-RING MONTIEREN.

MONTAGE PISTON FREIN
MONTER L'ANNEAU DE BLOCAGE VERS L'EXTÉRIEUR, PUIS LE CIRCLIP.

MOUNTING THE BRAKE PLUNGERS
MOUNT THE ANTIEXTRUSION RING ON THE OUTSIDE FOLLOWED BY THE O-RING.

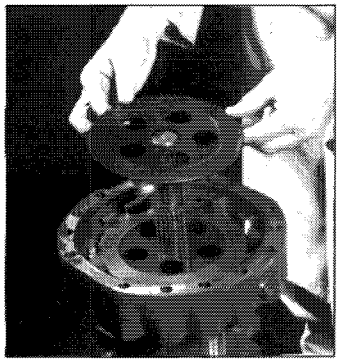
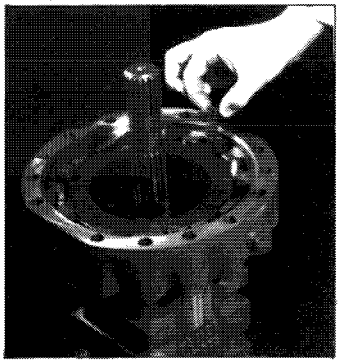



SERRARE I 2 PRIGIONIERI MOBILI LUBRIFICARE LE ZONE DI TENUTA PRIMA DI MONTARE I PISTONCINI.

DIE ZWEI BEWEGLICHEN STIFTSCHRAUBEN ANZIEHEN, VOR DER STEUERKOLBENMONTAGE DIE DICHTUNGSBEREICHE SCHMIEREN.

SERRER LES 2 GOUJONS MOBILES; LUBRIFIER LES ZONES D'ÉTANCHEITÉ AVANT DE MONTER LES PETITS PISTONS.

TIGHTEN THE 2 MOBILE STUD BOLTS. LUBRICATE THE RETENTION ZONES BEFORE MOUNTING THE PLUNGERS.

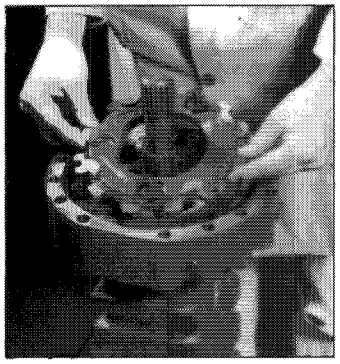



ASSEMBLAGGIO PACCO DISCHI FRENO
ALLINEARE I FORI DI PASSAGGIO D'OLIO DEI SINGOLI DISCHI.

ZUSAMMENSETZUNG BREMSSCHEIBENPAKET
DIE ÖLDURCHFLUßLÖCHER DER EINZELNEN SCHEIBEN AUSRICHTEN.

ASSEMBLAGE PAQUET DISQUES FREIN
ALIGNER LES TROUS DE PASSAGE D'HUILE DE CHAQUE DISQUE.

ASSEMBLING THE BRAKE DISK PACK
ALIGN THE OIL HOLES OF THE INDIVIDUAL DISKS.

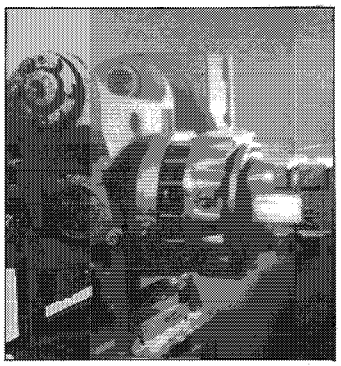
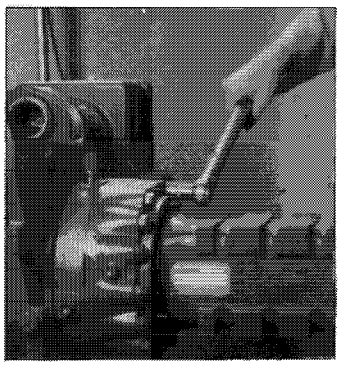


ASSEMBLARE IL SPINGIDISCO CON I PUNTALINI VERTICALI.
AVVITARE PARZIALMENTE LE 3 VITI DI REGISTRO.

DEN SCHEIBENDRÜCKER MIT DEN SENKRECHTEN AUFLAGESTIFTEN ZUSAMMENSETZEN.
DIE 3 EINSTELLSCHRAUBEN ETWAS ANZIEHEN.

ASSEMBLER LE PLATEAU AVEC LES ERGOTS VERTICAUX.
VISSER PARTIELLEMENT LES 3 VIS DE RÉGLAGE.

MOUNT THE PRESSURE PLATE WITH THE VERTICAL RODS.
PARTIALLY TIGHTEN THE 3 ADJUSTER SCREWS.

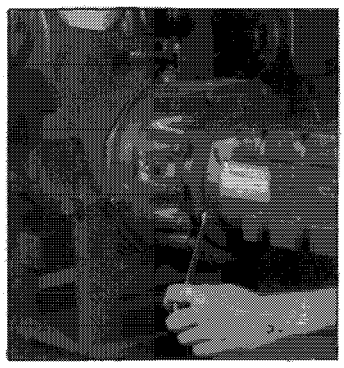



MONTARE CON LOCTITE 242
COPPIA DI SERRAGGIO VITI M12 8.8 = 86 Nm SUL PONTE DI FISSAGGIO CON STAFFA. COPPIA DI SERRAGGIO VITI M12 10.9 = 120 Nm SUL PONTE CON FISSAGGIO A PENDOLO.

MIT LOCTITE 242 MONTIEREN.
ANZUGSMOMENT SCHRAUBEN M12 8.8 = Nm AN DER BÜGELLBEFESTIGUNGSACHSE. ANZUGSMOMENT SCHRAUBEN M12 10.9 = 120 Nm AN MIT PENDELSBEFESTIGUNGSACHSE.

MONTER AVEC DE LA LOCTITE 242.
COUPLE DE SERRAGE VIS M12 8.8 = 86 Nm SUR LE PONT DE FIXATION AVEC BRIDE. COUPLE DE SERRAGE VIS M12 10.9 = 120 Nm SUR LE PONT AVEC FIXATION À PENDULE.

MOUNT WITH LOCTITE 242.
M12 8.8 BOLT DRIVING TORQUE = 86 Nm ON AXLE WITH BRACKET FIXING.
M12 10.9 BOLT DRIVING TORQUE = 120 Nm ON AXLE WITH PENDULUM FIXING.

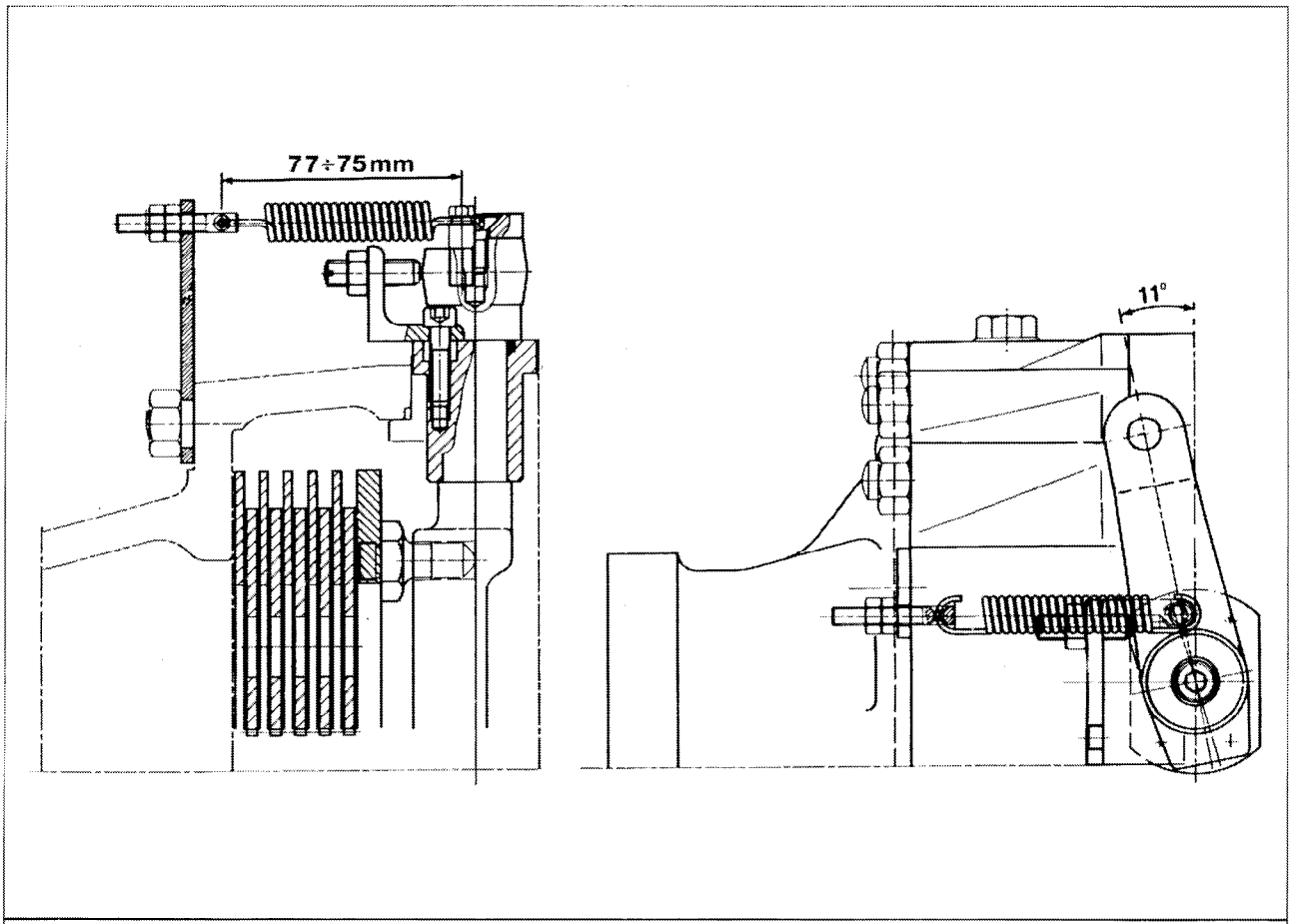


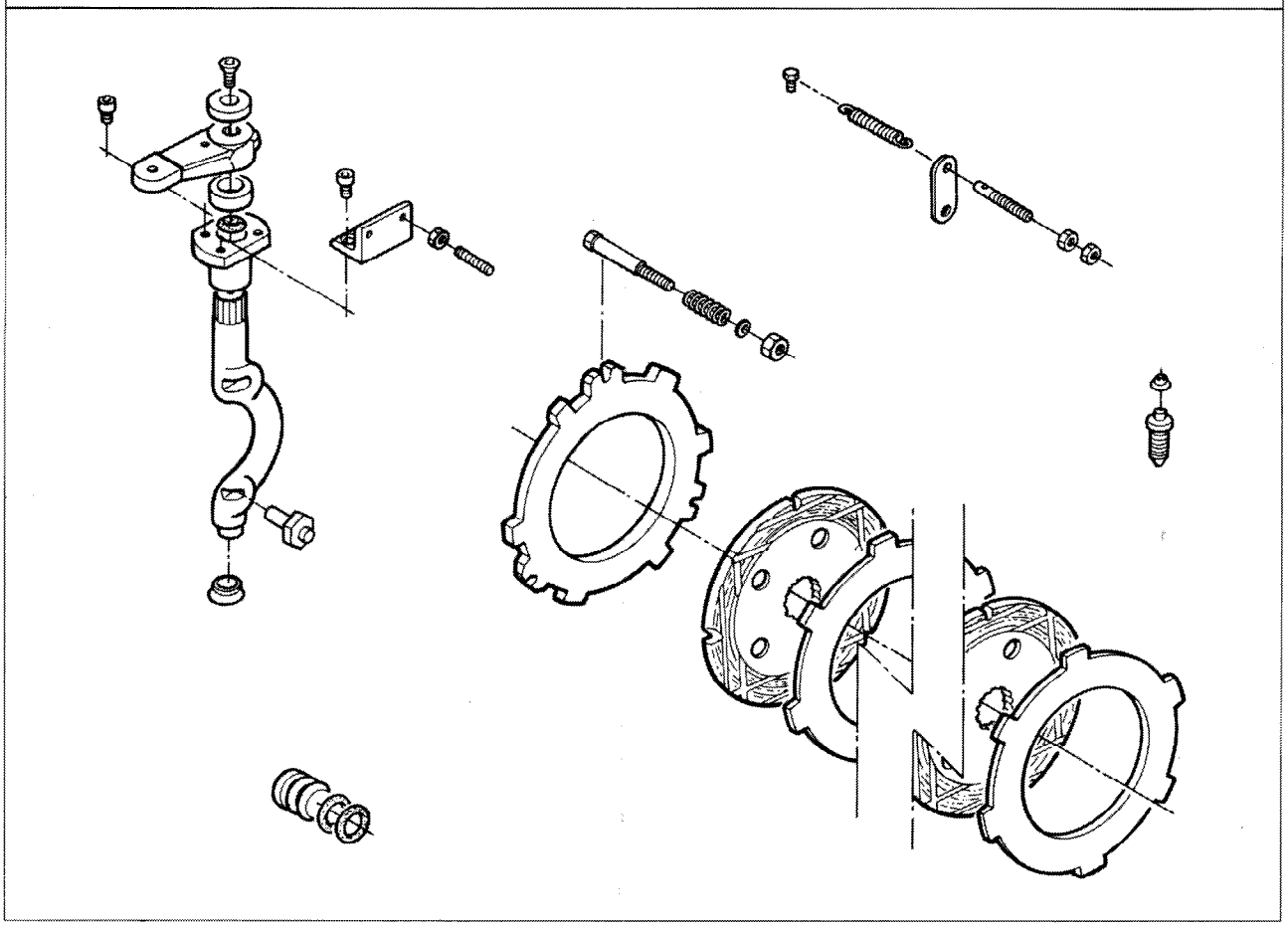
REGISTRAZIONE GIOCO DISCHI FRENO
RUOTARE GRADATAMENTE A FONDO (COPPIA DI SERRAGGIO ~ 50 Nm) IN SENSO ANTIORARIO LE 3 VITI DI REGISTRO, SUCCESSIVAMENTE RUOTARE DI 3/4 DI GIRO IN SENSO ORARIO PARI A 0,75 mm DI GIOCO FRA I DISCHI INFINE BLOCCARE CON IL CONTRODADO.

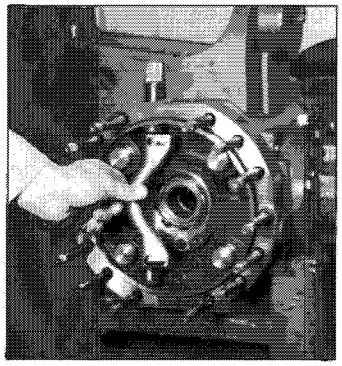
BREMSSCHEIBENSPIEL-EINSTELLUNG
DIE 3 EINSTELLSCHRAUBEN LANGSAM VOLLKOMMEN GEGEN UHRZEIGERSINN DREHEN (ANZIEHDREHMOMENT ~ 50 Nm); DANACH EINE 3/4 UMDREHUNG IM UHRZEIGERSINN GLEICH 0,75 mm SPIEL ZWISCHEN DEN SCHEIBEN MACHEN; ZULETZT MIT DER GEGENMUTTER SICHERN.

REGLAGE JEU DISQUES FREIN
TOURNER GRADUELLEMENT À FOND (COUPLE DE SERRAGE ~ 50 Nm) DANS LE SENS ANTIHORAIRE LES 3 VIS DE RÉGLAGE, ENSUITE TOURNER DE 3/4 DE TOUR DANS LE SENS HORAIRE ÉGAL À 0,75 mm DE JEU ENTRE LES DISQUES. BLOQUER AVEC LE CONTRE-ÉCROU.

BRAKE DISK PLAY ADJUSTMENT
GRADUALLY AND FULLY TURN (DRIVING TORQUE ~ 50 Nm) THE 3 ADJUSTER SCREWS IN AN ANTICLOCKWISE DIRECTION, THEN TURN THEM 3/4 OF A TURN IN A CLOCKWISE DIRECTION TO ACHIEVE A 0.75 mm PLAY BETWEEN THE DISKS. LASTLY, LOCK IN PLACE WITH THE CHECK NUT.


77÷75mm
11°



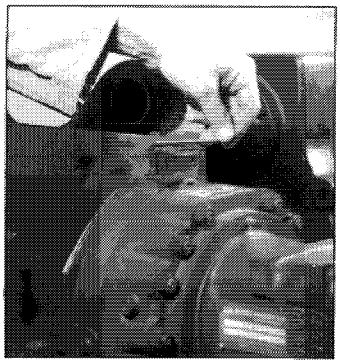


MONTAGGIO DELLA LEVA INTERNA.

MONTAGES DES INNEREN HEBELS.

MONTAGE DU LEVIER INTERNE.

MOUNTING THE INTERNAL LEVER.

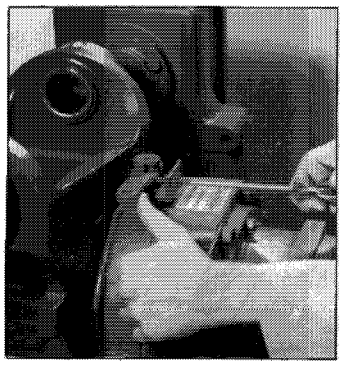


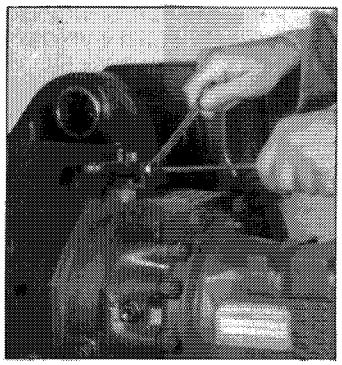
MONTARE LA BUSSOLA E LA PIASTRA DI FERMO USARE LOCTITE 573. COPPIA DI SERRAGGIO VITI M6 = 10 Nm.
MONTARE LA LEVA IN MODO CHE IN POSIZIONE DI RILASCIO FORMI UN ANGOLO DI ~11° OPPOSTO AL SENSO DI TIRAGGIO.

DIE BUCHSE UN DIE SPERRPLATTE MONTIEREN, LOCTITE 573 VERWENDEN. ANZUGSMOMENT SCHRAUBEN M6 = 10 Nm.
DEN HEBEL SO MONTIEREN, DAß ER LOSGELASSEN EINEN WINKEL VON CIRCA 11° ENTGEGEN DER ZIEHRICHTUNG BILDET.

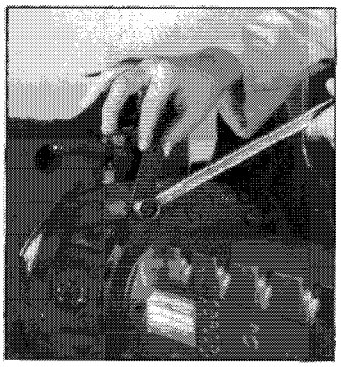
MONTER LA BAGUE ET LA BUTEÉ DE BLOCAGE; UTILISER DU LOCTITE 573. COUPLE DE SERRAGE VIS M6 = 10 Nm.
MONTER LE LEVIER AFIN QUE DANS LA POSITION RELÂCHEÉ IL FORME UN ANGLE D'ENVIRON 11°, OPPOSÉ AU SENS DU TIRAGE.

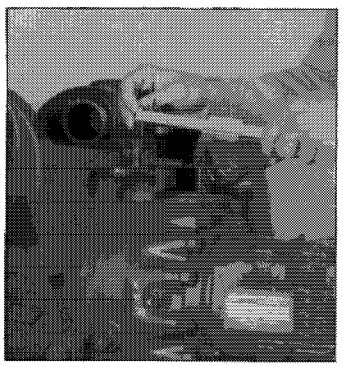
MOUNT THE BUSH AND STOP PLATE USING LOCTITE 573. M6 BOLT DRIVING TORQUE = 10 Nm.
MOUNT THE LEVER SO THET IN THE RELASE POSITION, IT FORMS A ≈ 11° ANGLE IN THE OPPOSITE DIRECTION TO THAT OF PULLING.



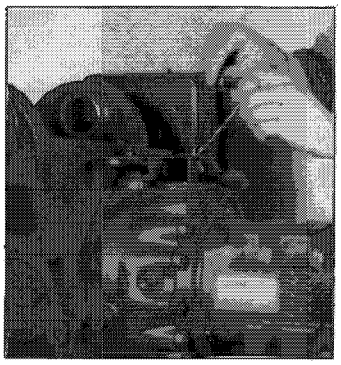


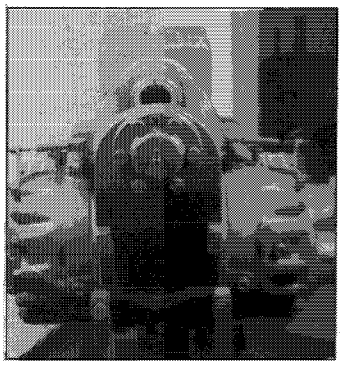
REGOLAZIONE DEL FRENO DI STAZIONAMENTO CON FERMI MECCANICI
I PONTI IN OGGETTO NON NECESSITANO, DURANTE LE OPERAZIONI DI PRIMO MONTAGGIO, DELLA REGOLAZIONE DEL GIOCO FRA I DISCHI FRENO E DELLE LEVE FRENO DI STAZIONAMENTO (OPERAZIONE GIA' ESEGUITA IN FABBRICA).
EINSTELLUNG DER FESTELLBREMSE MIT MECHANISCHEN SPERRUNGEN
BEI DER ERSTMONTAGE IST FÜR DIE BETREFFENDEN ACHSEN KEINE SPIELEINSTELLUNG ZWISCHEN DEN BREMSSCHEIBEN UND DEN HEBELN DER FESTELLBREMSE NÖTIG (DIESER VORGANG WURDE BEREITS IM HERSTELLWERK VORGENOMMEN).
REGLAGE DU FREIN DE STATIONNEMENT AVEC BUTEES MECANIQUES
LORS DU PREMIER MONTAGE, IL N'EST PAS NÉCESSAIRE DE RÉGLER LE JEU ENTRE LES DISQUES FREIN ET LES LEVIERS FREIN DE STATIONNEMENT DES PONTS (OPÉRATION DÉJA RÉALISÉE EN USINE).
ADJUSTTING THE PARKING BRAKE WITH MECHANICAL STOPS
THE PLAY BETWEEN THE BRAKE DISKS AND PARKING BRAKE LEVERS ON THESE AXLES WILL NOT NEED ADJUSTING DURING THE FIRST ASSEMBLY OPERATIONS (THIS WILL HAVE ALREADY BEEN CARRIED OUT IN THE FACTORY).

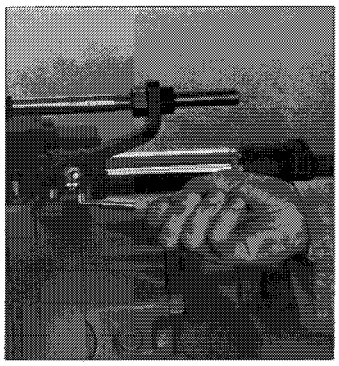




PROCEDURA DI REGOLAZIONE PER OPERAZIONI DI MANUTENZIONE
1° REGISTRAZIONE GIOCO DISCHI FRENO (FOTO 9-10 PAGINA 9).
2° LIBERARE ENTRAMBE LE LEVE DI RINVIO DAL CAVO DI COMANDO E DA EVENTUALI ULTERIORI AGGANCI.
3° APPLICARE SULLE LEVE UN CARICO DI ~8÷10 N SUFFICENTE A PORTARE LA LEVA IN APPOGGIO AL DISCO SPINTORE (SENZA DEFORMAZIONI DEI LIVERISMI E DELLE MOLLE INTERNE - FOTO 5).
4° IN QUESTA POSIZIONE PORTARE LE VITI DI REGISTRAZIONE DEI FERMI **A CONTATTO** CON LE LEVE E BLOCCARE CON IL CONTRODADO (FOTO 5-6).
5° POSIZIONARE LA PIASTRA (FOTO 7) ED AGGANCIARE LA MOLLA ESTERNA BLOCCANDOLA CON UN TIRAGGIO DI 75÷77 mm (FOTO 8)
6° RIAGGANCIARE I CAVI DI COMANDO DEL FRENO ALLE LEVE .
7° ASSICURARSI CHE IN FASE DI RILASCIO DEL FRENO LE LEVE RITORNINO ENTRAMBE IN APPOGGIO ALLE VITI DI FERMO.
EINSTELLUNGEN BEI WARTUNGSARBEITEN
1° EINSTELLUNG BREMSSCHEIBENSPIEL (BILD 9-10 SEITE 9).
2° DAS STEUERKABEL UND EVENTUELLE WEITERE VERBINDUNGEN VON DEN BEIDEN STEUERKABEL LÖSEN.
3° EINE LAST VON CIRCA 8÷10 N AN DEN HEBELN ANBRINGEN, DIE AUSREICHT, DEN HEBEL AUF DER DRUCKSCHEIBE AUFLIEGEN ZU LASSEN (OHNE DAß SICH DIE HEBELWERKE UND INNENFEDERN VERFORMEN - BILD 5).
4° IN DIESER STELLUNG DIE EINSTELLSCHRAUBEN DER ANSCHLÄGE MIT DEN HEBELN IN BERÜHRUNG BRINGEN UND MIT DER GEGENMUTTER SICHERN (BILD 5-6).
5° DIE PLATTE POSITIONIEREN (BILD 7), DIE ÄUßERE FEDER EINHÄNGEN UND MIT EINER ZUGLÄNGE VON 75-77 mm BLOCKIEREN (BILD 8).
6° DIE BREMSSTEUERKABEL WIEDER AN DEN HABELN ANBRINGEN.
7° SICHERSTELLEN, DAß BEIM LOSLASSEN DER BREMSE BEIDE HEBEL WIEDER AN DEN FESTSTELLSCHRAUBEN AUFLIEGEN.
PROCEDURE DE REGLAGE POUR LES OPERATIONS D'ENTRETIEN
1° RÉGLAGE JEU FREIN DISQUES FREIN (PHOTO 9-10 PAGE 9).
2° LIBÉRER LES DEUX LEVIERS DE RENVOI DU CÂBLE DE COMMANDE ET DE TOUTE FIXATION.
3° APPLIQUER SUR LES LEVIERS UN CHARGEMENT D'ENVIRON 8 À 10 N SUFFISANT À PORTER LE LEVIER EN APPUI SUR LE PLATEAU (SANS DÉFORMATIONS DES TRINGLERIES ET DES RESSORTS (PHOTO 5).
4° DANS CETTE POSITION, METTRE LES VIS DE RÉGLAGE DES BUTEÉS EN CONTACT AVEC LES LEVIERS ET BLOQUER AVEC LE CONTRE-ÉCROU (PHOTO 5-6).
5° METTRE LA PLAQUE À SA PLACE (PHOTO 7) ET ACCROCHER LES RESSORTS EXTÉRIEURS EN LA BLOQUANT AVEC UN TIRAGE DE 75-77 mm (PHOTO 8).
6° REBRANCHER LES TRINGLERIES DE COMMANDE DI FREIN AUX LEVIERS.
7° S'ASSURER QUE DURANT LA PHASE DE RELACHEMENT DU FREIN LES LEVIERS REVIENNENT TOUTES DEUX S'APPUYER SUR LES VIS DE BUTÉE.
ADJUSTMENT PROCEDURE FOR MAINTENANCE OPERATIONS
1° BRAKE DISK PLAY ADJUSTMENT (PHOTOS 9-10 ON PAGE 9).
2° FREE BOTH TRANSMISSION LEVERS FROM THE CONTROL CABLE AND FROM ANY OTHER RESTRAINTS.
3° APPLY A ~ 8 ÷ 10 N LOAD TO THE LEVERS SO THAT THE LEVER ITSELF RESTS ON THE PRESSURE PLATE (WITHOUT DEFORMING THE LEVERS OR INTERNAL SPRINGS - PHOTO 5).
*4° HAVING SET TO THIS POSITION, ALLOW THE STOP ADJUSTER SCREWS TO **TOUCH** THE LEVERS AND LOCK IN PLACE WITH THE CHECK NUT (PHOTOS 5-6).*
5° PODITION THE PLATE (PHOTO 7) AND COUPLE THE EXTERNAL SPRING, LOCKING IT WITH A 75-77 mm PULL (PHOTO 8).
6° RE-CONNECT THE BRAKE CONTROL CABLES TO THE LEVERS.
7° CHECK THAT DURING THE BRAKE DISENGAGING PHASE, THE LEVERS BOTH RETURN TO THE POSITION IN WHICH THEY REST ON THE STOP SCREWS.





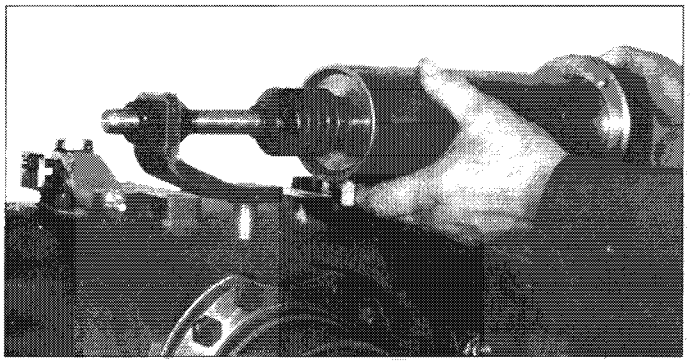


INSERIRE NEL CIRCUITO IDRAULICO UNA PRESSIONE DI 15-20 bar, SUCCESSIVAMENTE RIMUOVERE IL CILINDRO FRENO.

15-20 bar IN DEN BREMSKREISLAUF EINLASSEN UND DEN BREMSZYLINDER DANN HERAUSNEHMEN.

CONNECTER AU CIRCUIT HYDRAULIQUE UNE PRESSION DE 15-20 bars; ENSUITE DÉPOSER LE CYLINDRE DE FREIN.

PRESSURIZE THE HYDRAULIC CIRCUIT AT 15-20 bar, THEN REMOVE THE BRAKE CYLINDER.

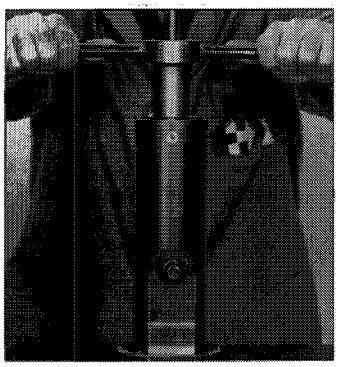


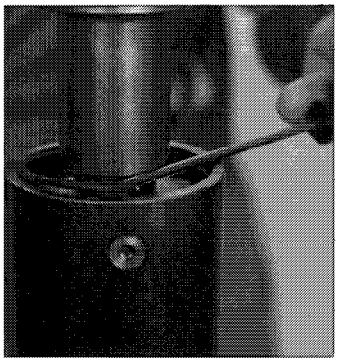
SMONTAGGIO CILINDRO FRENO
PER IL MONTAGGIO PROCEDERE IN SENSO INVERSO.

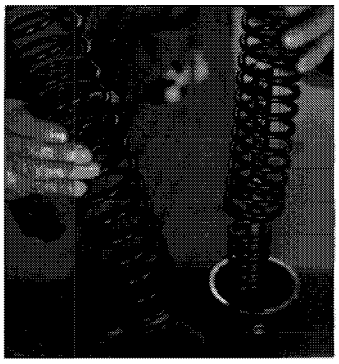
AUSBAU DES BREMSZYLINDERS
FÜR DEN EINBAU IN UMGEKEHRT ERVORGEHEN REIHENFOLGE.

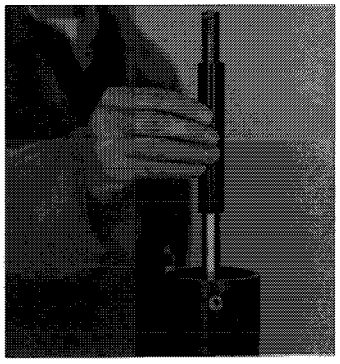
DÉMONTAGE CYLINDRE DE FREIN
POUR LE MONTAGE, PROCÉDER EN SENS INVERSE.

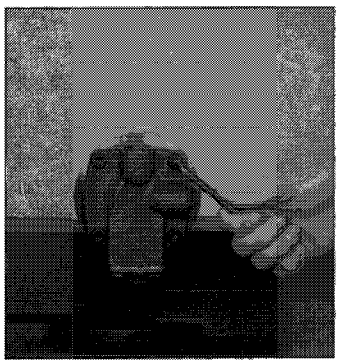
REMOVE THE BRAKE CYLINDER
PROCEED IN REVERSE ORDER WHEN ASSEMBLING.

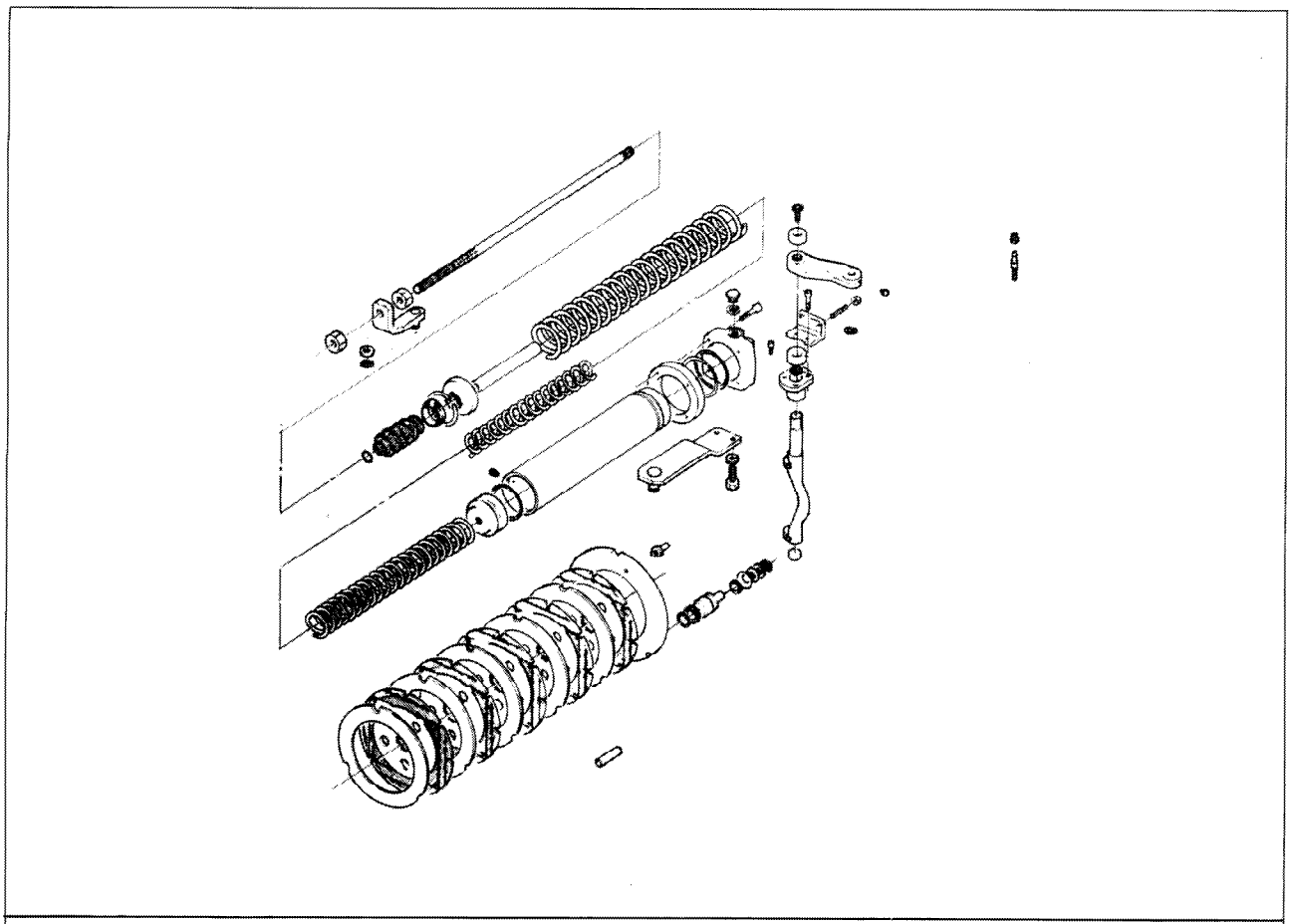


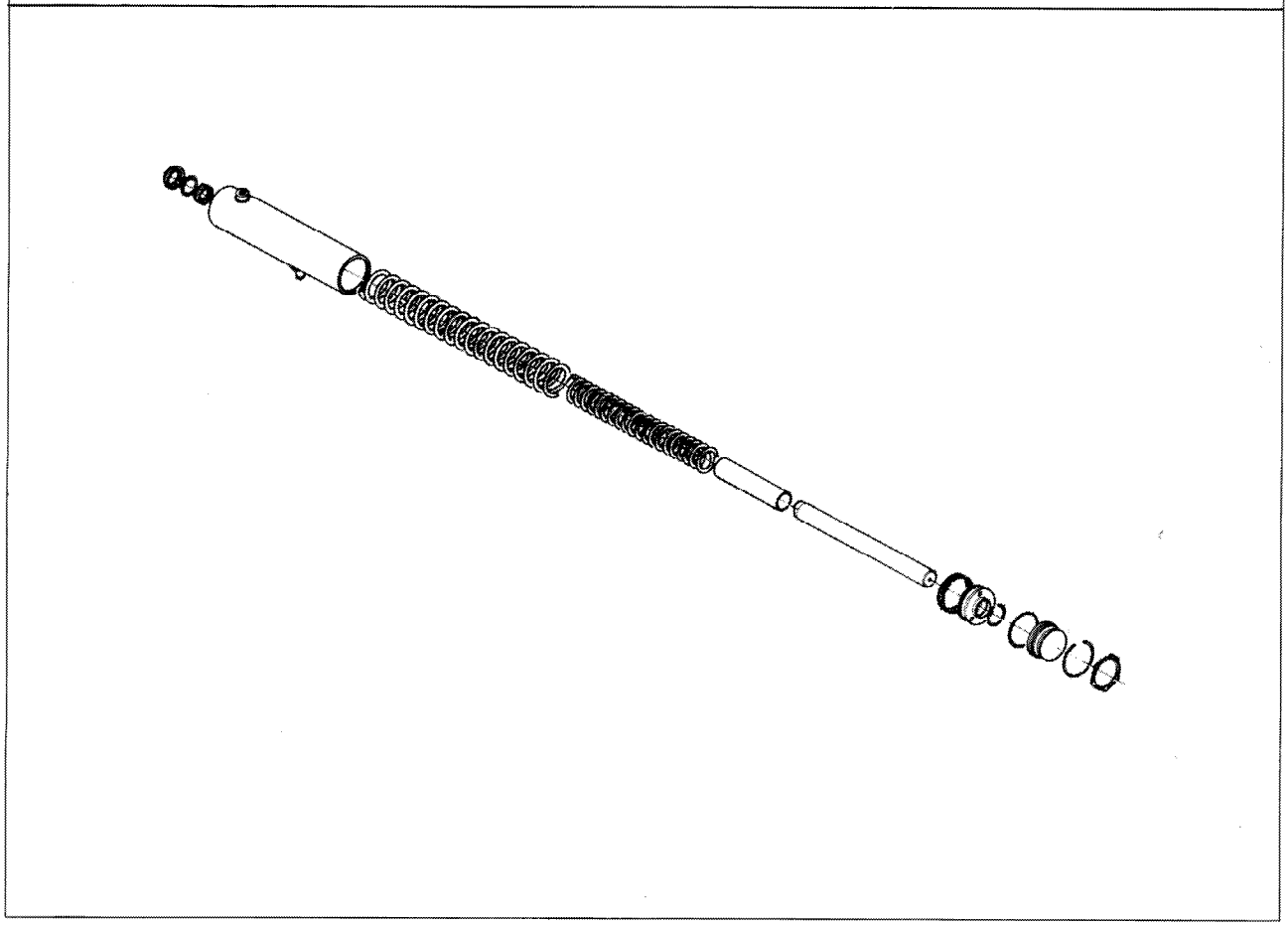


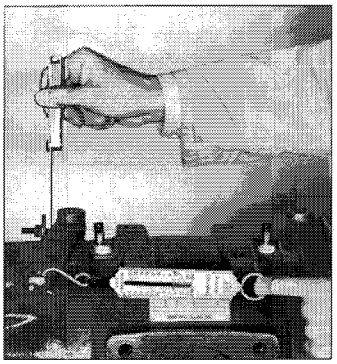


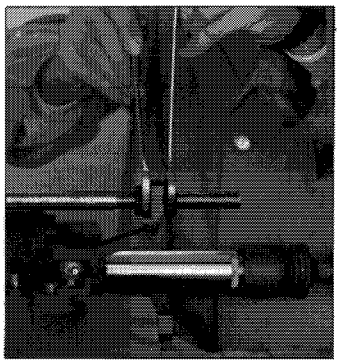












Quantità molle per pistoncino *Q.ty of cup springs for piston*	N° Disegno Distanziale Ⓐ *Drawing no. of spacer Ⓐ*	Corsa pistoncino *Piston stroke* mm	G
2	738.07.030.02	0,7	1,75
3	738.07.030.01	1,0	2,5
4	738.07.030.03	1,3	3,25
5	738.07.030.04	1,6	4,0

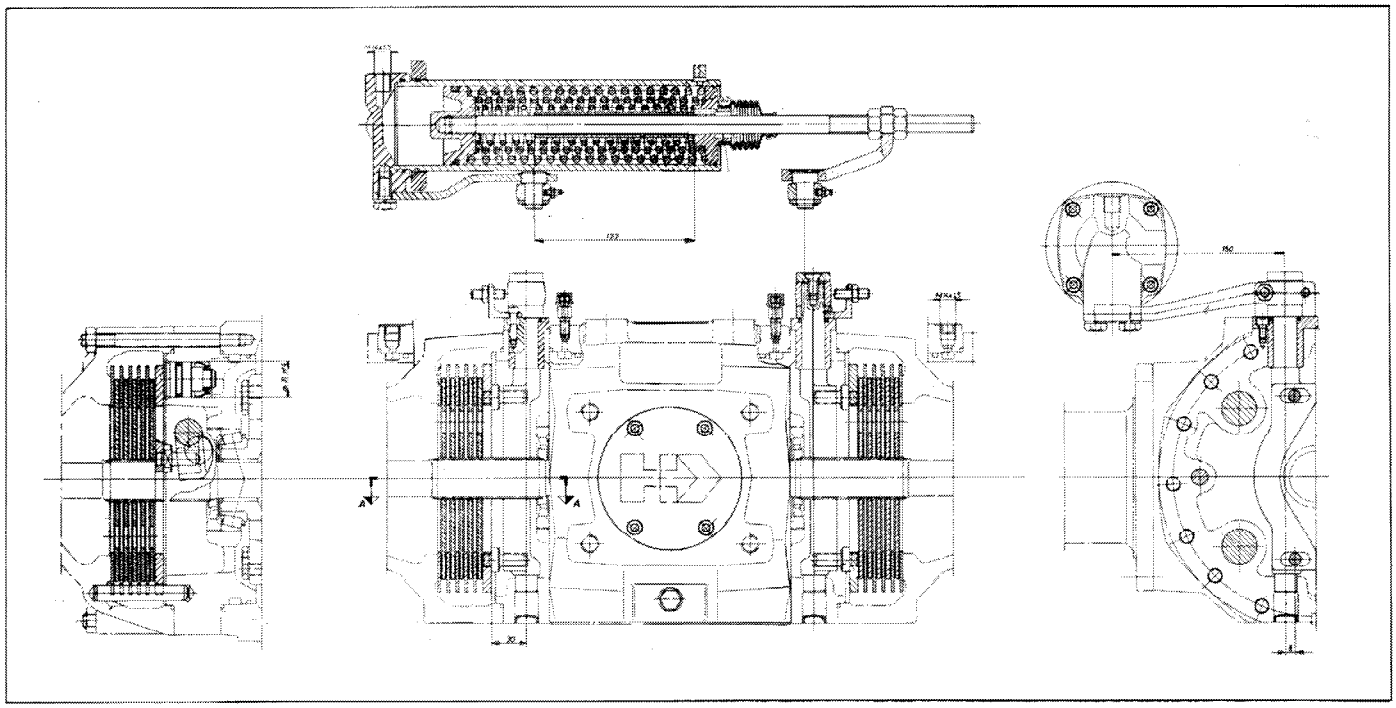
REGISTRAZIONE
APPLICARE ALLA LEVA UN CARICO DI C.A 10 kg.
REGISTRARE LA VITE FINO AD OTTENERE LA DISTANZA «G».
CON UN SPESSIMETRO SERRARE IL CONTRODADO.
ASSEMBLARE IL CILINDRO FRENO CON INSERITA UNA PRESSIONE DI 15-20 bar.
AGIRE SUL DADO E CONTRODADO FINO A CHE ENTRAMBE LE LEVE SIANO IN APPOGGIO O CON LEGGERO GIOCO SU FINE CORSA.

EINSTELLUNG
EINE LAST VON 10 kg AM HEBEL BEFESTIGEN UND DIE SCHRAUBE SO EINSTELLEN, DASS DER ABSTAND «G» ERHALTEN WIRD. MIT EINEM DICKENMESSER PRÜFEN UND DIE GEGENMUTTER ANZIEHEN.
DEN BREMSZYLINDER ZUSAMMENSETZEN, WOBEI EIN DRUCK VON 15-20 bar VORLIEGEN MUSS.
MUTTER UND GEGENMUTTER VERSTELLEN, BIS BEIDE HEBEL AUFLIEGEN ODER MIT GERINGFÜGIGEM SPIEL AM ENDE DES VERSTELLWEGS VORLIEGEN.

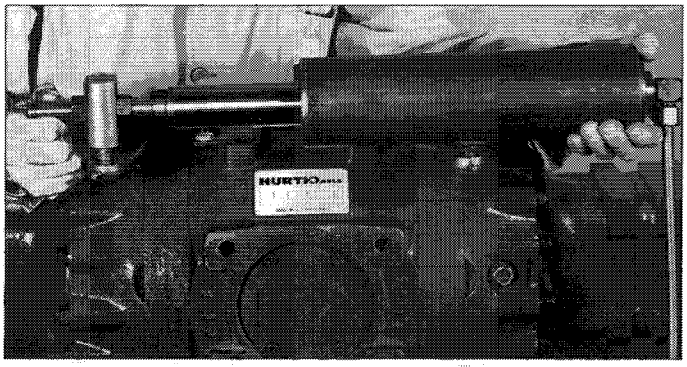
RÉGLAGE
APPLIQUER UNE CHARGE D'ENVIRON 10 kg AU LEVIER.
REGLER LA VIS JUSQU'A OBTENIR LA DISTANCE «G»; A L'AIDE D'UNE JAUGE D'EPAISSEUR SERRER LE CONTRE-ECROU.
ASSEMBLER LE CYLINDRE DE FREIN A UNE PRESSION DE 15-20 bars.
REGLER L'ECROU ET LE CONTRE-ECROU JUSQU'A CE QUE LES DEUX LEVIERS PUISSENT S'APPUYER OU GARGENT UN JEU MINIME SUR LE FIN DE COURSE.

ADJUSTMENT
APPLY A LOAD OF APPROX. 10 kg TO THE LEVER.
ADJUST THE SCREW UNTIL DISTANCE «G» IS OBTAINED; TIGHTEN THE CHECK NUT USING A THICKNESS GAUGE.
MOUNT THE BRAKE CYLINDER AFTER HAVING ENAGED A PRESSURE OF 15-20 bar.
USE THE NUT AND CHECK NUT UNTIL BOTH LEVERS ARE RESTING WITH SLIGHT PLAY AT END OF TRAVEL.

(*)
TABELLA GIOCO IN FUNZIONE DEL N° DI MOLLE SUI PISTONCINI
TABELLE MIT LÜFTSPIELWERTEN IM ABHÄNGIGKEIT DER ANZAHL DER FEDERN AUF DEM BREMSBETÄTIGUNGSKOLBEN.
TABLEAU DES JEUX EN FONCTION DU NOMBRE DE RESSORTS SUR LES PISTONS.
GAP CHART ACCORDING TO THE NUMBER OF SPRINGS ON THE PISTONS.



FRENO NEGATIVO/*FEDERSPEICHERBREMSE*
FREIN NEGATIF/*SAFETY BRAKE*



SMONTAGGIO
INSERIRE NEL CIRCUITO IDRAULICO UNA PRESSIONE DI * BAR

AUSBAU
*EINEN DRUCK VON * bar IN DEN BREMSKREISLAUF EINLASSEN.*

DÉMONTAGE
CONNECTER AU CIRCUIT UNE PRESSION DE * bars.

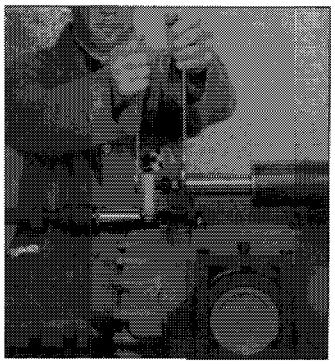
DISASSEMBLY
*ACTUATE THE HYDRAULIC CIRCUIT WITH * bar.*

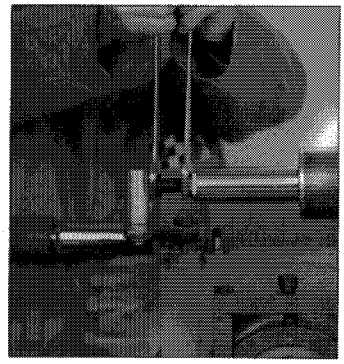
REGISTRAZIONE
VEDI REGISTRAZIONE E TABELLA PAG. 14.

EINSTELLUNG
S. EINSTELLUNGEN UND TABELLE MIT SPIELANGABE SEITE 14.

RÉGLAGE
VOIR LE RÉGLAGE ET TABLEAU DES JEUX PAGE 14.

ADJUSTMENT
SEE ADJUSTMENT AND PLAY CHART PAGE 14.





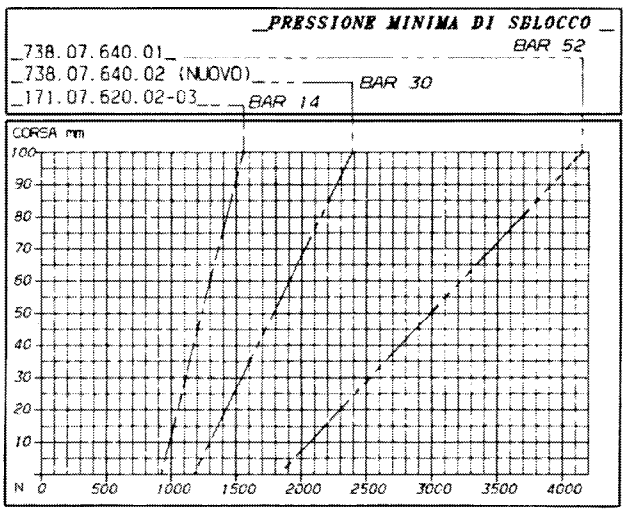
MONTARE IL CILINDRO FRENO CON INSERITA LA PRESSIONE E REGISTRARE LA VITE FINO A CHE LE DUE LEVE SIANO IN APPOGGIO SULLE VITI DI FINE CORSA.
QUINDI SERRARE IL CONTRO DADO CON LOCTITE 242.
DEN BREMSZYLINDER BEI ANGELEGTEM DRUCK MONTIEREN UND DIE SCHRAUBE SO EINSTELLEN, DAß DIE BEIDEN HEBEL AUF DIE ANSCHLAGSCHRAUBEN DRÜCKEN.
DANN DIE GEGENMUTTER MIT LOCTITE 242 ANZIENEN.
MONTER LE CYLINDRE DE FREIN, LA PRESSION ÉTANT ACTIVÉE, ET RÉGLER LA VIS JUSQU'À CE QUE LES DEUX LEVIERS REPOSENT SUR LES VIS DE FIN DE COURSE.
ENSUITE SERRER LE CONTRE-ÉCROU AVEC DE LA LOCTITE 242.
MOUNT THE BRAKE CYLINDER AFTER PRESSURIZING AND ADJUST THE SCREW SO THAT THE TWO LEVERS REST ON THE END OF TRAVEL SCREWS.
NOW TIGHTEN THE LOCK NUT USING LOCTITE 242.

PRESSIONE IN BASE AL TIPO DI CILINDRO E CURVA CARICHI MOLLE.

DRUCK JE NACH ZYLINDERAUSFÜHRUNG UND FEDERBELASTUNGSDIAGRAMM.

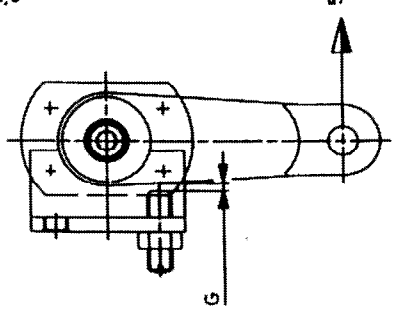
PRESSION SUR LA BASE DU TYPE DE CYLINDRE ET COURBE DE CHARGE DES RESSORTS.

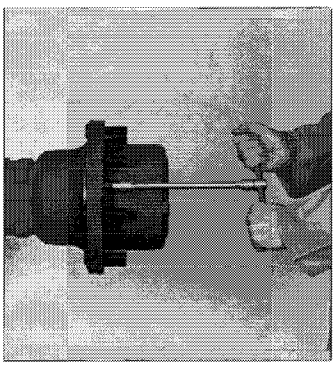
PRESSURE ACCORDING TO THE TYPE OF CYLINDER AND SPRING LOAD CURVE.

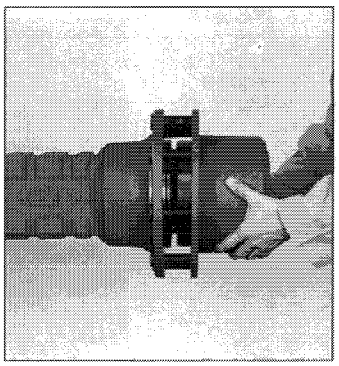


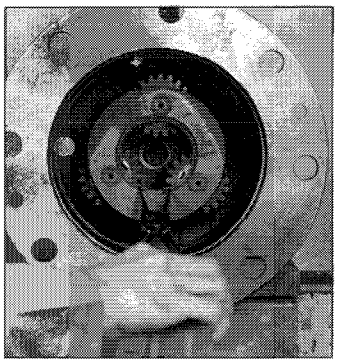
_ LEVE L=150 mm _

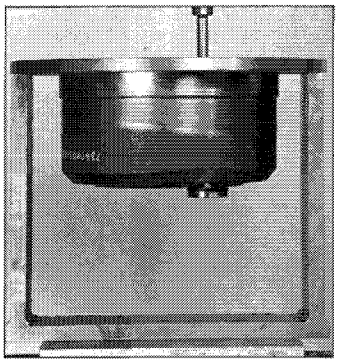
n° of springs on each piston	clearance "G"	
2	1,75	standard
3	2,5	









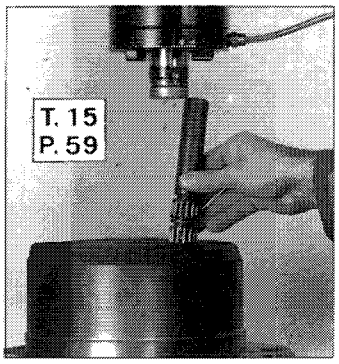


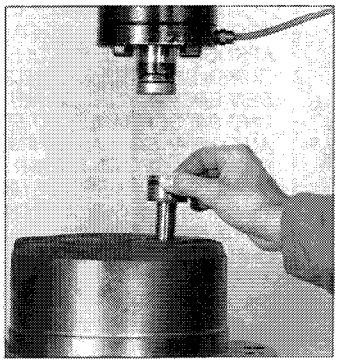
SMONTAGGIO SUPP. PORTA SATELLITE
TOGLIERE TUTTI 3 I PERNI PRIMA DI ESTRARRE I SATELLITI DAL FORO CENTRALE DEL COPERCHIO.

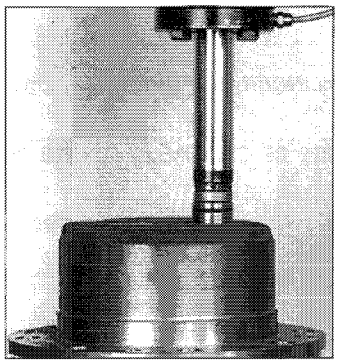
AUSBAU DES PLANETENTRÄGERS
ALLE 3 BOLZEN ENTFERNEN, BEVOR DIE PLANETENRÄDER AUS DER ZENTRALEN DECKELSEITE.

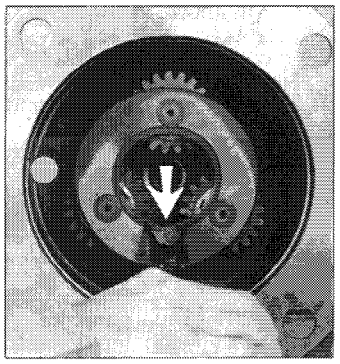
DÉMONTAGE SUPPORT PORTE-SATELLITES
DÉPOSER LES 3 AXES AVANT D'EXTRAIRE LES SATELLITES PAR LE TROU CENTRE DU COUVERCLE.

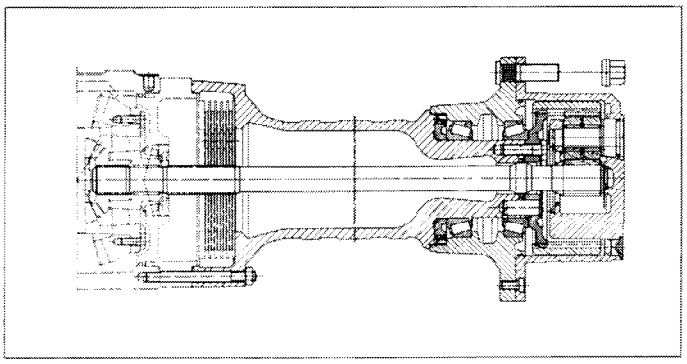
DISASSEMBLING THE PLANET SUPPORT
REMOVE ALL 3 PINS BEFORE REMOVING THE PLANETS FROM THE CENTRAL HOLE OF THE COVER.











MONTAGGIO
FARE ATTENZIONE ALLA CENTRATURA DELLA RONDELLA DI RASAMENTO

EINBAU
BEACHTEN, DAß DIE PAßSCHEIBEN ZENTRAL MONTIERT WERDEN.

MONTAGE
FAIRE ATTENTION AU CENTRAGE DE LA RONDELLE D'AJUSTEMENT.

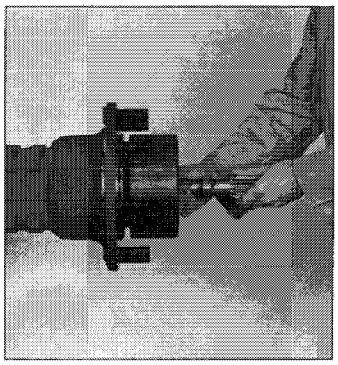
ASSEMBLY
TAKE CARE TO CENTER THE THRUST WASHER.

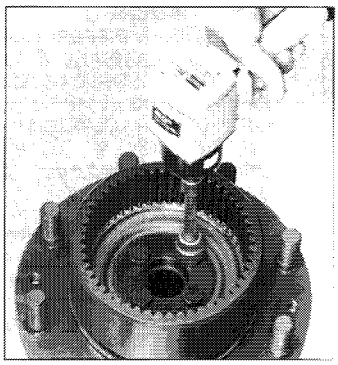
PER IL MONTAGGIO DEL SUPPORTO ESEGUIRE IN SENSO INVERSO.
CIANFRINARE DOPO IL MONTAGGIO DELL'ANELLO SEEGER COME INDICATO.

BEIM EINBAU DES PLANETENTRÄGERS IN UMGEKEHRT ER VORGEHEN REIHENFALGE.
NACH DER MONTAGE DEN SEEGERRING WIE GEZEIGT STEMMEN.

POUR LE MONTAGE DU SUPPORT, PROCÉDER EN SENS INVERSE.
CHANFREINER APRES LE MONTAGE DE L'ANNEAU SEEGER DE LA MANIERE INDIQUEE.

PROCEED IN REVERSE ORDER WHEN MOUNTING THE SUPPORT.
CHAMPFER AFTER HAVING MOUNTED THE CIRCLIP AS INDICATED.



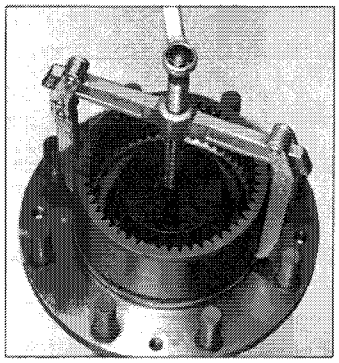


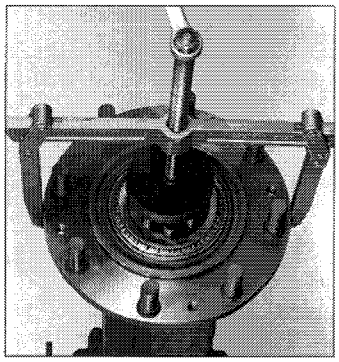
SMONTAGGIO
PRIMA DI SFILARE IL SEMIASSE BLOCCARE IL FRENO PER MANTENERE I DISCHI CENTRATI

AUSBAU
VOR DEM HERAUSZIEHEN DER ACHSWELLE DIE BREMSE BLOCKIEREN, UM DIE LAMELLEN ZUSAMMENGE DRÜCKT ZU HALTEN.

DÉMONTAGE
AVANT D'EXTRAIRE LE DEMI-ARBRE, BLOQUER LE FREIN POUR MAINTENIR LES DISQUES COMPACTES.

DISASSEMBLY
BEFORE REMOVING THE AXLE SHAFT, LOCK THE BRAKE TO KEEP THE DISKS IN PLACE.



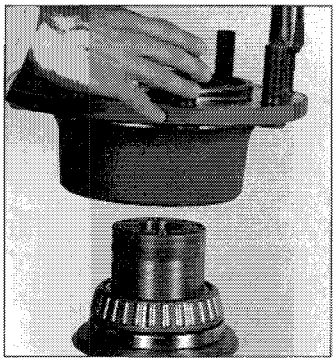


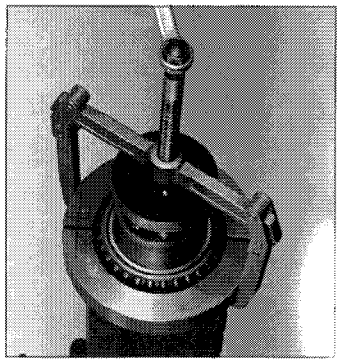
USARE LE VITI ORIGINALI PARZIALMENTE AVVITATE ED UNA PIASTRA PER L'ESTRATTORE.

DIE TEILWEISE EINGESCHRAUBTEN ORIGINALSCHRAUBEN UND EINE PLATTE FÜR DEN ABZIEHER VERWENDEN.

UTILISER LES VIS PARTIELLEMENT VISSÉES ET UNE PLAQUE POUR L'EXTRACTEUR.

USE THE PARTLY TIGHTENED ORIGINAL SCREWS AND A PLATE FOR THE PULLER



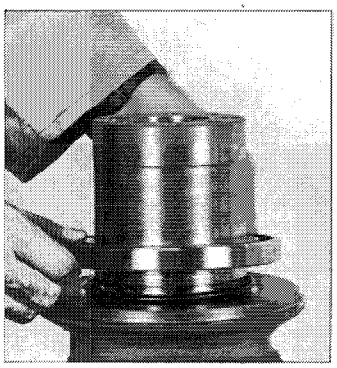


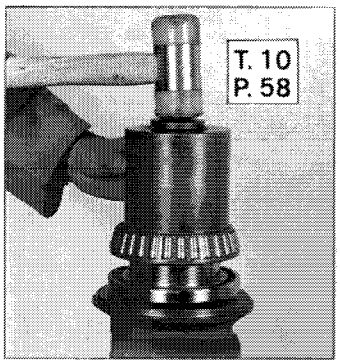
SE NECESSARIO TOGLIERE IL CUSCINETTO E DISTANZIALE CON ESTRATTORE.

FALLS ERFORDERLICH, DAS LAGER UND DAS DISTANZSTÜCK MIT ABZIEHER ENTFERNEN.

LES CAS ÉCHÉANT, DÉPOSER LE ROULEMENT ET L'ENTRETOISE À L'AIDE D'UN EXTRACTEUR.

REMOVE THE BEARING AND SPACER WITH A PULLER IF NECESSARY.



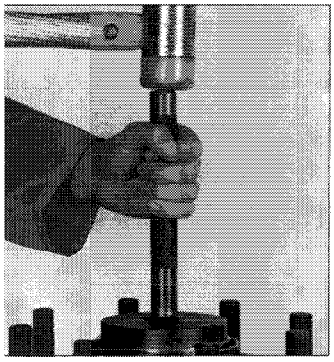


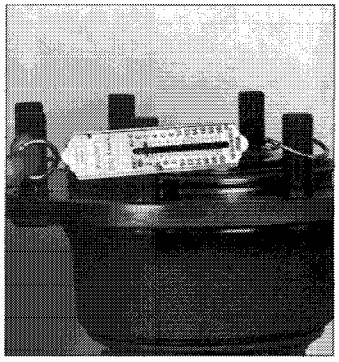
MONTAGGIO
CONTROLLARE LA COPPIA DI ROTAZIONE LASCIANDO UN LEGGERO GIOCO ASSIALE AL CUSCINETTO CONICO.
LA FORZA TANGENZIALE DEVE ESSERE DI 20÷30 N.

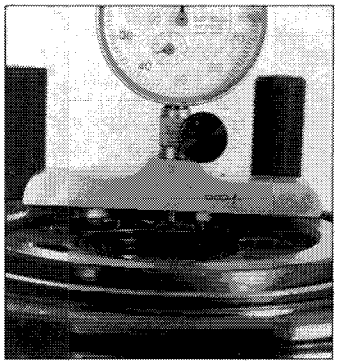
EINBAU
DAS DREHMOMENT PRÜFEN. DAZU EIN GERINGES AXIALSPIEL AM KEGELROLLENLAGER LASSEN.
MAX. TANGENTIALKRAFT 20÷30 N.

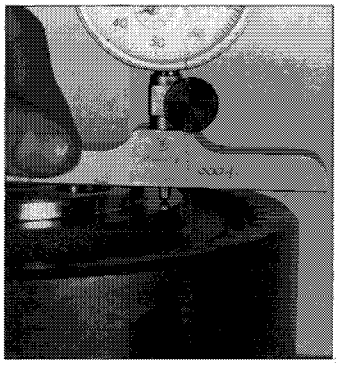
MONTAGE
CONTROLER LE COUPLE DE ROTATION EN LAISSANT UN PETIT JEU AXIAL AU ROULEMENT CONIQUE.
LA FORCE TANGENTIELLE DOIT ÉTRE DE 20 À 30 N.

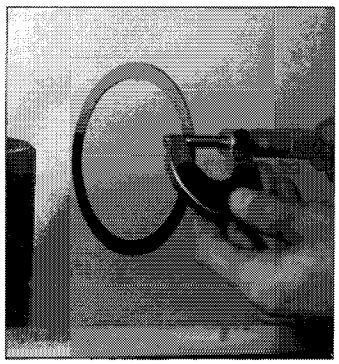
ASSEMBLY
CHECK THE ROTATION TORQUE, ALLOWING THE TAPER BEARING A SLIGHT END PLAY.
THE TANGENTIAL FORCE MUST BE 20-30 N.

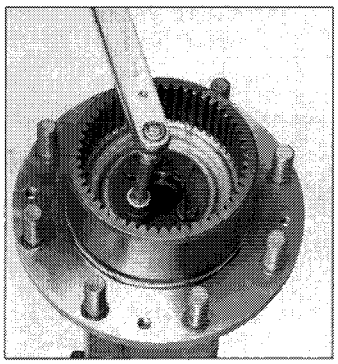


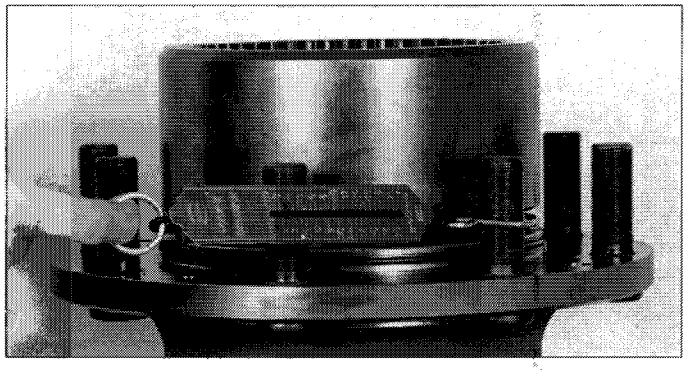












REGISTRAZIONE
RILEVARE LA DIFFERENZA PER STABILIRE LA QUOTA DEGLI SPESSORI DA USARE: ESEMPIO 0.9 mm
PACCO SPESSORI DA 0,88 A 0,92 mm
EINSTELLUNG
DEN UNTERSCHIED MESSEN, UM DIE DICKE DER ZU VERWENDENEN PAß SCHEIBEN FESTZULEGEN, BEISPIELSWEISE 0,9 mm, ALSO EIN PAKET PASS SCHEIBEN VON 0,88 BIS 0,92 mm.
RÉGLAGE
MESURER LA DIFFÉRENCE POUR ÉTABLIR LA VALEUR DES CALES À UTILISER; EXEMPLE 0,9 mm
PAQUET CALES D'ÉPAISSEUR DE 0,88 À 0,92 mm.
ADJUSTMENT
MEASURE THE DIFFERENCE TO ESTABLISH THE REQUIRED SHIM SIZE, EG. 0,9 mm
SHIM PACK FROM 0,88 TO 0,92 mm.

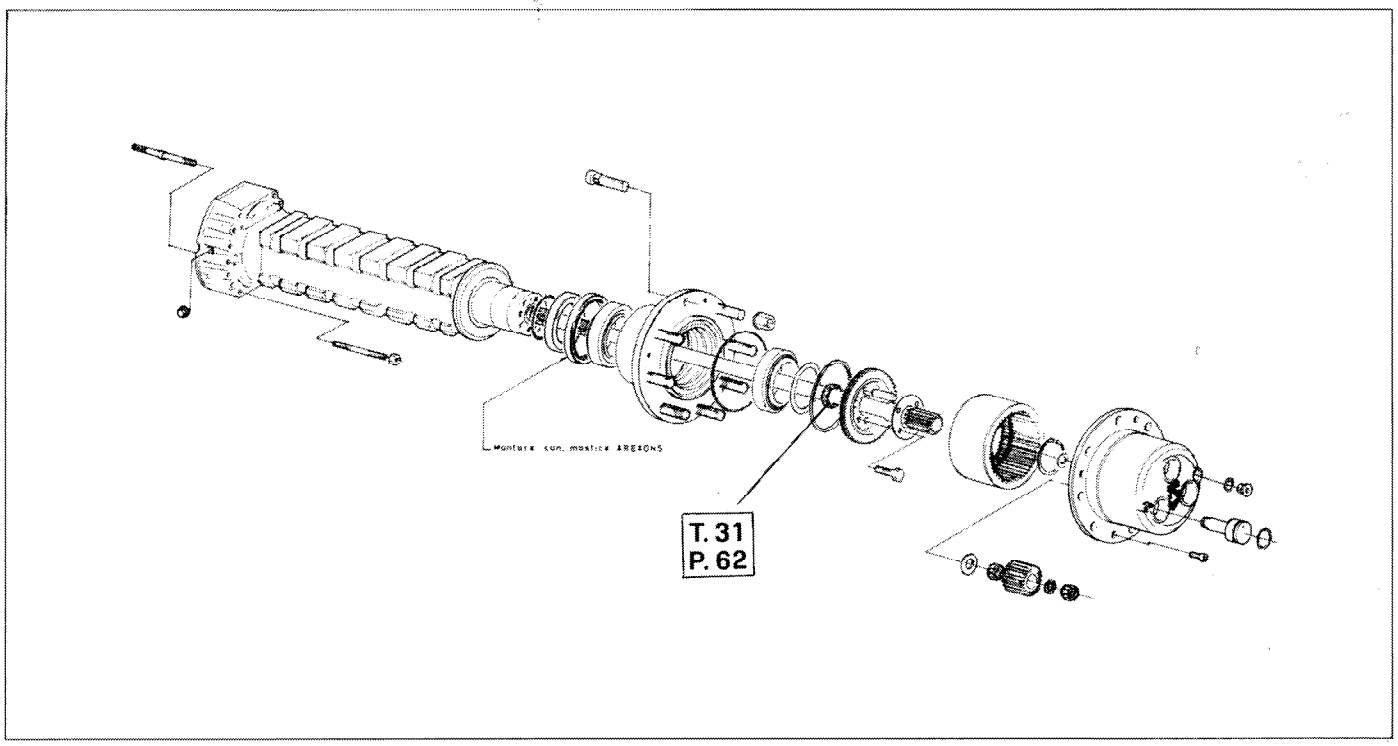
PIANTARE LA SPINE E SERRARE LE VITI CON LOCTITE 270 A 250 Nm.

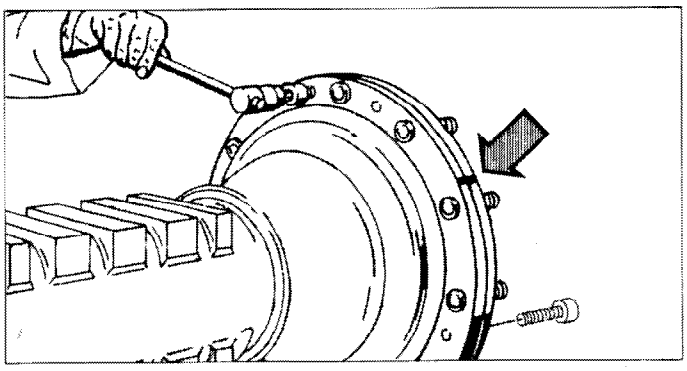
DEN STIFT EINTREIBEN UND DIE SCHRAUBEN MIT LOCTITE 270 BIS 250 Nm ANZIEHEN.

ENFONCER LES GOUPILLES ET SERRER LES VIS AVEC DE LA LOCTITE 270 À 250 Nm.

INSERT THE PIN AND TIGHTEN THE BOLTS TO 250 Nm USING LOCTITE 270.

LA FORZA TANGENZIALE DEVE ESSERE MAX 40÷50 N
PER EVENTUALI CORREZZIONI AGGIUNGERE O TOGLIERE SPESSORI CONSIDERANDO CHE 0,02 mm CAUSANO UNA VARIAZIONE DI ~10 N.
DIE TANGENTIALKRAFT DARF MAX. 40-50 N AUSMACHEN.
FÜR ETWAIGE KORREKTUREN PAßSCHEIBEN HINZUFÜGEN ODER ENTFERNEN. DABEI BERÜCKSICHTIGEN, DAß 0,02 mm CA. 10 N ENTSPRECHEN.
LA FORCE TANGENTIELLE DOIT ÉTRE DE 40 À 50 N MAXI.
POUR LES CORRECTIONS ÉVENTUELLES, AJOUTER OU ENLEVER LES ÉPAISSEURS, SACHANT QUE 0,02 mm PROVOQUENT UNE VARIATION D'ENVIRON 10 N.
THE TANGENTIAL FORCE MUST BE MAX 40÷50 N
IF CORRECTIONS ARE REQUIRED, ADD OR REMOVE SHIMS CONSIDERING THAT 0,02 mm CAUSE A VARIATION OF ~10 N.



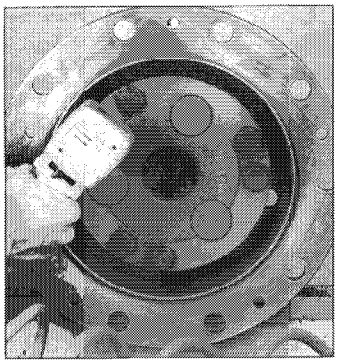


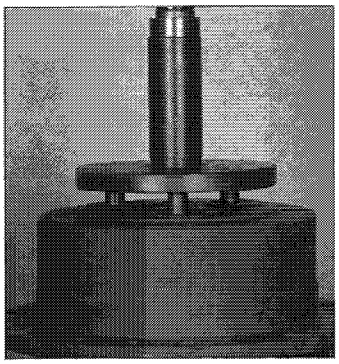
SMONTAGGIO

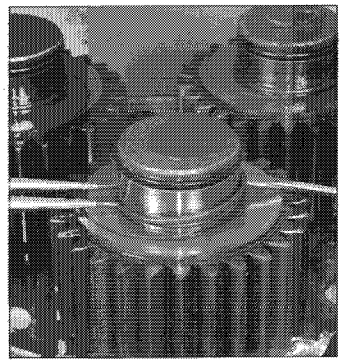
AUSBAU

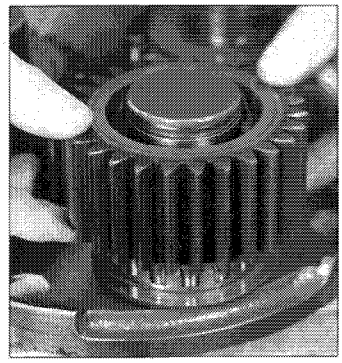
DÉMONTAGE

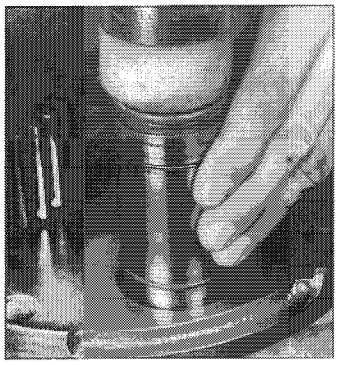
DISASSEMBLY

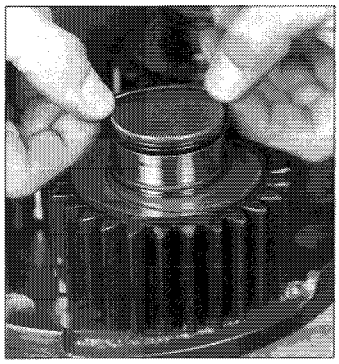










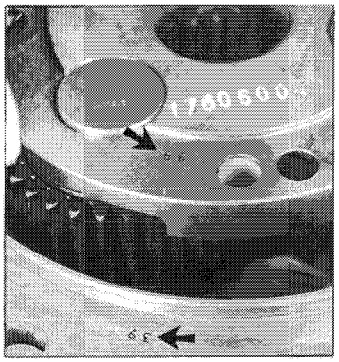


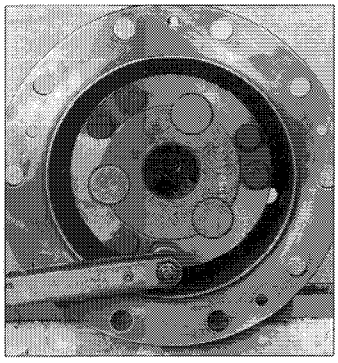
MONTAGGIO

ZUSAMMENBAU

MONTAGE

ASSEMBLY



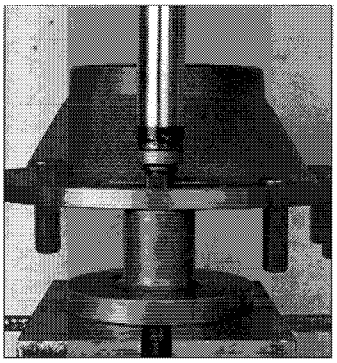


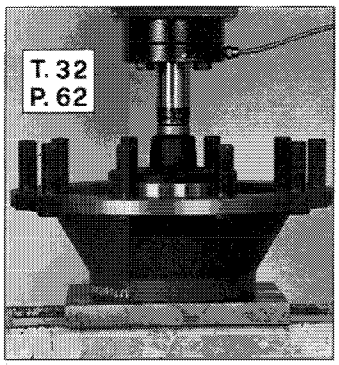
FARE ATTENZIONE AI NUMERI DI RIFERIMENTO.
SERRARE LE VITI CON «LOCTITE 270» A 315-320 Nm.

AUF DIE BEZUGSNUMMERN ACHTEN.
DIE SCHRAUBEN MIT «LOCTITE 270» BEI 315-320 Nm.

FAIRE ATTENTION AUX RÉFÉRENCES.
SERRER LES VIS AVEC DU «LOCTITE 270» A315-320 Nm.

CHECK THE REFERENCE NUMBERS.
TORQUE THE SCREWS AT 315-320 Nm.



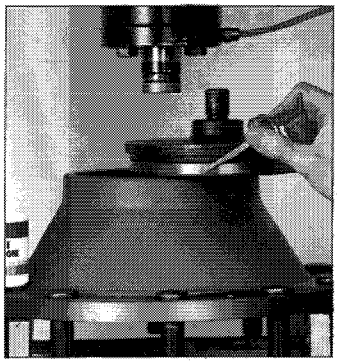


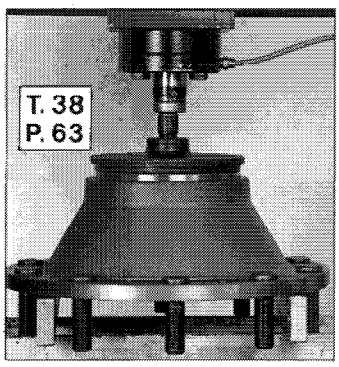
SMONTAGGIO
VEDI LE OPERAZIONI DI PAG. 17.
MONTAGGIO

AUSBAU
VGL. DIE BESCHREIBUNG AUF SEITE 17.
ZUSAMMENBAU

DÉMONTAGE
VOIR LES OPÉRATIONS PAGE 17.
MONTAGE

DISASSEMBLY
FOLLOW THE OPERATIONS ON PAGE 17.
ASSEMBLY



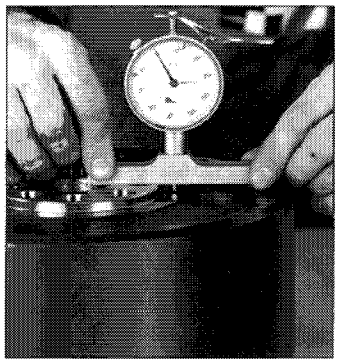


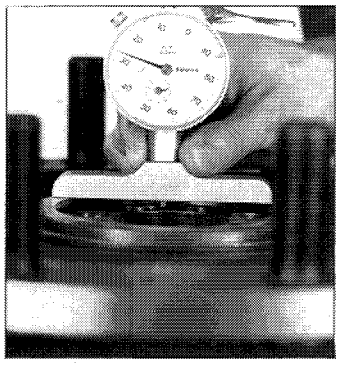
USARE MASTICE AREXON.

AREXON-KLEBEMASSE BENUTZEN.

UTILISER DU MASTIC AREXON.

USE AREXON ADHESIVE. (LIQUID GASKET MATERIAL)



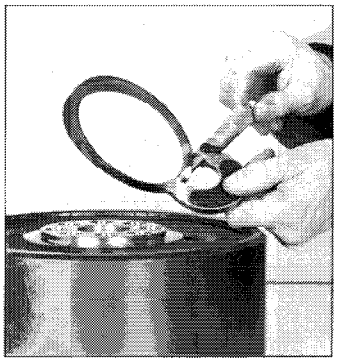


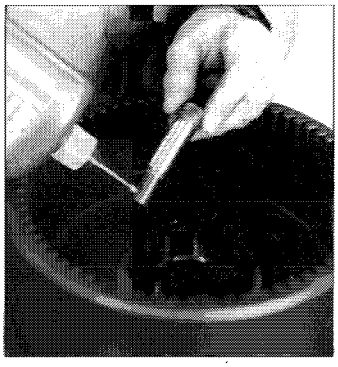
REGISTRAZIONE
VEDI LE OPERAZIONI DI PAG. 17.

EINSTELLUNG
S. DIE BESCHREIBUNG AUF SEITE 17.

RÉGLAGE
VOIR LES OPÉRATIONS PAGE 17.

ADJUSTMENT
FOLLOW THE OPERATION ON PAGE 17.



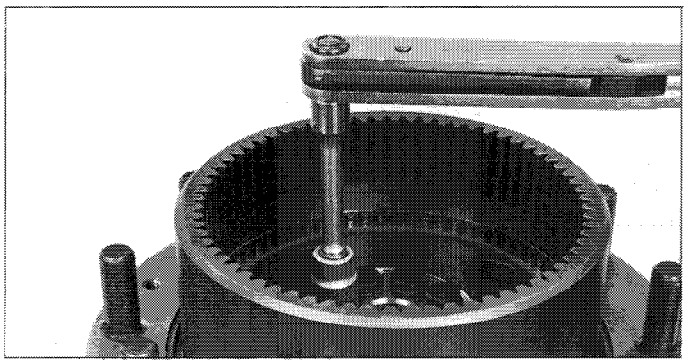


USARE LOCTITE 242 SUL FILETTO E GRASSO SU DIAMETRO SPINA PER EVITARE POSSIBILI GRIPPAGGI.

GEWINDE MIT LOCTITE 242 BESTREICHEN UND AUF DEN PASS STIFTDURCHMESSER FETT AUFTRAGEN, DAMIT EIN ETWAIGES FESTFRESSEN VERMIEDEN WIRD.

UTILISER DE LA LOCTITE 242 SUR LE FILETAGE ET DE LA GRAISSE SUR LE DIAMÈTRE DE LA FUSEÉ POUR ÉVITER LES GRIPPAGES.

USE LOCTITE 242 ON THE THREAD AND GREASE AROUND THE PIN DIAMETER TO PREVENT LOCK UP.

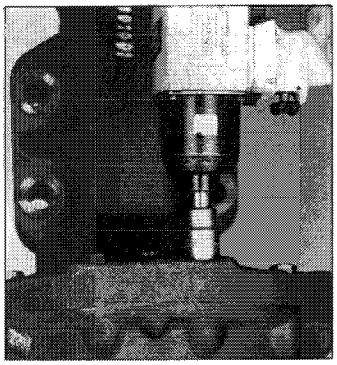


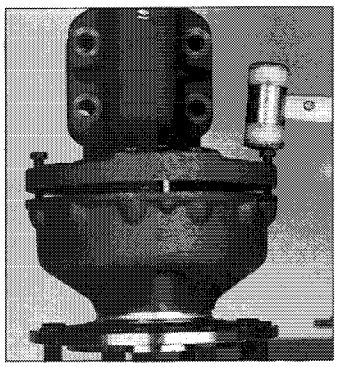
SERRARE CON CHIAVE DINAMOMETRICA A 315÷320 Nm.

MIT EINEM DREHMOMENTENSCHLÜSSEL BIS AUF 315÷320 Nm ANZIEHEN.

SERRER AVEC UNE CLÉ DYNAMOMETRIQUE À 315÷320 Nm.

TORQUE TO 315÷320 Nm WITH A TORQUE WRENCH.



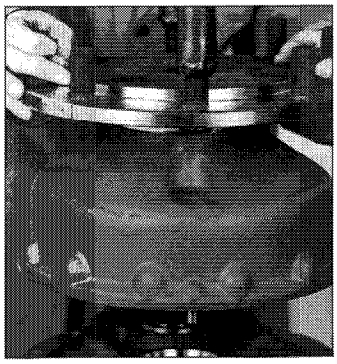


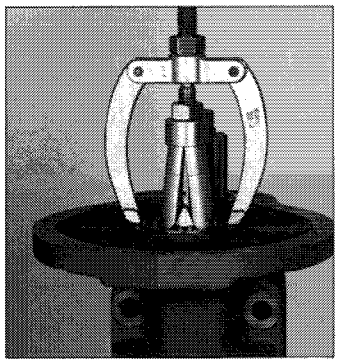
SMONTAGGIO
USARE DUE VITI PARZIALMENTE AVVITATE COME ESTRATTORE.

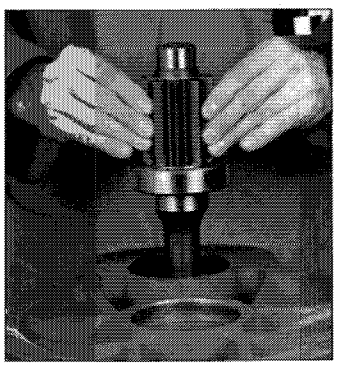
AUSBAU
ZWEI TEILWEISE EINGEDREHTE SCHRAUBEN BEIM ABZIEHEN BENÜTZEN.

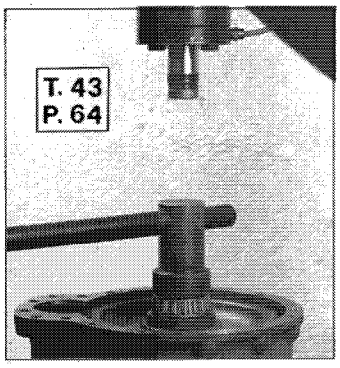
DÉMONTAGE
EN GUISE D'EXTRACTEUR UTILISER DEUX VIS PARTIELLEMENT VISSEES.

DISASSEMBLY
USE TWO PARTIALLY TIGHTENED SCREWS AS A PULLER.







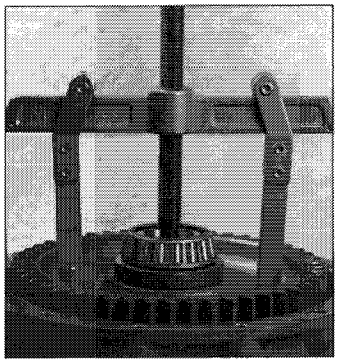


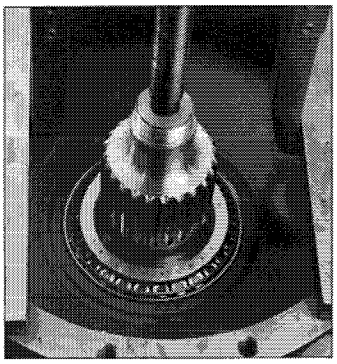
ALLENTARE LA GHIERA QUINDI SMONTARE L'INGRANAGGIO DAL MOZZO.

NUTMUTTER LOCKERN UND DAS ZAHNRAD VON DER NABE ABMONTIEREN.

DESSERRER LA BAGUE PUIS DÉMONTER L'ENGRENAGE DU MOYEU.

LOCK THE RING NUT THEN REMOVE THE HUB GEAR.



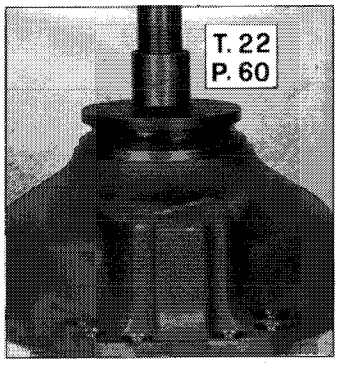


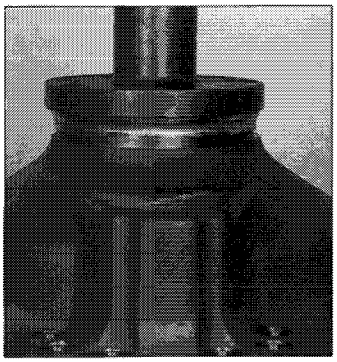
SMONTAGGIO MOZZO DAL COPERCHIO.
SOSTITUIRE L'ANELLO DI TENUTA.

NABE VOM DECKEL ABMONTIEREN.
DEN DICHTUNGSRING ERSETZEN.

DÉMONTER LE MOYEU DU COUVERCLE.
REMPLACER LA BAGUE D'ÉTANCHÉITÉ.

DISASSEMBLY THE HUB COVER.
REPLACE THE RETAINING RING.



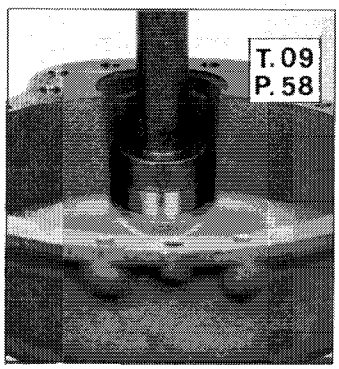


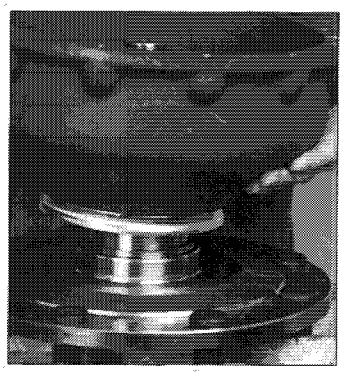
MONTAGGIO
ANELLO DI TENUTA A PARAPOLVERE.

EINBAU
STAUBABSTREIFRING.

MONTAGE
BAGUE D'ÉTANCHÉITÉ À PARE-POUSSIÈRE.

ASSEMBLY
DUST EXCLUDER



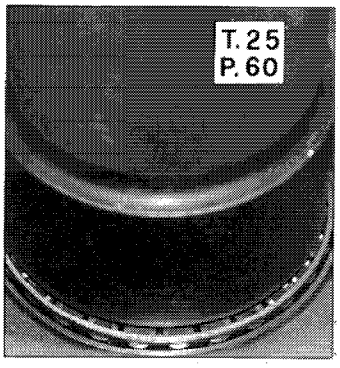


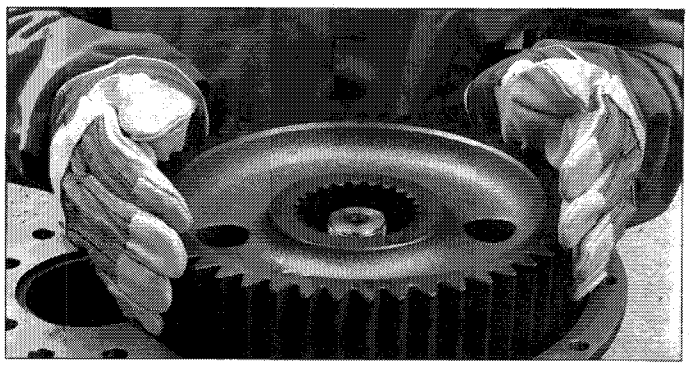
MONTAGGIO
ANELLO DI TENUTA A PARAPOLVERE.

EINBAU
STAUBABSTREIFRING.

MONTAGE
BAGUE D'ÉTANCHÉITÉ À PARE-POUSSIÈRE.

ASSEMBLY
DUST EXCLUDER



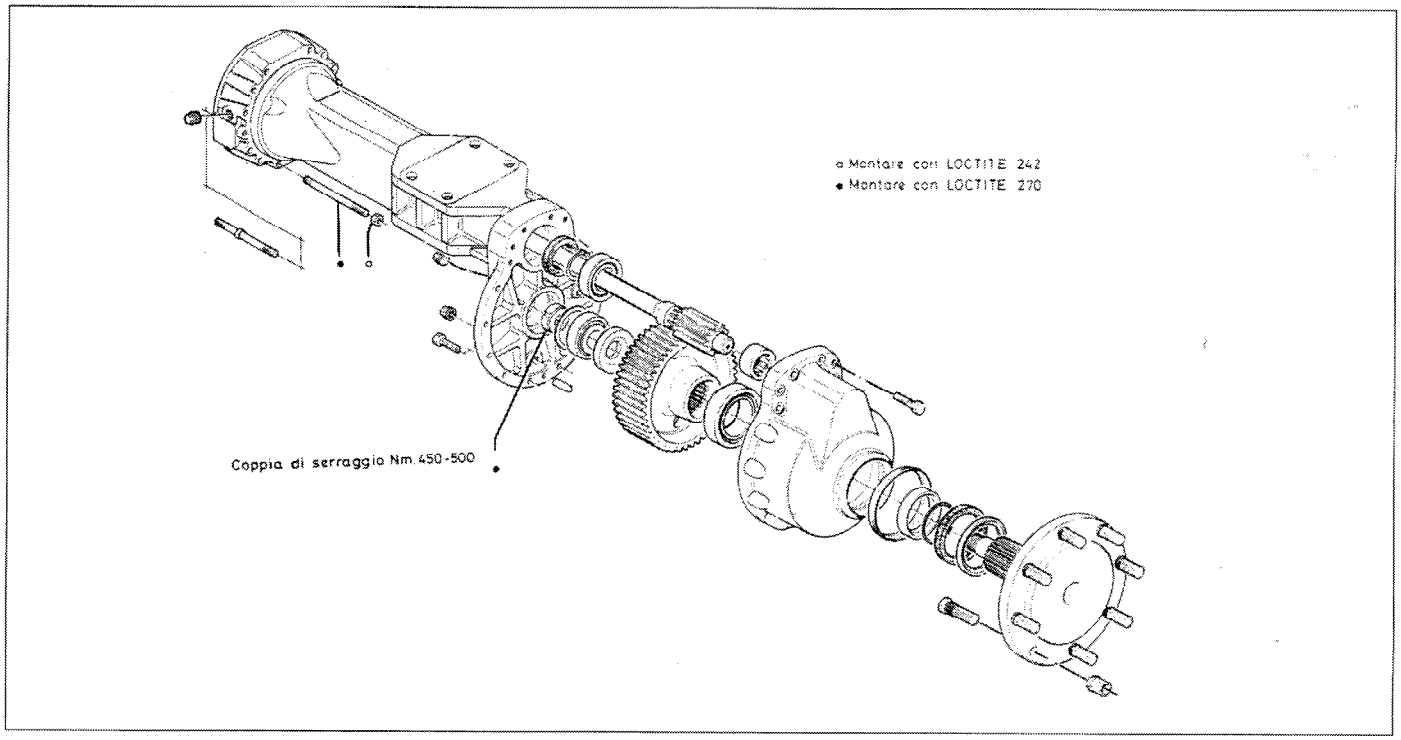


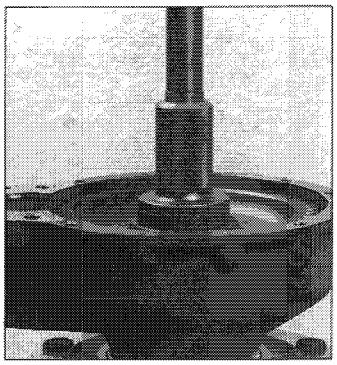
RISCALDARE L'INGRANAGGIO A 140°C PER IL MONTAGGIO.

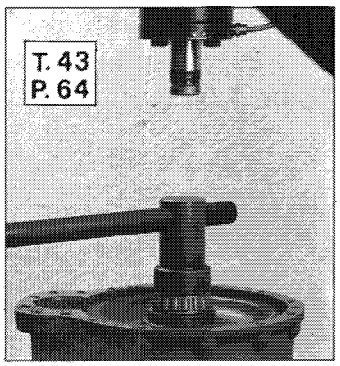
ZAHNRAD VOR DEM EINBAU AUF 140° C ERWÄRMEN.

POUR LE MONTAGE CHAUFFER L'ENGRENAGE À 140° C.

HEAT THE GEAR TO 140° C FOR ASSEMBLY.





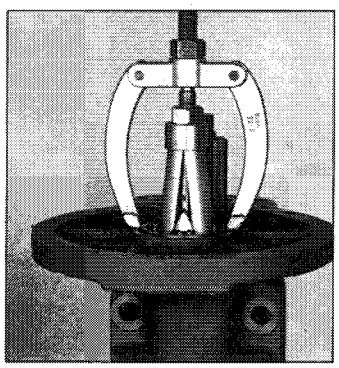


SERRARE LA GHIERA A 450÷500 Nm CON LOCTITE 270.

DIE NUTMUTTER MIT LOCTITE 270 UND 450÷500 Nm ANZIEHEN.

SERRER LA BAGUE À 450÷500 Nm AVEC DE LA LOCTITE 270.

TIGHTEN THE RING NUT AT 450÷500 Nm USING LOCTITE 270.

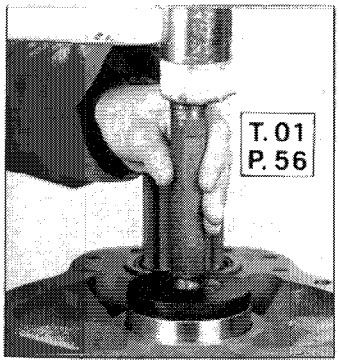


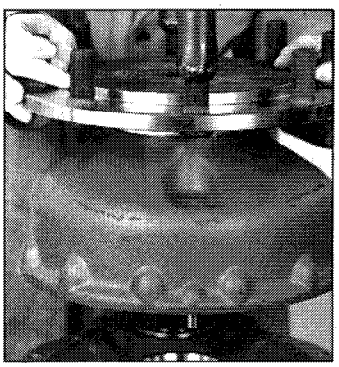
ASSEMBLAGGIO E REGISTRAZIONE
PREASSEMBLAGGIO CON GLI STESSI SPESSORI RISCONTRATI NELLO SMONTAGGIO O 0,80 mm DI SPESSORI.

ZUSAMMENBAU UND EINSTELLUNG
VORMONTAGE MIT DEN GLEICHEN PAßSCHEIBEN, DIE BEIM AUSBAU ANGEFALLEN SIND, ODER PAßSCHEIBEN VON 0,80 mm.

ASSEMBLAGE ET RÉGLAGE
PRÈASSEMBLER AVEC LES MEMES CALES DU DÉMONTAGE OU À 0,80 mm.

ASSEMBLY AND ADJUSTMENT
PREASSEMBLY WITH THE SAME SHIMS AS THOSE REMOVED DURING DISASSEMBLY, OR WITH 0,08 mm SHIMS.



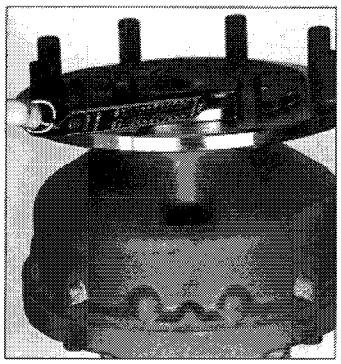


VERIFICARE LA COPIA DI ROTAZIONE APPLICATA TANGENZIALMENTE ALLE COLONNETTE CHE DEVE ESSERE MAX DI 60 N TOTALE (CON ANELLO DI TENUTA).
PER CORREZIONI AGGIUNGERE O TOGLIERE SPESSORI CONSIDERANDO CHE UNA VARIAZIONE DI 0.05 mm, PROVOCA UNA VARIAZIONE DI ~20 N.

DAS DREHMOMENT PRÜFEN, DAS TANGENTIAL AUF DIE RAD BOLZEN EINWIRKT. ES DARF MAXIMAL INSGESAMT 60 N BETRAGEN (MIT DICHTUNGSRING).
FÜR KORREKTUREN PAßRINGE HINZUFÜGEN ODER HERAUSNEHMEN, WOBEI ZU BERUCKSICHTIGEN IST, DAß 0,05 mm CA. 20 N ENTSPRICHT.

VÉRIFIER LE COUPLE DE ROTATION APPLIQUÉ TANGENTIELLEMENT AUX GOUJONS QUI DOIT ETRE DE 60 N MAXI (AVEC BAGUE D'ÉTANCHÉITÉ).
POUR LES CORRECTIONS AJOUTER OU ENLEVER LES CALES EN CONSIDÉRANT QU'UNE VARIATION DE 0,05 mm PROVOQUE UNE VARIATION D'ENVIRON 20 N.

CHECK THE ROTATION TORQUE APPLIED TANGENTIALLY TO THE WHEEL STUDS, WHICH MUST BE MAX 60 N (WITH RING).
TO CORRECT, ADD OR REMOVE SHIMS CONSIDERING THAT A 0,05 mm VARIATION CAUSE A VARIATION OF ~ 20 N.

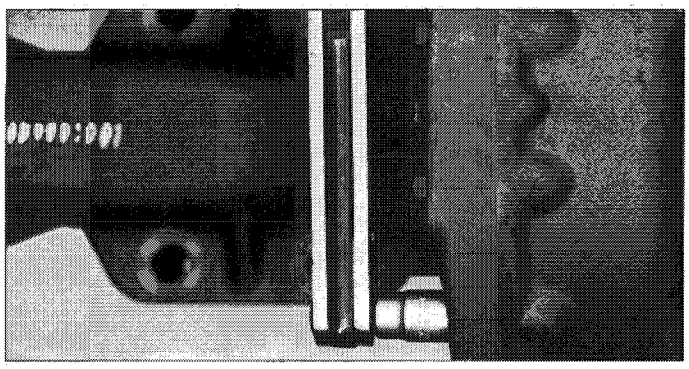


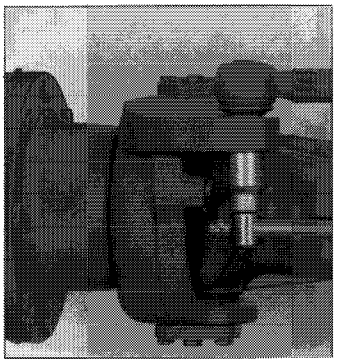
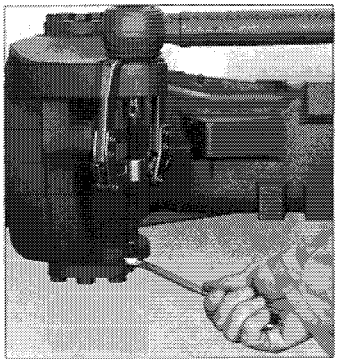
MONTARE DEFINITIVAMENTE CON SILICONE DOWCORNING TIPO Q3-7091.
SERRARE LE VITI CON CHIAVE DINAMOMETRICA A120÷123 Nm.

MIT SILIKON DOWCORNING TYP Q3-7091 ENDGÜLTIG MONTIEREN.
DIE SCHRAUBEN MIT EINEM DREHMOMENTENSCHLÜSSEL ANZIEHEN 120÷123 Nm.

MONTER DÉFINITIVEMENT AVEC DU SILICONE DOWCORNING TYPE Q3-7091.
SERRER LES VIS AVEC UNE CLÉ DYNAMOMÉTRIQUE 120÷123 Nm.

ASSEMBLY USING ONLY DOWCORNING SILICONE TYPE Q3-7091.
TIGHTEN THE SCREWS WITH A TORQUE WRENCH 120÷123 Nm.



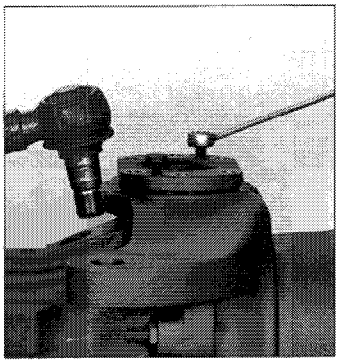
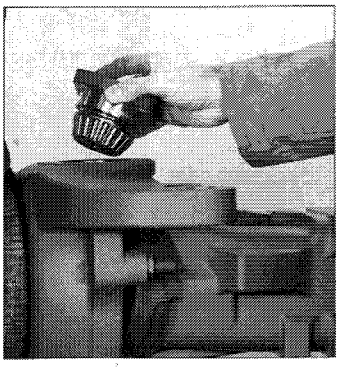



SMONTAGGIO SNODO.

AUSBAU DES GELENKES.

DEMONTAGE ARTICULATION.

DISASSEMBLY OF STEERING JOINT.

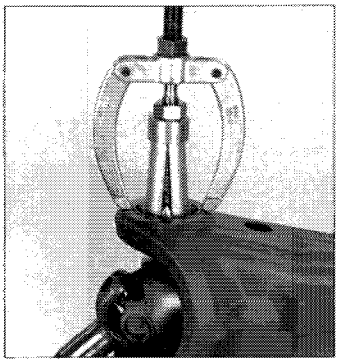
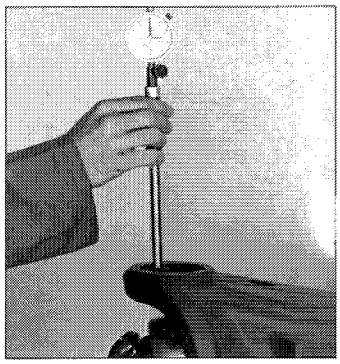



USARE I FORI FILETTATI NEL PERNO PER ESTRATTORE.

DIE GEWINDEBOHRUNGEN IM BOLZEN ZUM ABZIEHEN BENUTZEN.

UTILISER LES TROUS FILETÉS DANS L'AXE EN TANT QU' EXTRACTEUR.

USE THE THREADED HOLES IN THE PIN AS A PULLER.

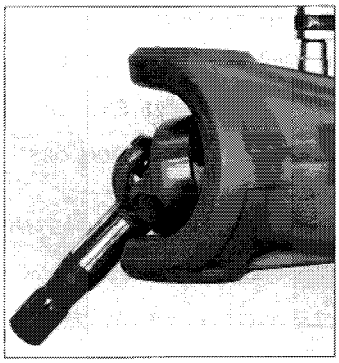
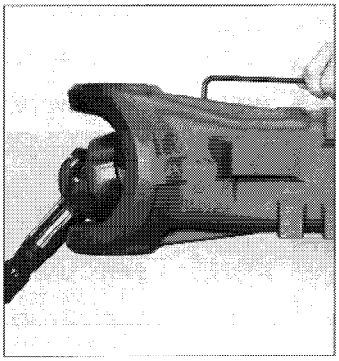



VERIFICARE CHE LE SEDI DELLE RALLE DEI CUSCINETTI A RULLI CONICI NON ABBIANO SUBITO DEFORMAZIONI.

PRÜFEN, DAß DIE LAUFFLÄCHEN DER KEGELROLLENLAGER NICHT VERFORMT SIND.

VÉRIFIER QUE LES LOGEMENTS DE LA CAGE DES ROULEMENTS À ROULEAUX CONIQUES NE SONT PAS DÉFORMÉS.

CHECK THE BEARING RACES FOR POSSIBLE DAMAGE.

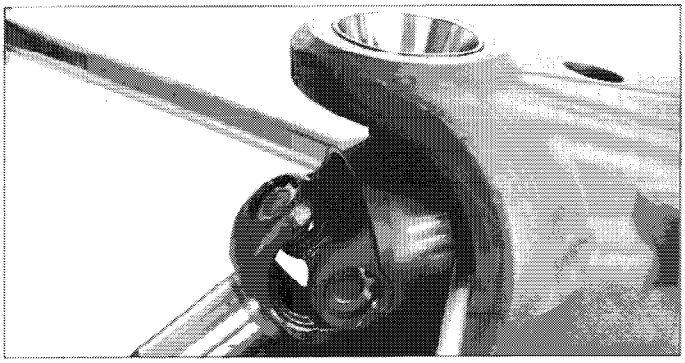



SMONTAGGIO DOPPIO GIUNTO CARDANICO.
TOGLIERE IL DADO E LA VITE DI FERMO.

AUSBAU DER DOPPELGELENKWELLE.
DIE MUTTER UND DIE ARRETIERSCHRAUBE ENTFERNEN.

DÉMONTAGE DU JOINT DE CARDAN DOUBLE.
ENLEVER L'ÉCROU ET LA VIS DE BLOCAGE.

REMOVE THE DOUBLE CARDAN JOINT.
REMOVE THE NUT AND THE STOP SCREW.



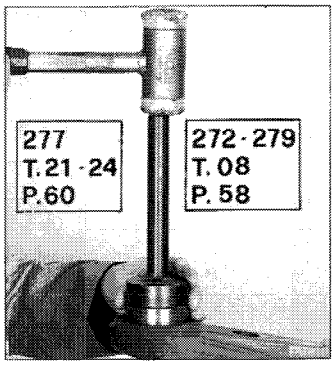
PRIMA DI SFILARE IL DOPPIO GIUNTO CARDANICO INSERIRE IL BLOCCO DIFFERENZIALE E BLOCCARE IL FRENO PER GARANTIRE CHE I DISCHI RIMANGANO IN POSIZIONE.

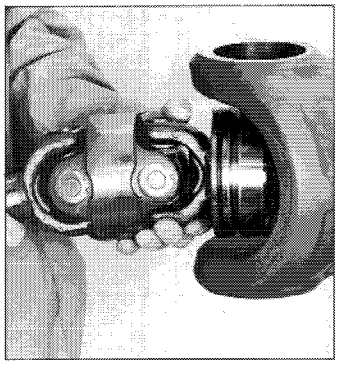
VOR DEM HERAUSZIEHEN DER DOPPELGELENKWELLE DIE DIFFERENTIALSPERRE EINSCHALTEN UND DIE BREMSE BLOCKIEREN, DAMIT DIE BREMSLAMELLEN NICHT VERRUTSCHEN.

AVANT D'EXTRAIRE LE JOINT DE CARDAN DOUBLE, INTRODUIRE LE BLOCAGE DU DIFFÉRENTIEL ET BLOQUER LE FREIN POUR QUE LES DISQUES RESTENT EN POSITION.

BEFORE REMOVING THE DOUBLE CARDAN JOINT LOCK THE DIFFERENTIAL AND THE BRAKE TO ENSURE THAT THE DISKS REMAIN IN POSITION.

MONTAGGIO SNODO 272-277-279/*MONTAGE DES GELENKES 272-277-279*
MONTAGE ARTICULATION 272-277-279/*ASSEMBLING ARTICULATION 272-277-279*



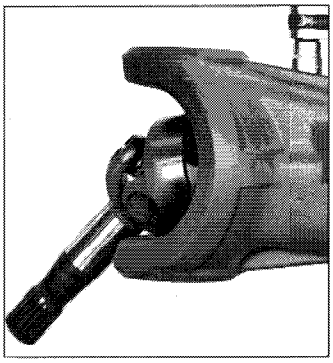


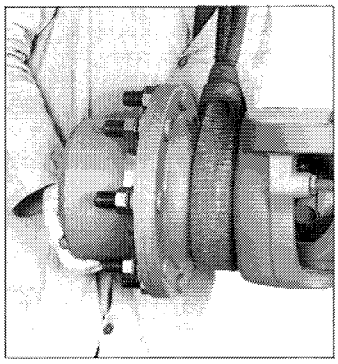
PIANTAGGIO RALLA ESTERNA CUSCINETTO A RULLI CONICI.
INSERIMENTO DOPPIO GIUNTO CARDANICO.

EINSETZEN DER ÄUßEREN LAGERSCHALE DES KEGELROLLENLAGERS.
EINBAU DER DOPPELGELENKWELLE.

MONTAGE FORCÉ DE LA CAGE EXTERIEURE DU ROULEMENT À ROULEAUX CONIQUES.
INTRODUCTION DU JOINT DE CARDAN DOUBLE.

INSERT THE EXTERNAL BEARING RACE OF THE TAPER ROLLER BEARING.
INSERT THE DOUBLE CARDAN JOINT.



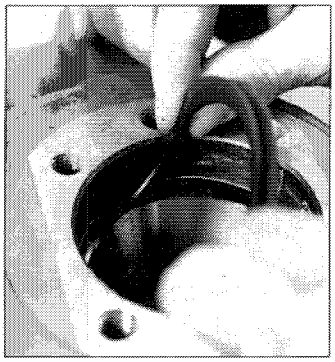


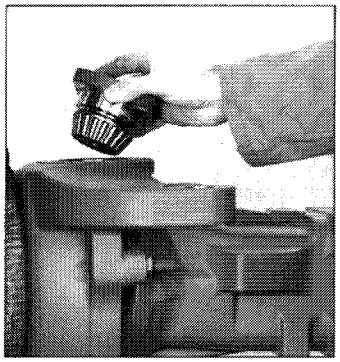
SERRARE IL CONTRODADO CON CHIAVE DINAMOMETRICA A 86 Nm.

DIE GEGENMUTTER MIT EINEM DREHMOMENTENSCHLÜSSEL MIT 86 Nm ANZIEHEN.

SERRER LE CONTRE-ÉCROU AVEC UNE CLÉ DYNAMOMÉTRIQUE A 86 Nm.

TIGHTEN THE LOCK NUT AT 86 Nm USING A TORQUE WRENCH.



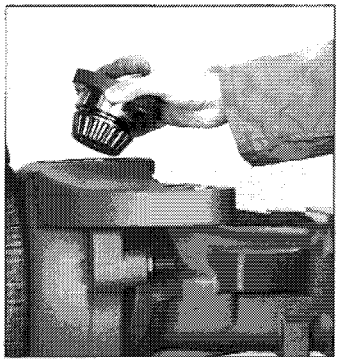


MONTAGGIO ANELLO ACLA RING NEL TIPO 272 - 279.

MONTAGE DES ACLA RING ES IM TYP 272 - 279.

MONTAGE DE L'ANNEAU ACLARING DANS LES PONTS 272 - 279.

ASSEMBLY OF ACLA RING TYPE 272 - 279.

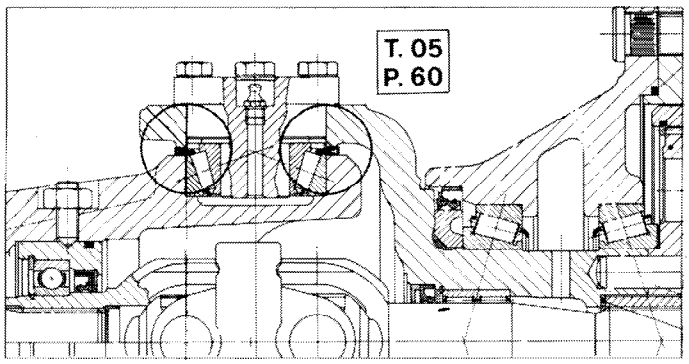


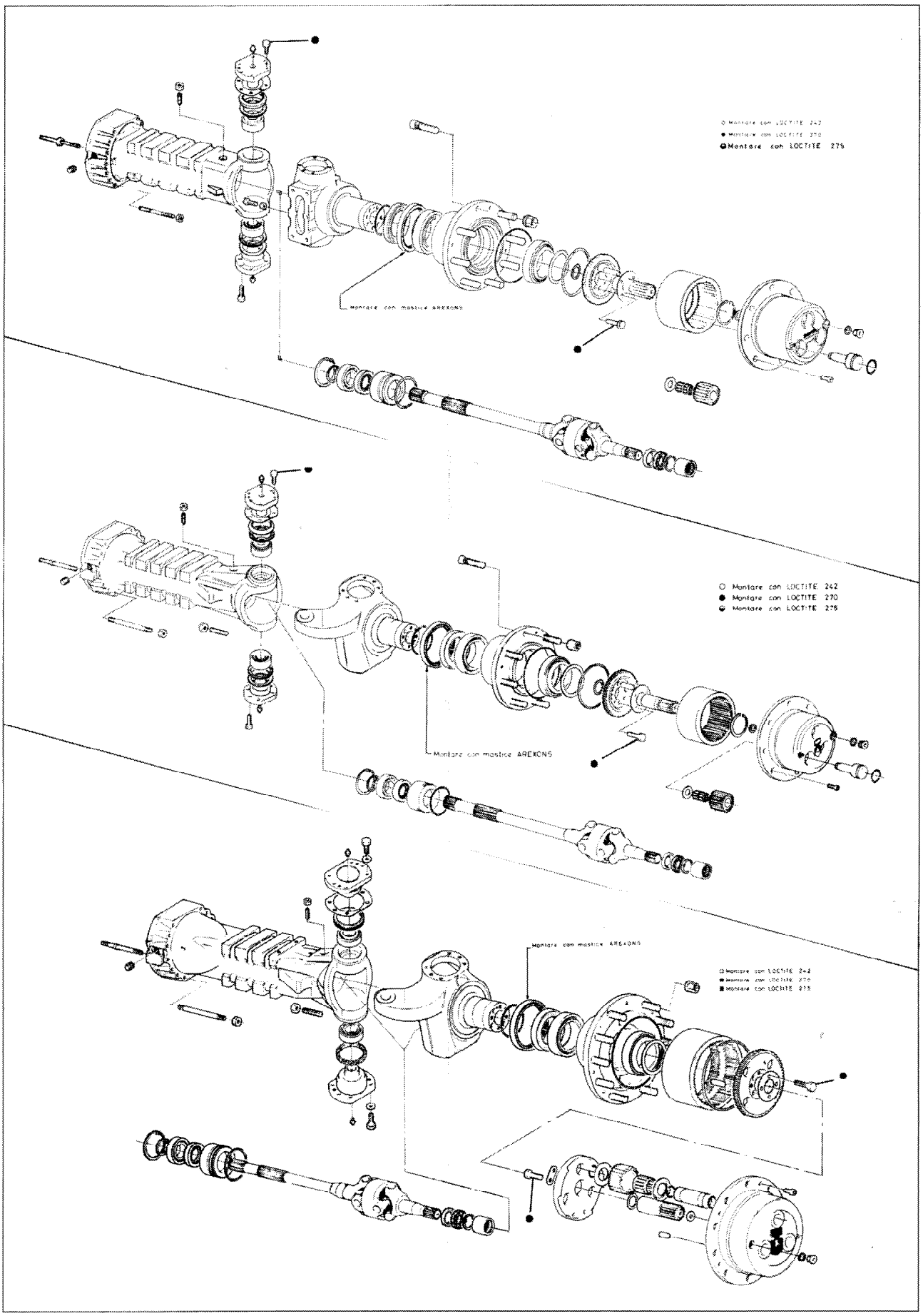
MONTAGGIO ANELLO NEL TIPO 277.

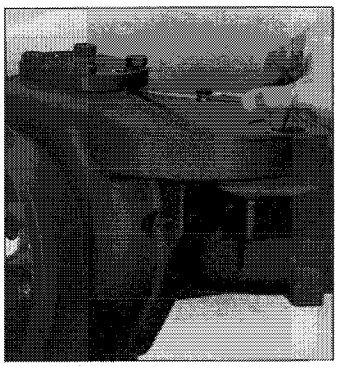
MONTAGE VON RING IM TYP 277.

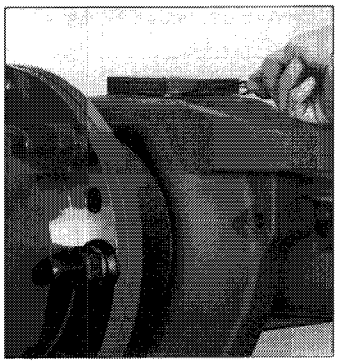
MONTAGE ANNEAU DANS LES PONTS 277.

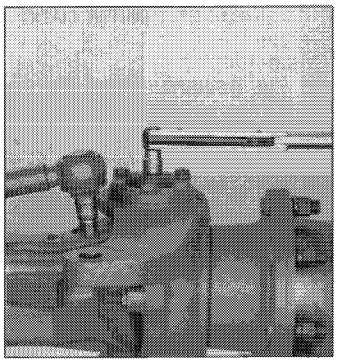
ASSEMBLY OF RING TYPE 277.

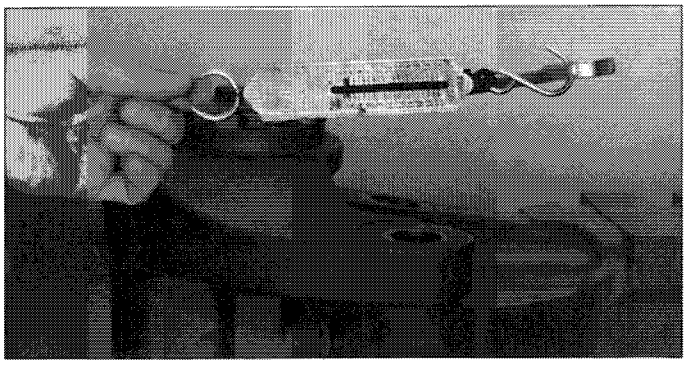



Montare con LOCTITE 275
Montare con mastice AREXONS
Montare con LOCTITE 242
Montare con LOCTITE 270
Montare con LOCTITE 275
Montare con mastice AREXONS
Montare con mastice AREXONS









DETERMINAZIONE DEL PRECARICO DEI CUSCINETTI A RULLI CONICI.

FESTLEGUNG DER VORSPANNUNG DER KEGELROLLENLAGER.

DÉTERMINATION DE LA PRÉCHARGE DES ROULEMENTS À ROULEAUX CONIQUES.

TAPER ROLLER BEARING PRELOAD CALCULATION.

VERIFICA DELLA COPPIA DI ROTAZIONE
TIPO 272 - 279 15÷17 Nm
TIPO 277 21÷23 Nm.

PRÜFUNG DES DREHMOMENTES
TYPE 272 - 279 15÷ 17 Nm
TYPE 277 21÷23 Nm.

VÉRIFICATION DU COUPLE DE ROTATION
TYPE 272 - 279 15 À 17 Nm
TYPE 277 21 À 23 Nm.

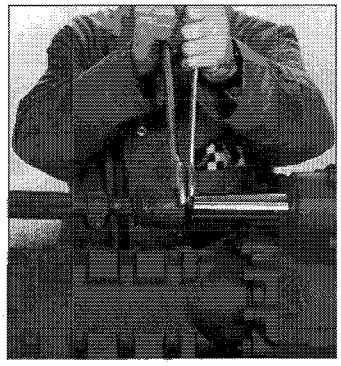
CHECK THE ROTATION TORQUE
TYPE 272 - 279 15-17 Nm
TYPE 277 21-23 Nm.

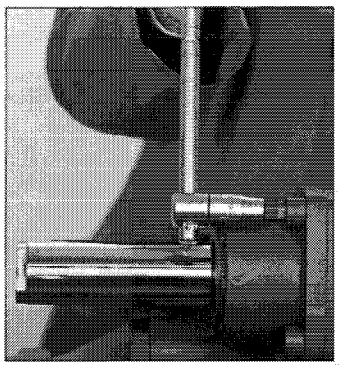
SERRARE LE VITI CON CHIAVE DINAMOMETRICA
TIPO 272 - 279 120÷123 Nm
TIPO 277 190÷193 Nm.

DIE SCHRAUBEN MIT DEM DREHMOMENTENSCHLÜSSEL ANZIEHEN
TYPE 272 - 279 120÷123 Nm
TYPE 277 190÷193 Nm.

SERRER LES VIS A L'AIDE D'UNE CLÉ DYNAMOMETRIQUE
TYPE 272 - 279 120 À 123 Nm
TYPE 277 190 À 193 Nm.

TIGHTEN THE SCREWS WITH A TORQUE WRENCH
TYPE 272 - 279 120-123 Nm
TYPE 277 190-193 Nm.



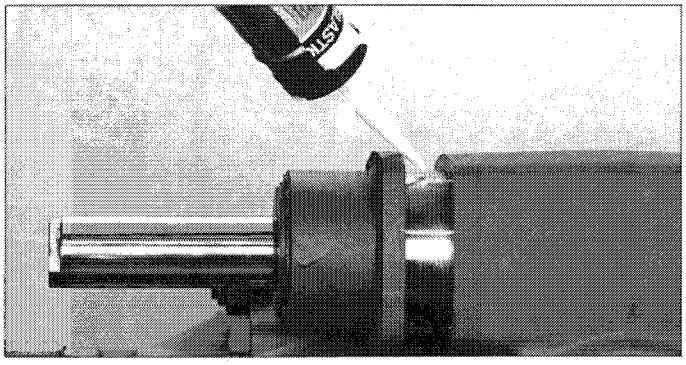


SMONTAGGIO CILINDRO STERZO DAL PONTE.

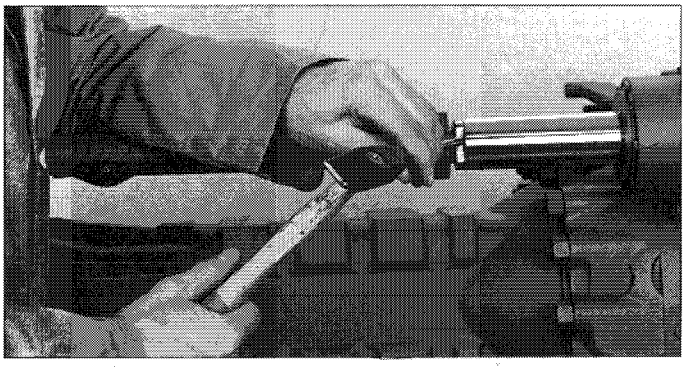
DEN LENKZYLINDER VON DER ACHSE AUSBAUEN.

DÉMONTAGE DU CYLINDRE DE DIRECTION DU PONT.

REMOVING THE STEERING CYLINDER FROM THE AXLE.



MONTAGGIO
ESEGUIRE LE OPERAZIONI DESCRITTE SOPRA IN SENSO INVERSO.
USARE SILICONE.
EINBAU
DEN OBEN BESCHRIEBENEN VORGANG IN UMGEKEHRTER REIHENFOLGE DURCHFÜHREN SILIKON VERWENDEN
MONTAGE
EXÉCUTER LES OPÉRATIONS DÉCRITES CI-DESSUS EN SENS INVERSE.
UTILISER DU SILICONE.
ASSEMBLY
CARRY OUT THE ABOVE OPERATIONS IN REVERSE ORDER.
USE SILICONE.

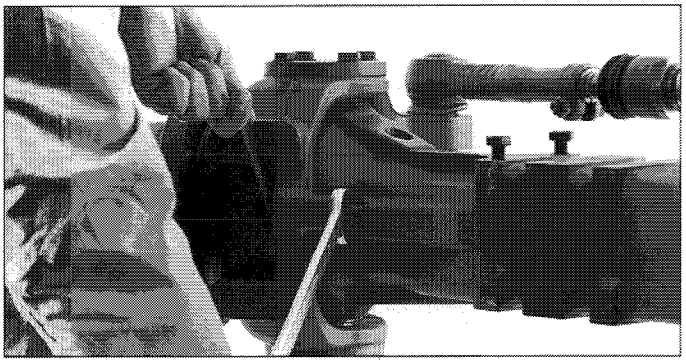


CIANFRINARE.

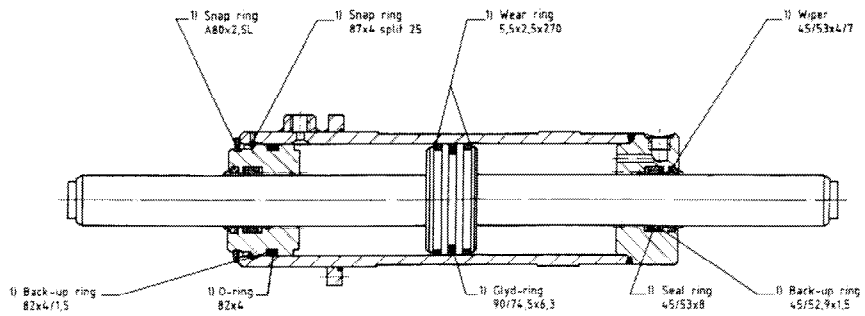
ANSTAUCHEN.

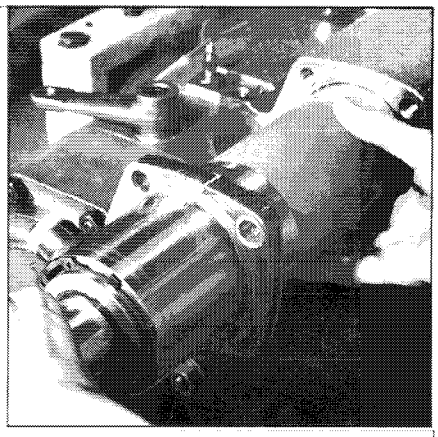
CHANFREINER.

CAULK.



CILINDRO STERZO/*LENKZYLINDER*
VÉRIN DE DIRECTION/*STEERING CYLINDER*





ISTRUZIONI PER L'USO DEGLI ATTREZZI DI MANUTENZIONE DEL CILINDRO DIS. 279.24.620.01

Le guarnizioni tenuta stelo 45x53x8; anello anti-estrusione 45x52,9x1,5; o-ring 82x4, possono essere montate senza l'ausilio di alcuna attrezzatura.

Per montare la guarnizione tenuta pistone 90x74,5x6,3 procedere nel modo seguente.

Infilare l'attrezzo n° 400437 lungo l'asta dello stelo e farlo calzare sul pistone. La guarnizione tenuta pistone 90x74,5x6,3 è composta da due parti: un OR in gomma nitrilica e un pattino di tenuta.

Fare scorrere l'anello OR in gomma nitrilica sul tratto conico dell'attrezzo n° 400437 fino a farlo entrare nella propria sede. Procedere nello stesso modo con il pattino di tenuta. A questo punto la guarnizione tenuta pistone 30x74x6,3 è montata nella propria sede ma risulta dilatata rispetto alla sua forma originale e deve essere ricalibrata con l'attrezzo n° 400436 nel modo seguente.

Rimuovere l'attrezzo n° 400437, montare le due fascie guida 5,5x2,5x270 nelle proprie sedi, montare sul pistone l'attrezzo n° 400436 con il smusso di invito rivolto in avanti e lasciarlo montato sul pistone per 10-15 minuti dopo di che si può procedere al montaggio dello stelo sul corpo cilindro nel seguente modo.

Dopo aver montato le guarnizioni anello anti-estrusione 45x52,9x1,5; guarnizione tenuta stelo 45x53x8 e raschiatore 45/53x4,7 infilare l'attrezzo n° 400438 all'estremità dello stelo dopo averlo cosparso di un leggero strato di grasso sulle zone di contatto fra stelo e attrezzo stesso, per favorire l'adesione fra i due corpi.

Infilare il complesso stelo + attrezzo n° 400438 + attrezzo n° 400436 nel corpo cilindro. Il particolare n° 400436 viene espulso col primo movimento di scorrimento dello stelo nel corpo cilindro.

Lo stelo deve essere montato in modo tale che il pistone esca dal particolare n° 400436 dal lato opposto a quello dello smusso d'invito.

Sfilare ora il cono di montaggio n° 400438 dall'estremità stelo e infilarlo con le stesse modalità nell'estremità opposta. Dopo aver montato tutte le guarnizioni sulla testata infilare la stessa sullo stelo, farla scorrere all'interno del corpo cilindro, rimuovere l'attrezzo n° 400438 e applicare i seeger 87x4 e seeger A80x2,5L.

NOTA

Tutte le sedi delle guarnizioni devono essere ben pulite prima del montaggio e lubrificate con un leggero strato di olio.

Il montaggio delle guarnizioni è facilitato se le stesse vengono preriscaldate ad una temperatura di40-60 gradi mediante immersione in olio caldo o esposizione ad una lampada a raggi infrarossi.

ANLEITUNG ZUR BENUTZUNG DER WERKZEUGE ZUR WARTUNG DES ZYLINDERS ZEICHNUNG 279.24.620.01

Die Kolbenstangen dichtungen 45x53x8, der Sicherungsring 45x52,9x1,5 und der O-Ring 82x4 können allesamt ohne Zuhilfenahme von Werkzeugen montiert werden:

Zur Montage der Kolbendichtung 90x74,5x6,3 folgendermaßen vorgehen.

Das Werkzeug Nr. 400437 in Längsrichtung in die Kolbenstange einstecken, bis es ganz in den Kolben einrastet. Die Kolbendichtung 90x74,5x6,3 besteht aus zwei Teilen: ein O-Ring aus Nitrilgummi und ein Abdichtungsgleitschuh.

Den O-Ring aus Nitrilgummi auf dem kegelförmigen Abschnitt des Werkzeugs Nr. 400437 gleiten lassen, bis er in seinen Sitz eintritt. Mit dem Abdichtungsgleitschuh gleichermaßen vorgehen. Nun ist die Kolbendichtung 30x74x6,3 in ihrem Sitz angebracht, aber sie ist im Bezug zu ihrer ursprünglichen Form ausgedehnt und muß daher mit Werkzeug Nr. 400436 wie folgt bearbeitet werden, um ihre Form wiederzuerlangen.

Das Werkzeug Nr. 400437 entfernen und die beiden Führungsbänder 5,5x2,5x270 in ihren Sitz montieren. Das Werkzeug Nr. 400436 mit der Aschrägung nach vorne zeigend auf den Kolben montieren und 10-15 Minuten lang auf dem Kolben sitzen lassen. Danach kann Kolbenstangen folgendermaßen auf den Zylinderkörper montiert werden die Kolbenstange

Nachdem die Dichtungsringe 45x52,9x1,5, die Kolbenstangendichtung 45x53x8 und der Olabstreifer 45/53x4,7 montiert worden sind, das Werkzeug Nr. 400438 auf die Kolbenstangen stecken, nachdem man die Stelle, wo Kolbenstange und Werkzeug sich berühren, leicht ein gefettet worden sind, damit die Teile besser zusammenhaften.

Die Gruppe Kolbenstange + Werkzeug Nr. 400438 + Werkzeug Nr. 400436 in den Zylinderkörper einführen. Das Teil Nr. 400436 wird mit der ersten Gleitbewegung der Kolbenstange im Zylinder ausgestoßen.

Die Kolbenstange muß derartig montiert werden, daß der Kolben aus dem Teil Nr. 400436 auf der Seite austritt, die der Abschrägung entgegengesetzt ist.

Nun den Montagekonus Nr. 400438 aus der Kolbenstange herausziehen und nach den gleichen Modalitäten in das andere Ende einführen. Nachdem alle Dichtungen auf den Zylinderkopf montiert worden sind, diesen auf die Kolbenstangestecken und die Kolbenstange im Zylinder auf- und abgleiten lassen. Das Werkzeug Nr. 400438 entfernen und die Seegerringe 87x4 und A80x2,5L einsetzen.

ANMERKUNGEN

Die Dichtungssitze müssen vor dem Einbau der Dichtungen gründlich gesäubert und mit einer dünnen Ölschicht geschmiert werden.

Die Montage der Dichtungen kann dadurch erleichtert werden, indem man die Dichtungen durch Tauchen in 40-60° C warmes Öl oder unter einem Infrarotstrahler geschmeidig macht.

MODE D'EMPLOI DES OUTILS DE MAINTENANCE DU CYLINDRE PLAN N° 279.24.620.01

Les joints d'étanchéité de la tige 45x53x8; anneau antiextrusion 45x52,9x5; O-ring 82x4, peuvent être montés sans aucun outil.

Pour monter le joint d'étanchéité du piston 90x74,5x6,3 procéder de la manière suivante:

Enfiler l'outil n° 400437 le long de la tige et le faire buter contre le piston. Le joint d'étanchéité du piston 90x74,5x6,3 est composé de deux parties: un OR en caoutchouc au nitrile et un segment racleur.

Faire coulisser l'anneau OR sur la partie conique de l'outil n° 400437 jusqu'à ce qu'il rentre dans son logement.

Procéder de la même manière avec le segment racleur.

Le joint d'étanchéité du piston 30x74x6,3 est en place, mais dilaté par rapport à sa forme d'origine et doit être recalibré avec l'outil n° 400436 de la manière suivante.

Enlever l'outil n° 400437, monter les deux colliers de guidage 5,5x2,5x270 dans leurs logements, monter l'outil n° 400436 sur le piston avec le chanfrein d'amorce tourné vers l'avant et le laisser monté sur le piston pendant 10 à 15 minutes; après quoi procéder au montage de la tige sur le corps cylindre de la façon suivante.

Monter les joints: anneau anti-extrusion 45x53x8 et racleur 45/53x4,7, enfiler l'outil n° 400438 à l'extrémité de la tige après l'avoir enduit de graisse sur les zones de contact entre tige et outil, pour favoriser l'adhérence entre les deux corps.

Enfiler l'ensemble tige-outillage n° 400438 + outil n° 400436 dans le corps cylindre. L'outil 400436 est expulsé avec le premier mouvement de coulissement du cylindre dans le corps.

La tige doit être montée de manière à ce que l'outil n° 400436 sorte du côté opposé au chanfrein d'amorce.

Ensuite oter le cône de montage n° 400438 et l'enfiler suivant les même modalités dans l'extrémité opposée.

Après avoir monté tous les joints sur la tête, l'enfiler sur la tige et la faire coulisser à l'intérieur du corps cylindre.

Déposer l'outil n° 400438 et appliquer les circlips 87x1 et circlips A80x2,5L.

NOTA

Tous les logements des joints doivent être propres avant montage et lubrifiés avec une mince couche d'huile.

Le montage des joints est facilité par leur préchauffage à une température de 40-60° degrés par immersion dans de l'huile chaude ou exposition à une lampe à rayons infrarouges.

HOW TO USE THE CYLINDER SERVICING TOOLS DRWG 279.24.620.01

45x53x8 piston rod seals, 45x52,9x1,5 anti-extrusion ring, 82x4 O-Ring can be mounted without the aid of tools.

Proceed in the following way to mount the 90x74,5x6,3 piston seal:

Insert tool N° 400437 along the piston rod and allow it to fit on the piston. The 90x74,5x6,3 piston seal consists of two parts: an O-Ring in nitrile rubber and a retention pad.

Allow the nitrile rubber O-Ring to slide along the tapered part of tool N° 400437 until it fits into its housing.

Proceed in the same way with the retention pad. The 30x74x6,3 piston seal will now be mounted in its housing, but its original shape will have expanded. It must be recalibrated with tool N° 400436 in the following way:

Remove tool N° 400437, mount the two 5,5x2,5x270 guide rings in their seats. Mount tool N° 400436 on the piston with the chamfer pointing forwards and leave it mounted on the piston for 10-15 minutes. After this, assemble the piston rod on the cylinder body in the following way.

After having mounted the 45x52,9x1,5 anti-extrusion ring seals, 45x53x8 piston rod seal and 45/53x4,7 scraper, insert tool N° 400438 on the end of the piston rod after having spread it with a light film of grease on the contact area between the piston rod and the tool itself. This will improve the adhesion a between the two parts.

Insert the piston rod + tool N° 400438 N° 400436 into the cylinder body. Part. N° 400436 will be pushed out immeditely after the piston rod slides in the cylinder.

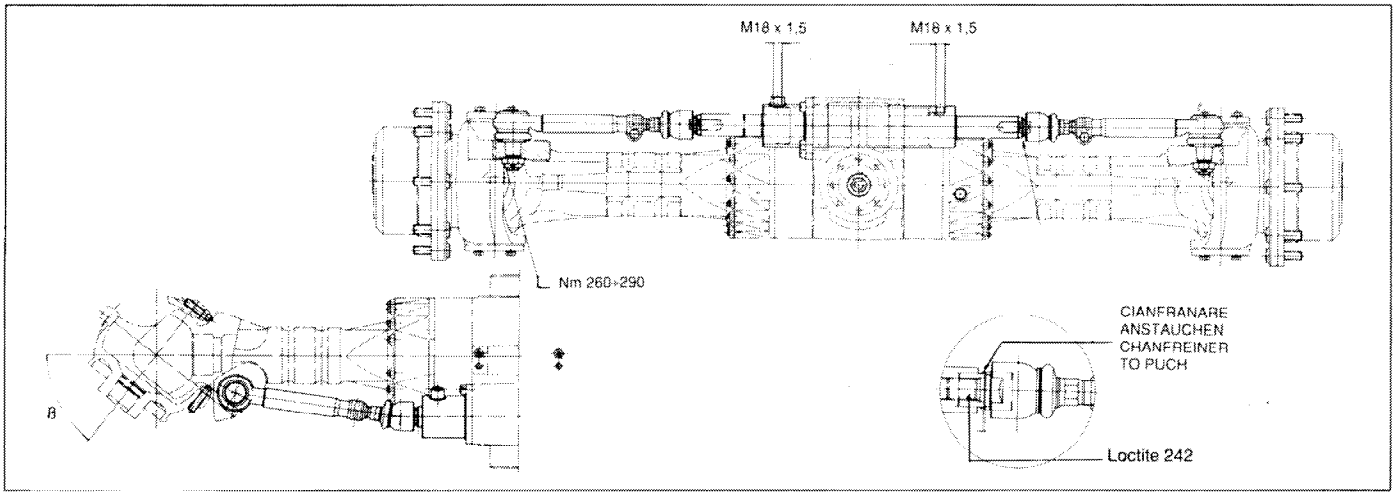
The piston rod must be mounted so that the piston comes out from part N° 400436 on the side opposite the chamfer.

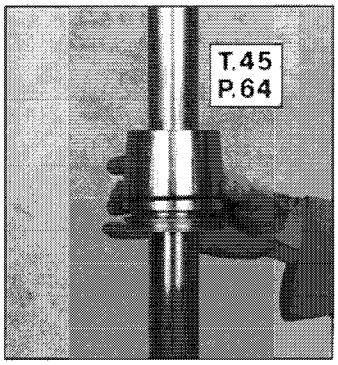
Now remove assembly cone N° 400438 from the piston rod and and insert it into the opposite end in the same way. After having mounted all the seals on to the head, fit this on to the piston rod, allow it to slide inside the cylinder, remove tool N° 400438 and apply thecirclips 87x4 and A80x2,5L.

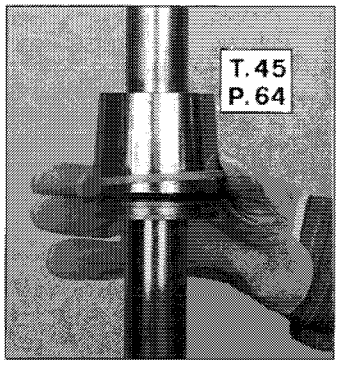
NOTE

All the seal seats must be thoroughly cleaned before assembly and lubricated with a light film of oil.

Seal assembly will be facilitated if the seals are preheated to a temperature of 40-60 celsius degrees by immersing them in oil or exposing them to an infrared lamp.





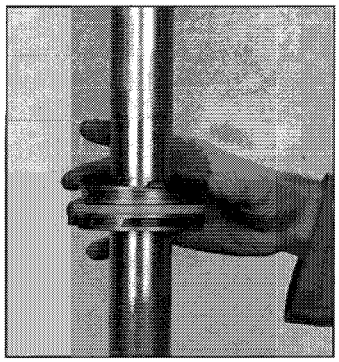


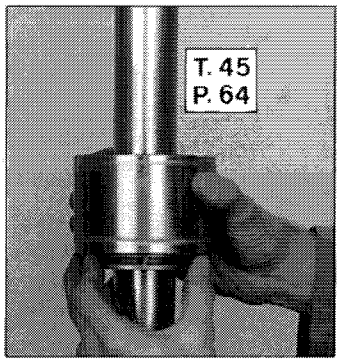
SOSTITUZIONE DEGLI ANELLI DI TENUTA
PER LO SMONTAGGIO ESEGUIRE IN SENSO INVERSO LE OPERAZIONI DI MONTAGGIO SENZA USARE GLI ATTREZZI SPECIALI.

DICHTUNGSRINGE ERSETZEN
DEN AUSBAU AUSFÜHREN IN UMGEKEHRTER REIHENFOLGE, OHNE VERWENDUNG DER SONDERWERKZEUGE.

REMPLACEMENT DES BAGUES D'ÉTANCHÉITÉ
POUR LE DÉMONTAGE EXÉCUTER EN SENS INVERSE LES OPÉRATIONS DE MONTAGE SANS UTILISER LES OUTILS SPECIAUX.

REPLACING THE LIP SEALS
TO REMOVE, CARRY OUT THE ASSEMBLY OPERATIONS IN REVERSE ORDER WITHOUT USING SPECIAL TOOLS.



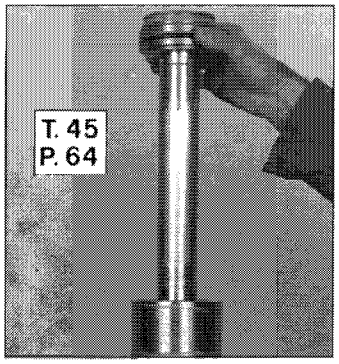


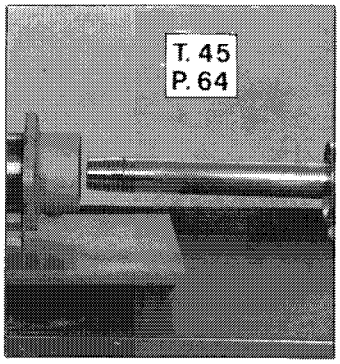
RISCALDARE GLI ANELLI CON OLIO A ~80÷90°C.
VEDI PAG. 28.

DIE RINGE IN CA. 80÷90° WARMEN ÖL ERWÄRMEN SEITE 28.

RÉCHAUFFER LES ANNEAUX AVEC DE L'HUILE À ENVIRON 80÷90° C
VOIR PAGE 28.

HEAT THE SEALS IN OIL TO ~ 80÷90° C SEE PAGE 28.



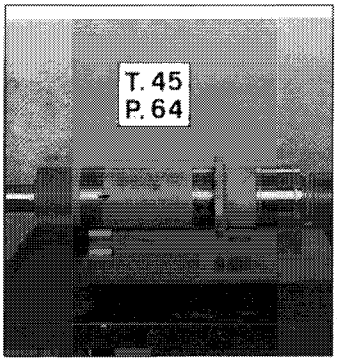


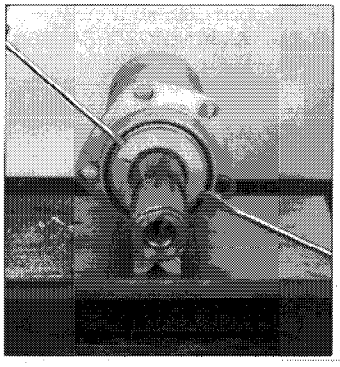
ASSEMBLARE IL CILINDRO DOPO AVERE SOSTITUITO TUTTI GLI ANELLI DI TENUTA.

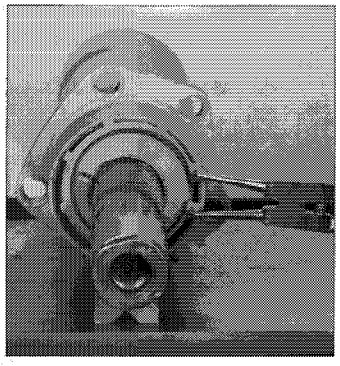
DEN ZYLINDER ZUSAMMENSETZEN NACHDEM ALLE DICHTUNGSRINGE ERSETZT WORDEN SIND.

ASSEMBLER LE CYLINDRE APRÈS AVOIR REMPLACÉ TOUTES LES BAGUES D'ÉTANCHÉITÉ.

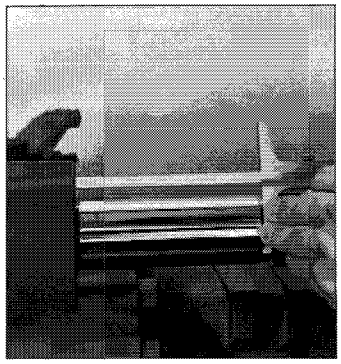
ASSEMBLE THE CYLINDER AFTER HAVING CHANGED ALL THE LIP SEALS.

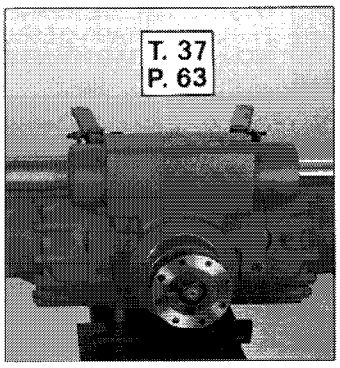


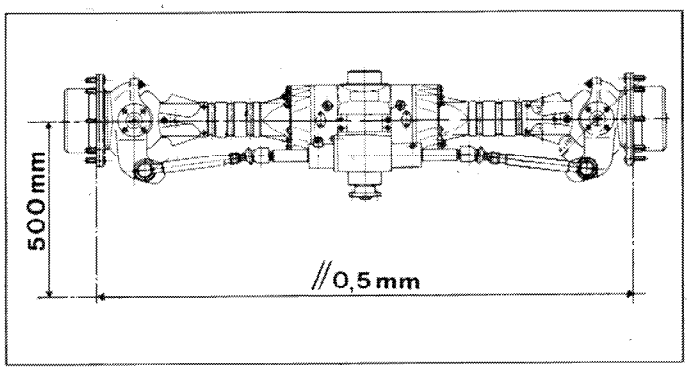




CILINDRO DI STERZO/*LENKZYLINDER*
CYLINDRE DE DIRECTION/*STEERING CYLINDER*





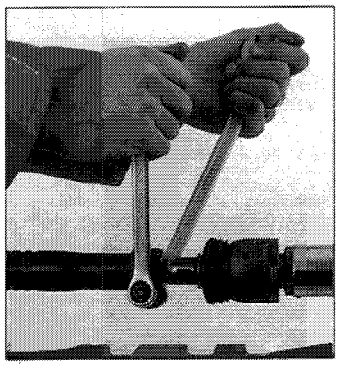


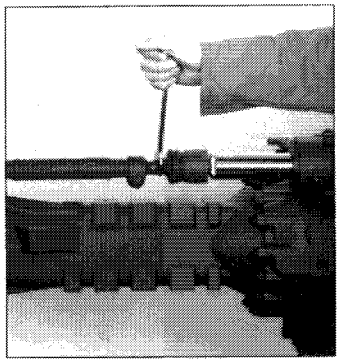
CONTROLLARE CHE LO STELO DEL CILINDRO STERZO SIA A METÀ CORSA VERIFICANDO LA QUOTA DA AMBO I LATI CON UN CALIBRO O CON DIMA.
VERIFICA DI PARALLELISMO TRA I DUE MOZZI AD UNA DISTANZA DI CIRCA 500 mm DAL CENTRO DEL MOZZO (ANTERIORMENTE E POSTERIORMENTE).

PRÜFEN, DAß DIE KOLBENSTANGE DES LENKZYLINDERS AUF HALBER HÖHE STEHT, UM DANN AUF BEIDEN SEITEN MIT EINER LEHRE ODER EINER SCHABLONE DEN WERT ZU MESSEN.
PARALLELITÄT ZWISCHEN DEN BEIDEN RADNABEN AUF ABSTAND VON CA 500 mm VON DER NABENMITTE ÜBERPRÜFEN (VORNE UND HINTEN).

CONTROLER QUE LA TIGE DU CYLINDRE SOIT À MI-COURSE EN VÉRIFIANT LA COTE DES DEUX COTÉS AVEC UN CALIBRE OU LE GABARIT PRÉVU À CET EFFET.
CONTROLE DU PARALLELISME ENTRE LES DEUX MOYEUX A UNE DISTANCE D'ENVIRON 500 mm DU CENTRE DU MOYEU (ANTERIEUR ET POSTERIEUR).

CHECK THAT THE STEERING CYLINDER PISTON ROD IS AT HALF TRAVEL BY MEASURING FROM BOTH SIDES WITH A GAUGE OR EQUIVALENT TEMPLATE.
CHECK PARALLELISM BETWEEN BOTH WHEEL HUBS AT APPROX. 500 mm FROM THE HUB CENTRE (FRONT AND REAR)



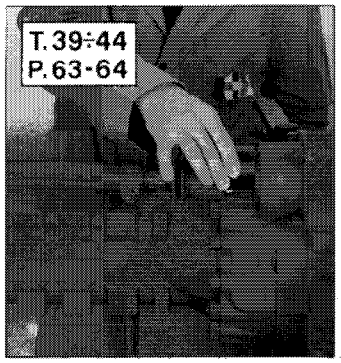


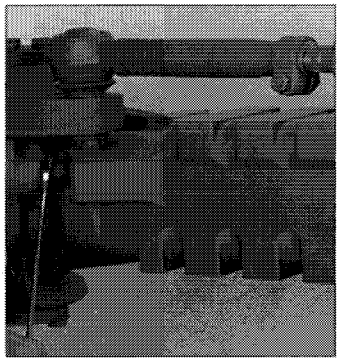
REGISTRAZIONE PARALLELISMO SERRAGGIO FASCETTE DI SICUREZZA.

EINSTELLUNG DER PARALLELITÄT DER BEFESTIGUNG DURCH DIE SICHERHEITSSCHELLEN.

REGLAGE DU PARALLÉLISME DU SERRAGE DES COLLIERS DE SÉCURITÉ.

ADJUSTING THE PARALLELISM TIGHTENINGS OF SAFETY CLAMPS.



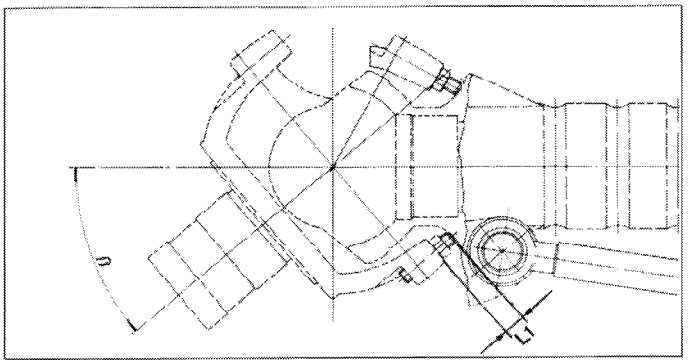


REGISTRAZIONE DELL'ANGOLO DI STERZATURA CON APPOSITA DIMA.

EINSTELLUNG DES LENKEINSCHLAGWINKELS MIT EINER SPEZIALSCHABLONE.

RÉGLAGE DE L'ANGLE DE BRAQUAGE AVEC UN OUTIL SPÉCIAL.

ADJUSTING THE STEERING ANGLE WITH THE RELATIVE TEMPLATE.



REGISTRAZIONE DELL'ANGOLO DI STERZO CON VITI FINE CORSA.

EINSTELLUNG DES LENKWINKELS MIT ANSCHLAGSCHRAUBEN.

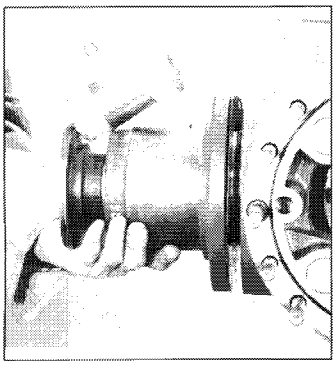
RÉGLAGE DE L'ANGLE DE BRAQUAGE AVEC VIS FINDE COURSE.

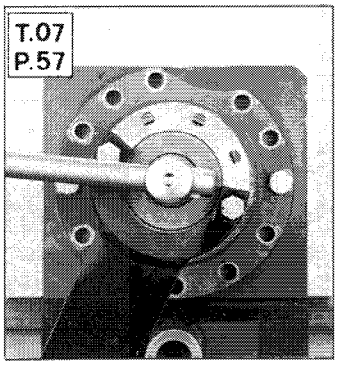
ADJUST THE STEERING ANGLE WITH END OF TRAVEL SCREWS.

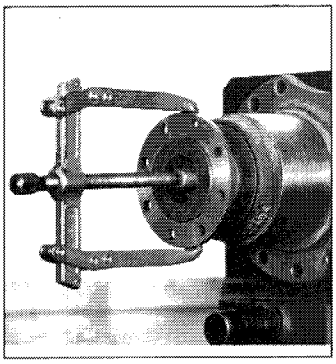
272	279
L1	β°
22 mm	40°
17 mm	50°

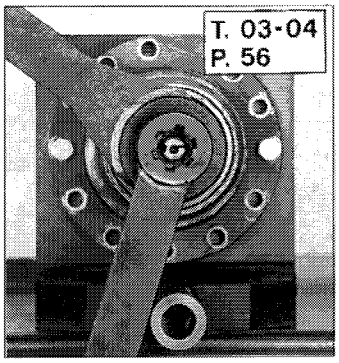
277	
L1	β°
18 mm	50°
22 mm	40°
32 mm	36°
46 mm	30°

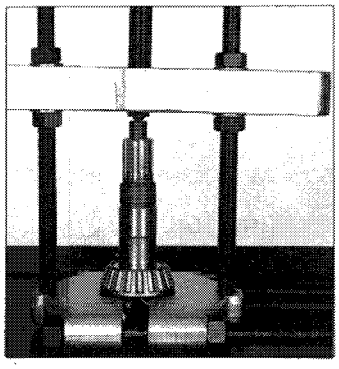
SUPPORTAZIONE PIGNONE CONICO/*KEGELRITZELLAGERUNG*
SUPPORT DU PIGNON CONIQUE/*BEVEL PINION SUPPORT*

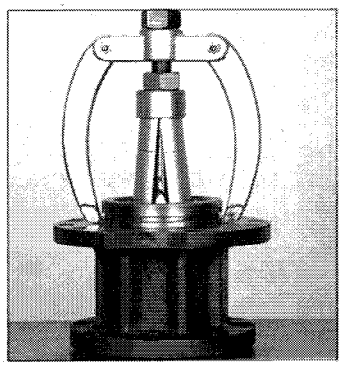










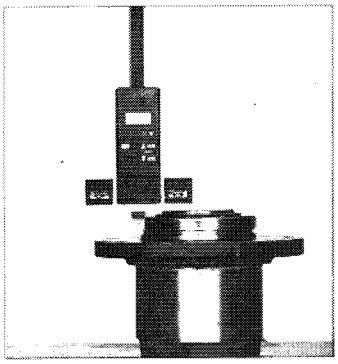


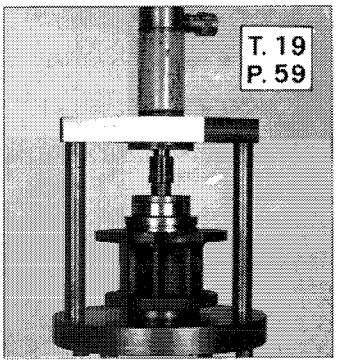
SMONTAGGIO SUPPORTAZIONE CONICA.

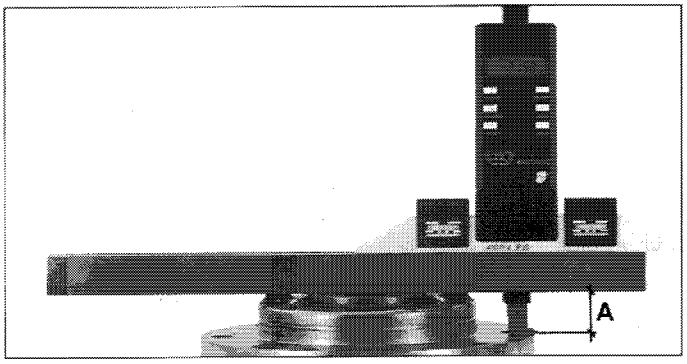
AUSBAU DER KEGELRITZELLAGERUNG.

DEMONTAGE SUPPORT COUPLE CONIQUE.

REMOVAL OF BEVEL PINION SUPPORT.







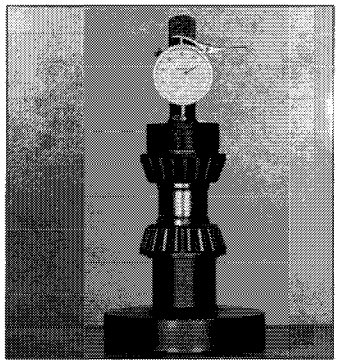
MONTAGGIO RALLE ESTERNE.
CUSCINETTI A RULLI CONICI.
VERIFICA QUOTA «A» DEL COPERCHIO.

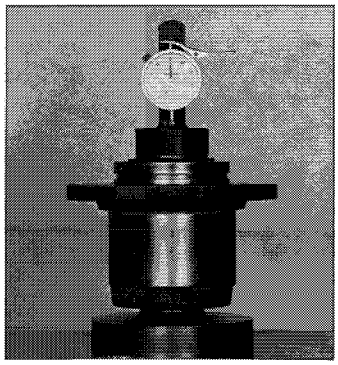
MONTAGE DER ÄUSSEREN LAGERSCHALE.
KEGELROLLENLAGER.
PRÜFUNG VON WERT «A» DES DECKELS.

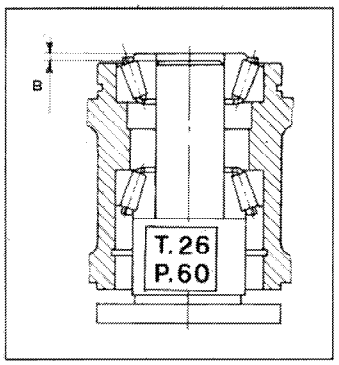
MONTAGE DES CAGES EXTÉRIEURES.
ROULEMENTS À ROULEAUX CONIQUES.
VÉRIFICATION DE LA COTE «A» DU COUVERCLE.

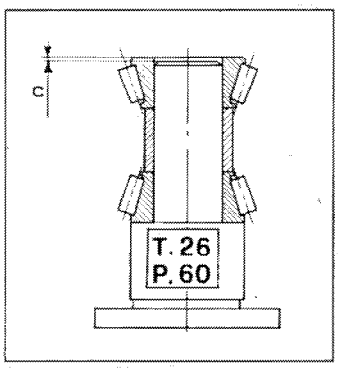
ASSEMBLE THE EXTERNAL RACES.
TAPER ROLLER BEARINGS.
CHECK COVER MEASUREMENT «A».

SUPPORTAZIONE PIGNONE CONICO/*KEGELRITZELLAGERUNG*
SUPPORT DU PIGNON CONIQUE/*BEVEL PINION SUPPORT*









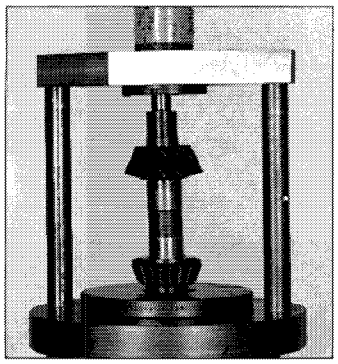
DETERMINAZIONE DEGLI SPESSORI S1 PER IL PRECARICO DEI CUSCINETTI A RULLI CONICI S1 = B - C + X
X = VALORE DA AGGIUNGERE PER OTTENERE IL PRECARICO CORRETTO DEI CUSCINETTI A RULLI CONICI.
ERMITTLUNG DES PASS-SCHEIBENPAKETES S1 FÜR DIE VORSPANNUNG DER KEGELROLLENLAGER S1 = B - C + X
X = HINZUZUFÜGENDER WERT UM DIE KORREKTE VORSPANNUNG DER KEGELROLLENLAGER ZU ERREICHEN.
DETERMINATION DES CALES S1 POUR LA PRECHARGE DES ROULEMENTS A ROULEAUX CONIQUES S1 = B - C + X
X = VALEUR A AJOUTER POUR OBTENIR LA PRECHARGE CORRECTE DES ROULEMENTS A ROULEAUX CONIQUES.
DETERMINATION OF SHIM PACK S1 FOR THE PRELOAD OF THE TAPER ROLLER BEARINGS S1 = B - C + X
X = VALUE TO ADD IN ORDER TO OBTAIN THE CORRECT PRELOAD OF THE TAPER ROLLER BEARINGS.

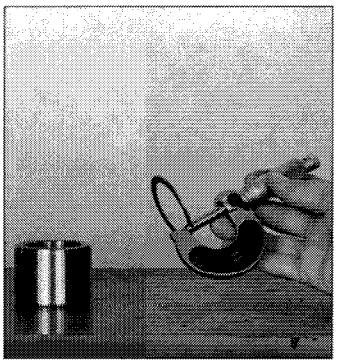
VALORE X VEDI PAG. 34.

WERT X= SEITE 34.

VALEUR X= VOIR PAGE 34.

VALUE X= SEE PAGE 34.



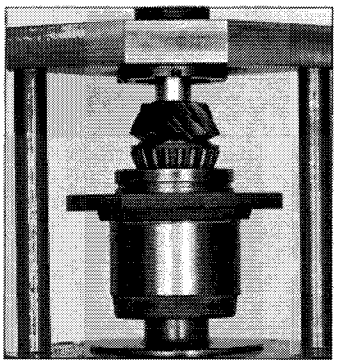


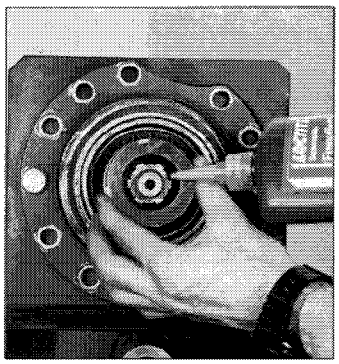
MONTAGGIO SUPPORTAZIONE PIGNONE CONICO E ANELLO DI TENUTA.

EINBAU DER KEGELRITZELLAGERUNG UND DES WELLENDICHTRINGES.

MONTAGE SUPPORT PIGNON CONIQUE ET JOINT D'ETANCHEITE.

ASSEMBLY OF BEVEL PINION SUPPORT AND SEAL.



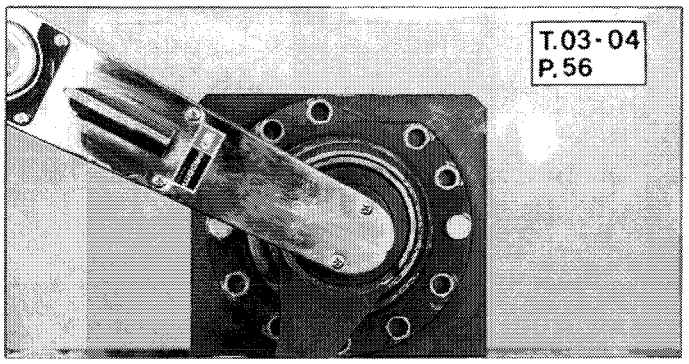


MONTAGGIO CON LOCTITE 242.

MONTAGE MIT LOCTITE 242.

MONTAGE AVEC DE LA LOCTITE 242.

ASSEMBLY WITH LOCTITE 242.

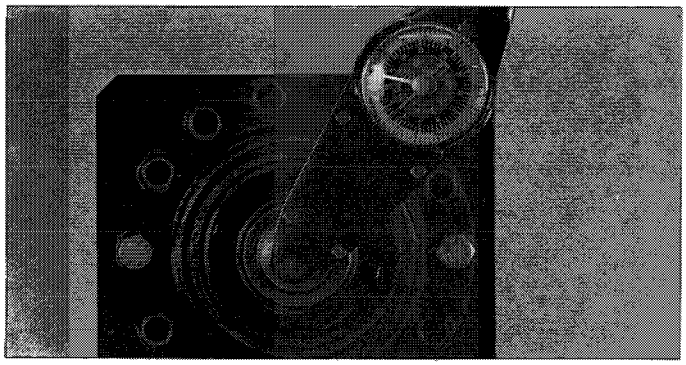


SERRAGGIO GHIERA CON CHIAVE DINAMOMETRICA VEDI PAGINA 34.

ANZIEHEN DER NUTMUTTER MIT DREHMOMENTENSCHLÜSSEL, VLG. LOSÜNG SEITE 34.

SERRAGE DE LA BAGUE AU MOYEN D'UNE CLÉ DYNAMOMETRIQUE; VOIR SOLUTION PAGE 34.

TIGHTEN THE RING NUT WITH A TORQUE WRENCH; SEE SOLUTION ON PAGE 34.



VERIFICA DELLA COPPIA DI ROTAZIONE.

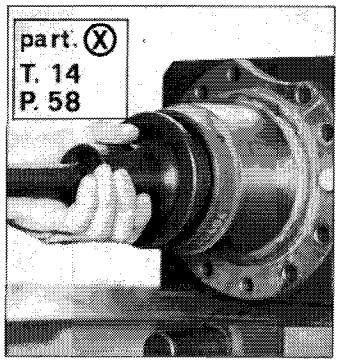
PRÜFUNG DES DREHMOMENTES.

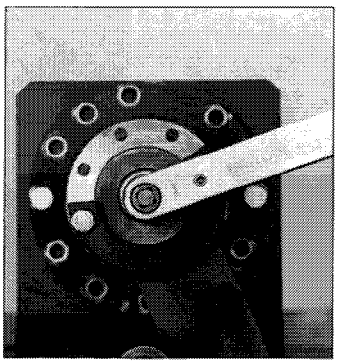
VÉRIFICATION DU COUPLE DE ROTATION.

CHECKING THE ROTATION TORQUE.

SOLUZIONE,LÖSUNG, SOLUTION, SOLUTION:

A 150÷200 Ncm
B 150÷200 Ncm
C 120÷170 Ncm
D 120÷170 Ncm



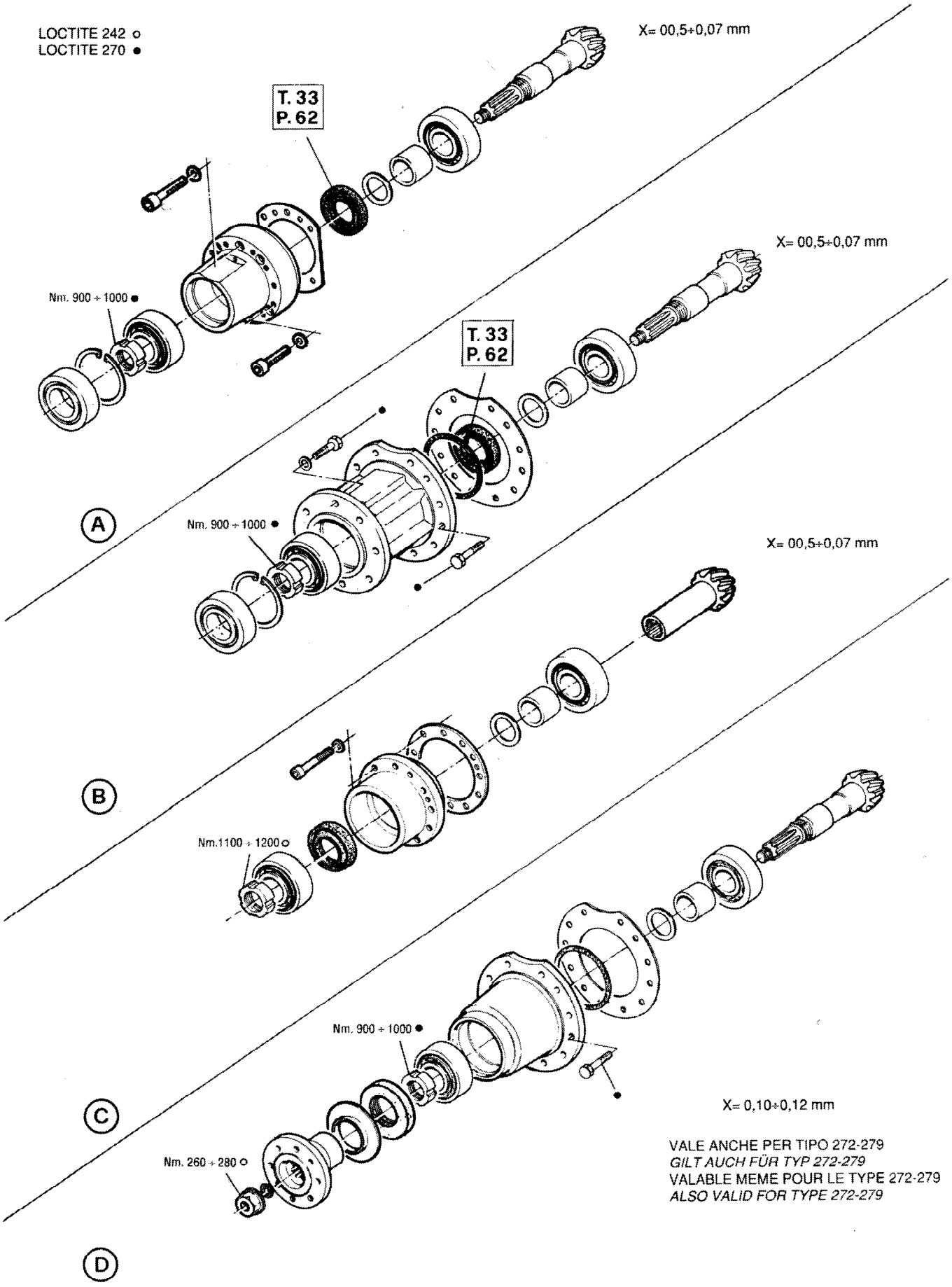


MONTAGGIO ANELLO DI TENUTA E SERRAGGIO DADO FLANGIA CON CHIAVE DINAMOMETRICA.

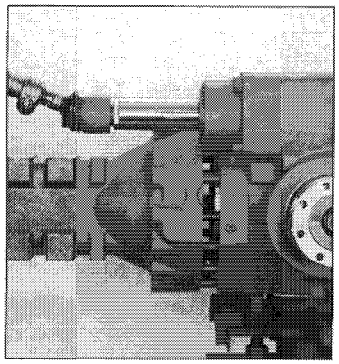
MONTAGE DES DICHTUNGSRINGES UND ANZIEHEN DER FLANSCHMUTTER MIT DREHMOMENTENSCHLÜSSEL.

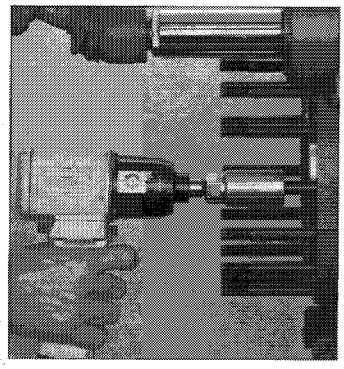
MONTAGE DE BAGUE D'ÉTANCHÉITÉ ET SERRAGE ÉCROU DE FLASQUE AVEC CLÉ DYNAMOMETRIQUE.

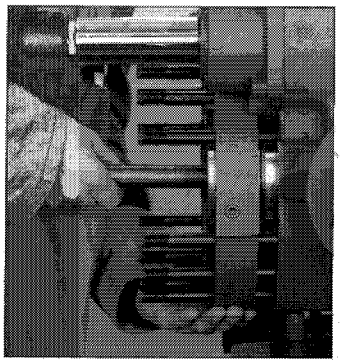
ASSEMBLY OF THE LIP SEAL AND TIGHTENING OF FLANGE NUT WITH A TORQUE WRENCH.

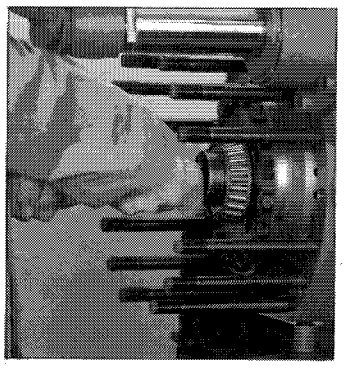


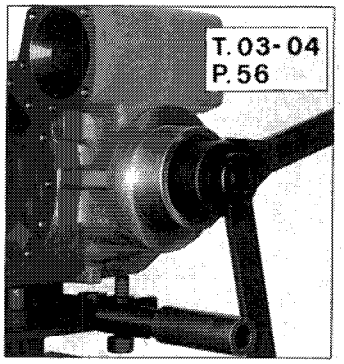
VALE ANCHE PER TIPO 272-279
GILT AUCH FÜR TYP 272-279
VALABLE MEME POUR LE TYPE 272-279
ALSO VALID FOR TYPE 272-279

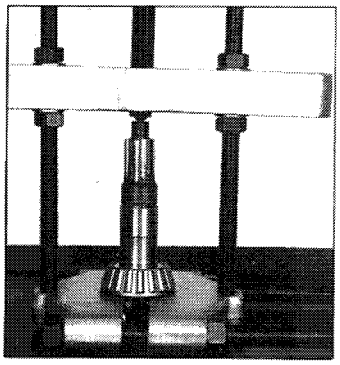












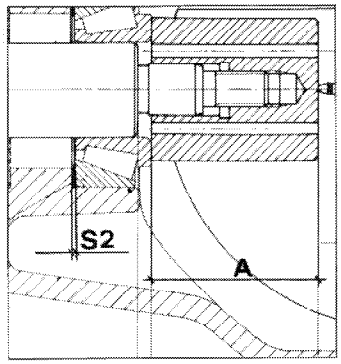
SMONTAGGIO:
FARE ATTENZIONE A NON DANNEGGIARE LE ZONE DI TENUTA DEGLI ANELLI «OR» DURANTE L'ESTRAZIONE DEL DIFFERENZIALE DALLA SCATOLA CENTRALE.

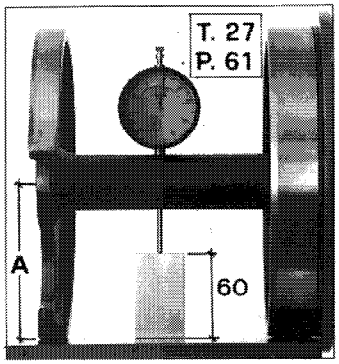
AUSBAU:
DARAUF ACHTEN, DASS DR DICHTUNGSBEREICH DER «O-RINGE» NICHT BESCHÄDIGT WIRD, WÄHREND MAN DAS DIFFERENTIAL AUS DEM ZENTRALEN GEHÄUSE ZIEHT.

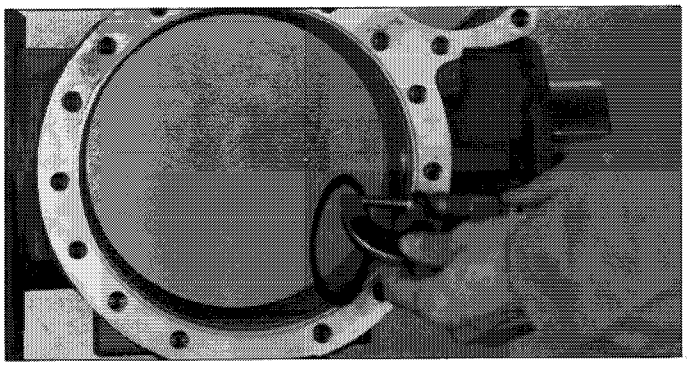
DÉMONTAGE:
FAITES ATTENTION A NE PAS ENDOMMAGER LES ZONES D'ETANCHEITE DES ANNEAUX «OR» PENDANT L'EXTRATION DU DIFFERENTIEL DE LA BOITE CENTRALE.

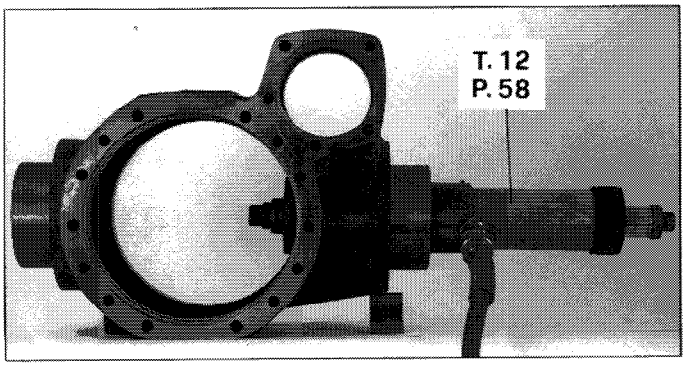
DISASSEMBLY:
TAKE CARE TO PREVENT DAMAGE TO THE RETENTION AREAS OF THE «OR» RINGS WHEN REMOVING THE DIFFERENTIAL GEAR FROM THE CENTRAL BOX.

SUPPORTAZIONE PIGNONE CONICO/*KEGELRITZELLAGERUNG*
SUPPORT DU PIGNON CONIQUE/*BEVEL PINION SUPPORT*









DETERMINAZIONE SPESSORI S2 PER IL POSIZIONAMENTO DEL PIGNONE CONICO. MONTARE LE RALLE ESTERNE SENZA SPESSORI. INSERIRE L'ATTREZZO E VERIFICARE DOPO AVERE AZZERATO IL COMPARATORE SU DI UN PIANO DI RISCONTRO. LA DIFFERENZA RILEVATA CORRISPONDE A S2. SMONTARE LA RALLA ESTERNA DEL CUSCINETTO CONICO, INSERIRE IL PACCO DEGLI SPESSORI E RIMONTARE LA RALLA DEFINITIVAMENTE.

ERMITTLUNG DES PASS-SCHEIBENPAKETES S2 FUER DIE EINSTELLUNG DER KEGELRITZELLAGERUNG. AUSSENRINGE OHNE PASS-SCHEIBEN EINSETZEN. NACHDEM DAS MESSINSTRUMENT AUF NULL EINGESTELLT WURDE, DAS WERKZEUG EINSETZEN UND MESSEN. DAS MASS S2 ERGIBT SICH AUS DER DIFFERENZ. AUSSENRING AUSBAUEN, PASS-SCHEIBEN EINSETZEN UND AUSSENRING ENDGÜLTIG EINBAUEN.

DETERMINATION S2 POUR LE POSITIONNEMENT DU PIGNON CONIQUE. MONTER LES CAGE EXTERNE SANS CALES. INSERER L'OUTIL ET VERIFIER APRES AVOIR MIS A ZERO LE COMPARATEUR SUR UN MARBRE DE CONTROLE. LA DIFFERENCE RELEVEE CORRESPOND A S2. DEMONTER LA CAGE EXTERNE DU ROULEMENT CONIQUE, INSERER LE PAQUET DES CALES ET REMONTER LA CAGE DEFINITIVEMENTE.

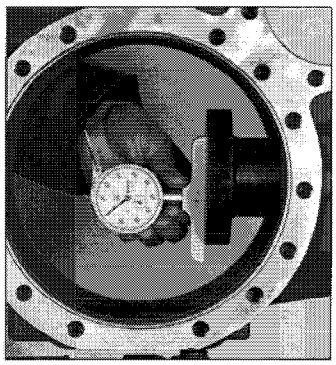
DETERMINATION OF SHIM PACK S2 FOR ADJUSTEMENT OF BEVEL PINION POSITION. ASSEMBLING OF OUTER RACES WITHOUT SHIMS. INSERT TOOL AND VERIFY AFTER HAVING SET TO ZERO THE GAUGE ON A SURFACE PLATE. THE DIFFERENCE IS S2. REMOVE OUTER RACE OF TAPER ROLLER BEARING, INSERT SHIMS AND REASSEMBLE THE OUTER RACE DEFINITIVELY.

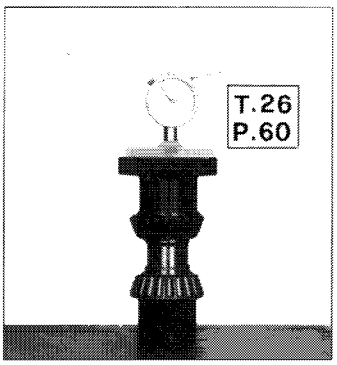
MONTAGGIO RALLE ESTERNE CUSCINETTI A RULLI CONICI.

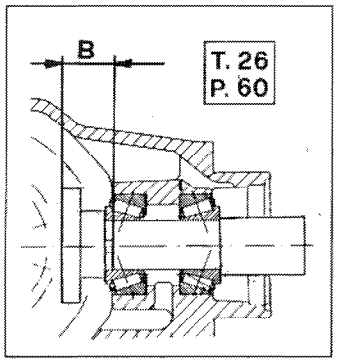
MONTAGE DER AUSSENRINGE DER KEGELROLLENLAGER.

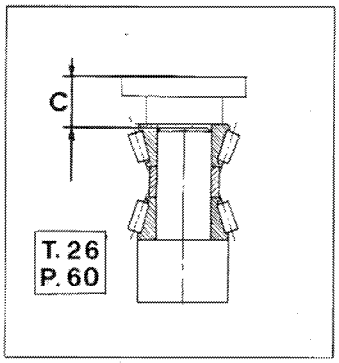
MONTAGE BAGUE EXTERNE ROULEMENTS A ROULEAUX CONIQUES.

ASSEMBLY OF OUTER RACES OF TAPER ROLLER BEARINGS.







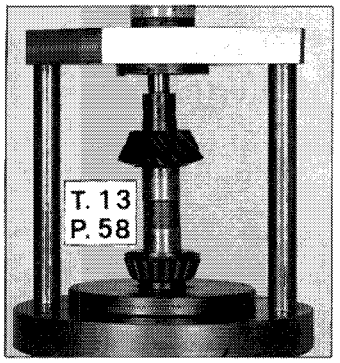


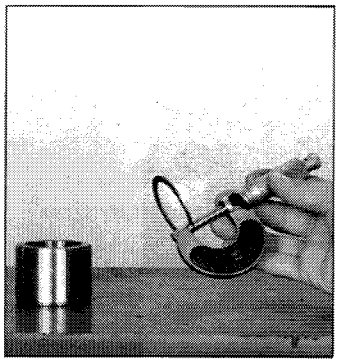
DETERMINAZIONE DEGLI SPESSORI S1 PER IL PRECARICO DEI CUSCINETTI A RULLI CONICI:
S1 = B - C + X
X = VALORE DA AGGIUNGERE PER OTTENERE IL PRECARICO CORRETTO DEI CUSCINETTI A RULLI CONICI (VEDI ESPLOSO A PAG. 34 SOLUZIONE D).

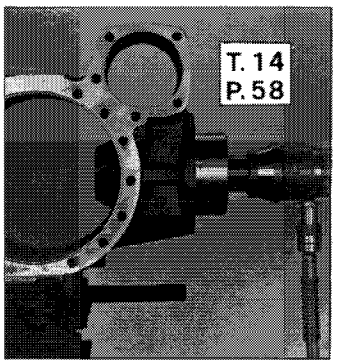
ERMITTLUNG DES PASSSCHEIBENPAKETES S1 FÜR DIE VORSPANNUNG DER KEGELROLLENLAGER:
S1 = B - C + X
X = HINZUZUFÜGENDER WERT UM DIE KORREKTE VORSPANNUNG DER KEGELROLLENLAGER ZU ERREICHEN (SIEHE EXPLOSIONSDARSTELLUNG AUF SEITE 34 LÖSUNG D).

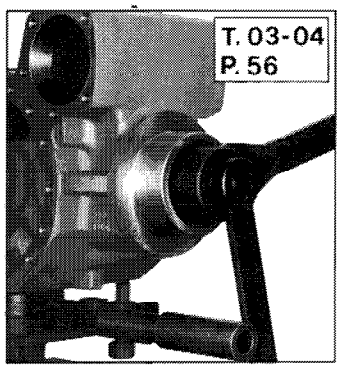
DETERMINATION DES CALES S1 POUR LA PRECHARGE DES ROULEMENTS A ROULEAUX CONIQUES:
S1 = B - C + X
X= VALEUR A AJOUTER POUR OBTENIR LA PRECHARGE CORRECTE DES ROULEMENTS A ROULEAUX CONIQUES (VOIR ECLATE A LA PAGE 34 SOLUTION D).

DETERMINATION OF SHIM PACK S1 FOR THE PRELOAD OF TAPER ROLLER BEARINGS:
S1 = B - C + X
X = VALUE TO ADD IN ORDER TO OBTAIN THE CORRECT PRELOAD OF THE TAPER ROLLER BEARINGS (SEE EXPLODED VIEW DRAWING ON PAGE 34 SOLUTION D).







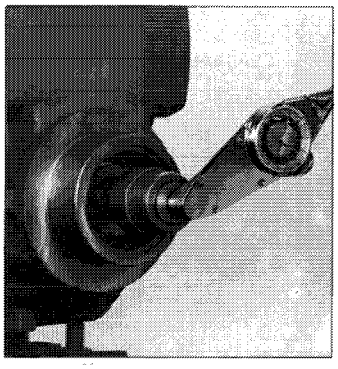


MONTAGGIO SUPPORTAZIONE PIGNONE CONICO E SERRAGGIO DADO FLANGIA (VEDI ESPLOSO A PAG. 34 SOLUZIONE D).

EINBAU DER KEGELRITZELLAGERUNG UND ANZIEHEN DER FLANSCHMUTTER (SIEHE EXPLOSIONSDARSTELLUNG AUF SEITE 34 LÖSUNG D).

MONTAGE SUPPORTATION PIGNON CONIQUE ET SERRAGE DE ECROU DE LA BRIDE (VOIR ECLATE A LA PAGE 34 SOLUTION D).

ASSEMBLY OF BEVEL PINION SUPPORT AND TIGHTENINS OF FLANGE NUT *(SEE EXPLODED VIEW DRAWING ON PAGE 34 SOLUTION D).*

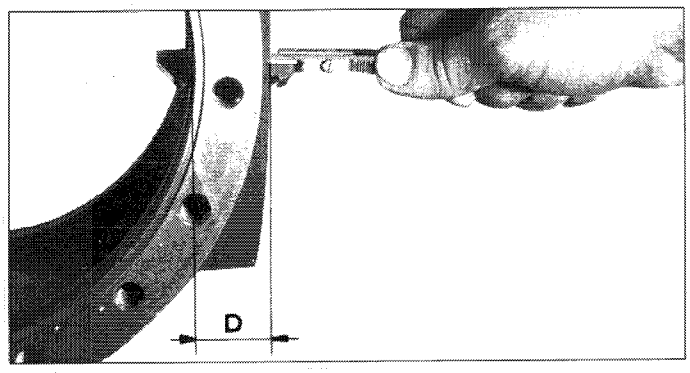


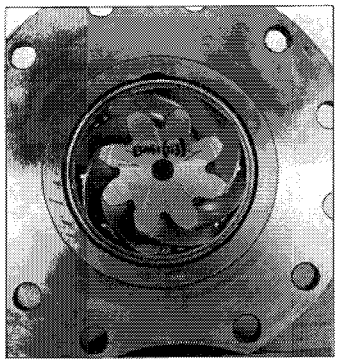
PER VERIFICA COPPIA DI ROTAZIONE (VEDI A PAG. 33 SOLUZIONE D).

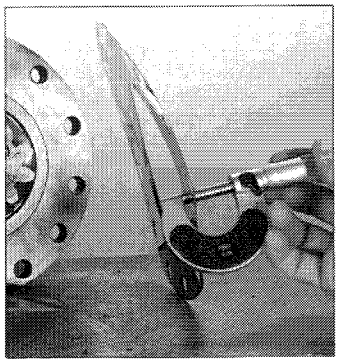
FÜR ÜBERPRÜFUNG DES DREHMOMENTES (SIEHE AUF SEITE 33 LÖSUNG D).

POUR CONTROLE COUPLE DE ROTATION VOIR A LA PAGE 33 SOLUTION D).

FOR CHECKING OF TORQUE (SEE ON PAGE 33 SOLUTION D).





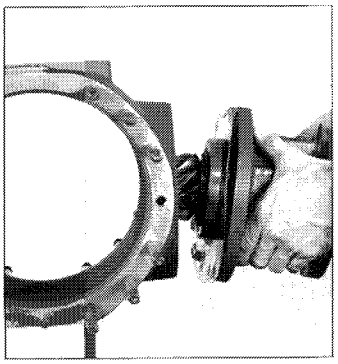


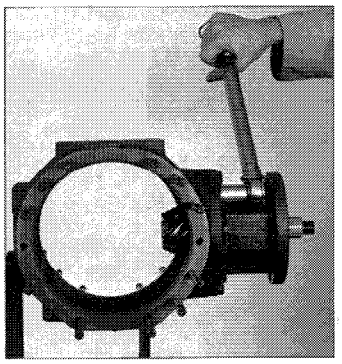
DETERMINAZIONE DEGLI SPESSORI S2 PER IL POSIZIONAMENTO DEL PIGNONE CONICO: S2 = (I + A) - (D + r) (VEDI SCHEMA PAGINA 40).

ERMITTLUNG DES PASSSCHEIBENPAKETES S2 FÜR DIE EINSTELLUNG DER KEGELRITZELLAGERUNG S2 = (I + A) - (D + r)(LÖSUNG SCHEMA SEITE 40).

DETERMINATION DES CALES S2 POUR LE POSITIONNEMENT DU PIGNON CONIQUE:
S2 = (I + A) - (D + r) (VOIR SCHEMA PAGE 40).

DETERMINATION OF SHIM PACK S2 FOR ADJUSTEMENT OF BEVEL PINION POSITION: S2 = (I + A) - (D + r) (SEE SCHEMA PAGE 40).



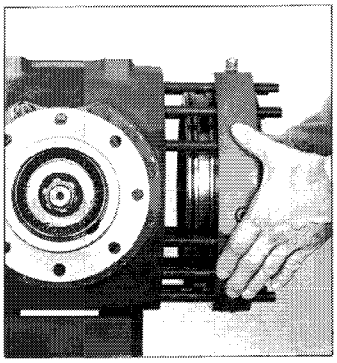


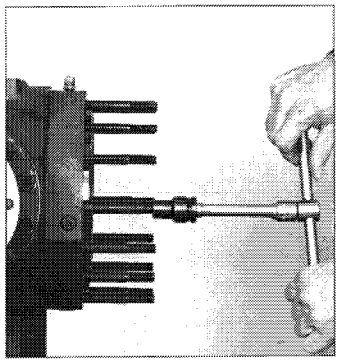
ASSEMBLAGGIO SUPPORTAZIONE PIGNONE CONICO CON SPESSORI S2. SERRARE LE VITI CON CHIAVE DINAMOMETRICA A 86÷89 Nm CON LOCTITE 270.

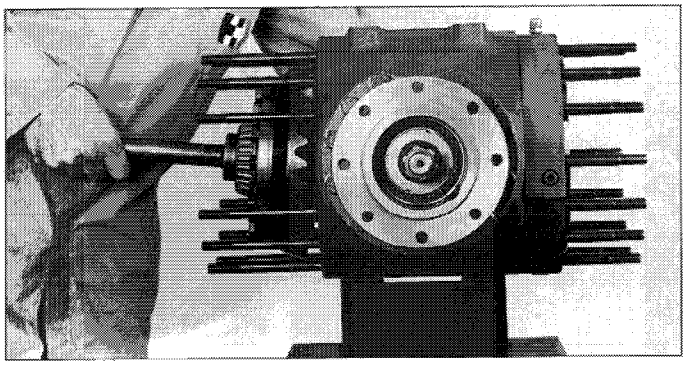
ZUSAMMENBAU DER KEGELRITZELLAGERUNG MIT PASSSCHEIBEN-PAKET S2. DIE SCHRAUBEN MIT DEM DREHMOMENTENSCHLÜSSEEL BEI CIRCA 86÷89 Nm ANZIEHEN. «LOCTITE 270» VERWENDEN.

ASSEMBLAGE SUPPORT PIGNON CONIQUE AVEC CALES S2. SERRES LES VIS A L'AIDE D'UNE CLÉ DYNAMOMETRIQUE A ENVIRON 86÷89 Nm AVEC DU «LOCTITE 270».

ASSEMBLY OF BEVEL PINION SUPPORT WITH SHIM PACK S2. TIGHTEN THE SCREWS BY ABOUT 86÷89 WITH A TORQUE WRENCH AND USING «LOCTITE 270».





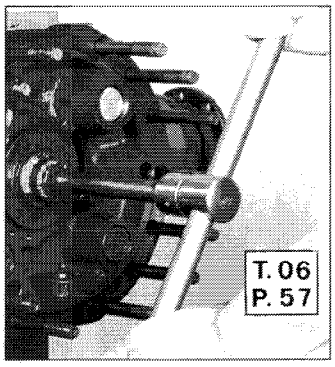


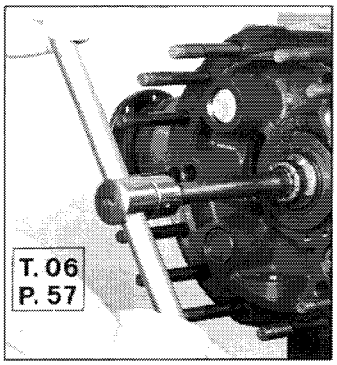
ASSEMBLAGGIO CORPO CENTRALE.
NOTA: FARE ATTENZIONE A NON DANNEGGIARE LE ZONE DI TENUTA DEGLI ANELLI OR DURANTE L'INSERIMENTO DEL DIFFERENZIALE NELLA SCATOLA CENTRALE.

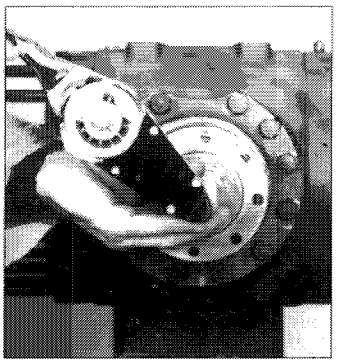
ZUSAMMENBAU DES ACHSMITTENGEHÄUSES.
ACHTUNG: DICHTFLÄCHEN DER O-RINGE BEIM EINBAU DES DIFFERENTIALS IN DAS ACHSMITTENGEHÄUSE NICHT BESCHÄDIGEN.

ASSEMBLAGE CORPS CENTRAL.
NOTE: FAIRE ATTENTION DE NE PAS ENDOMAGER LES ZONES D'ETANCHEITE DES JOINTS O-RING PENDANT LE MONTAGE DU DIFFERENTIEL DANS LE CARTER CENTRAL.

ASSEMBLING CENTRAL AXLE HOUSING.
NOTE: BE CAREFUL NOT TO DAMAGE THE TIGHT SURFACES OF THE O-RINGS WHILE INSERTING THE DIFFERENTIAL CASE INTO THE CENTRAL AXLE HOUSING.





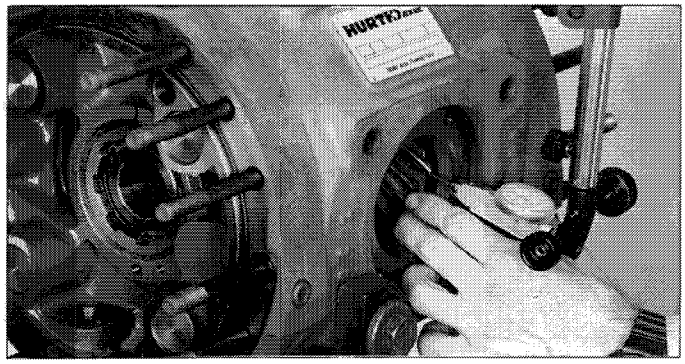


AVVITARE LE GHIERE FINO AD OTTENERE UN GIOCO DI CIRCA 0,15-0,18 mm TRA I DENTI DELLA COPPIA CONICA. NON PRECARICARE I CUSCINETTI DEL DIFFERENZIALE.
RILEVARE LA COPPIA DI ROTAZIONE DEL PIGNONE E DEL DIFFERENZIALE. SERRARE LA GHIERA SUL LATO OPPOSTO DELLA CORONA CONICA FINO AD AUMENTARE LA COPPIA SUL PIGNONE DI 35-45 Ncm.

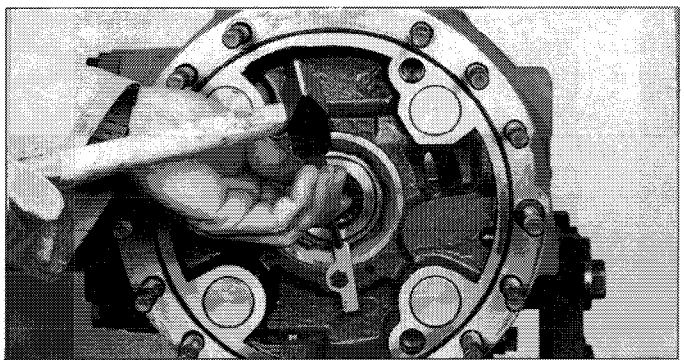
MUTTERN ANZIEHEN BIS FLANKENSPIEL ZWISCHEN DEN ZÄHNEN VON KEGEL- UND TELLERRADPAAR CA. 0,15÷0,18 mm BETRAEGT. LAGER NICHT VORSPANNEN.
AM KEGELRITZEL DAS DREHMOMENT DER RITZEL- UND DIFFERENTIALLAGERUNG MESSEN. DIE AM TELLERRAD GEGENÜBERLIEGENDE MUTTER ANZIEHEN BIS EIN 35-45 Ncm HÖHERES MOMENT AM KEGELRITZEL GEMESSEN WIRD.

VISSER LES ECROUS JUSQU'A OBTENIR UN JEU DE 0,15-0,18 ENTRE LES DENTS DU COUPLE CONIQUE SANS PRECHARGER LES ROULEMENTS DU DIFFERENTIEL. RELEVER LE COUPLE DE ROTATION DU PIGNON ET DU DIFFERENTIEL ET SERRER L'ECROU DU COTE OPPOSE DE LA COURONNE JUSQU'A OBTENTION DU COUPLE DU PIGNON DE 35-45 Ncm.

SCREW IN THE ADJUSTING NUTS TO OBTAIN APPROX. 0,15-0,18 mm BACKLASH BETWEEN THE TEETH OF THE BEVEL GEAR SET, WITHOUT PRELOADING THE TAPER ROLLER BEARINGS.
CHECK THE ROTATING TORQUE OF PINION AND DIFFERENTIAL. TIGHTEN NUT ON OPPOSITE SITE TO THE CROWN WHEEL TO OBTAIN A 35-45 Ncm HIGHER ROTATING TORQUE ON THE PINION.



TRACCIARE UN RIFERIMENTO SU ENTRAMBE LE GHIERE. PER LA CORREZIONE DEL GIOCO TRA I DENTI DELLA COPPIA CONICA AGIRE ESCLUSIVAMENTE SULLE GHIERE. ALLENTARE QUELLA SUL LATO CORONA CONICA E STRINGERE QUELLA OPPOSTA DELLA STESSA ENTITÀ SE IL GIOCO È SCARSO, VICEVERSA SE È TROPPO.
BEIDE MUTTERN KENNZEICHNEN. ZUR KORREKTUR DES FLANKENSPIELS DES KEGEL- UND TELLERRADES AUSSCHLIESSLICH DIE BEIDEN MUTTERN VERSTELLEN. BEI ZU KLEINEM SPIEL MUTTER AUF DER TELLERRADSEITE LÖSEN UND DIE GEGENÜBERLIEGENDE ENTSPRECHEND NACHSTELLEN. BEI ZU GROSSEM SPIEL IN UMGEKEHRTER WEISE VERFAHREN.
TRACER UN TRAIT DE REPERE SUR LES DEUX ECROUS. POUR LA CORRECTION DU JEU ENTRE LES DENTS DU COUPLE CONIQUE AGIR EXCLUSIVEMENT SUR LES ECROUS, SERRER OU DESSERRER D'EGALE MESURE POUR NE PAS MODIFIER LA PRECHARGE.
MARK BOTH RING NUTS. TO ADJUST THE BACKLASH MOVE RING NUTS ONLY. LOOSEN THE ONE ON BEVEL CROWN WHEEL SIDE AND TIGHTEN THE OPPOSITE ONE FOR THE EQUAL MEASURE IF THE BACKLASH IS TOO LOW; VICEVERSA IF THE BACKLASH IS TOO HIGH.

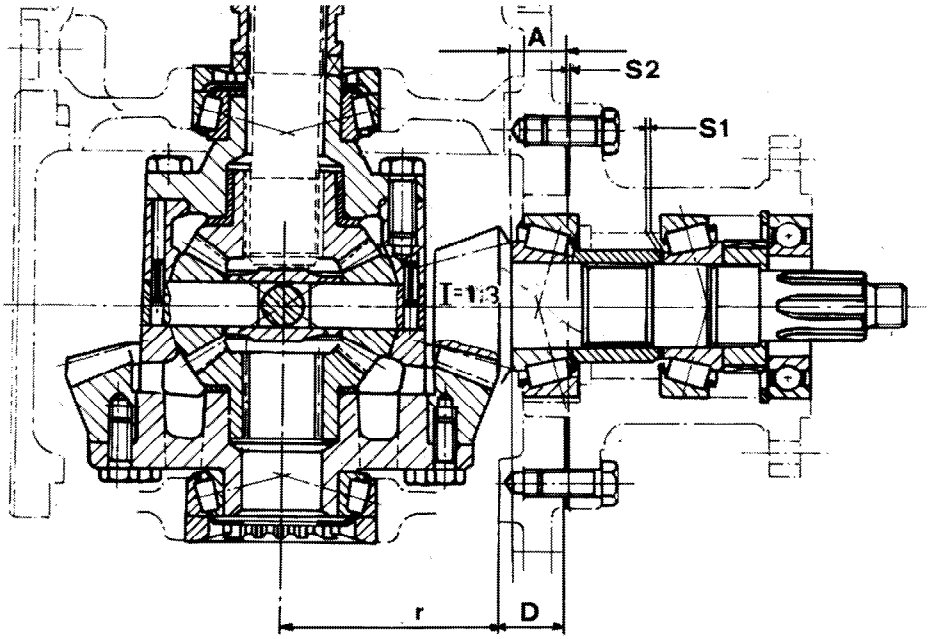


MONTARE LE PIASTRE DI SICUREZZA NELLA POSIZIONE PIÙ IDONEA E CIANFRINARE.

SICHERUNGSBLECHE IN DER GEEIGNETESTEN POSITION ANBRINGEN UND ANSTAUCHEN.

MONTER LES PLAQUETTES DE SECURITE DANS LA POSITION LA PLUS ADAPTEE ET CHANFREINER.

MOUNT LOCKING TABS IN THE BEST POSITION AND PUNCH IN PLACE.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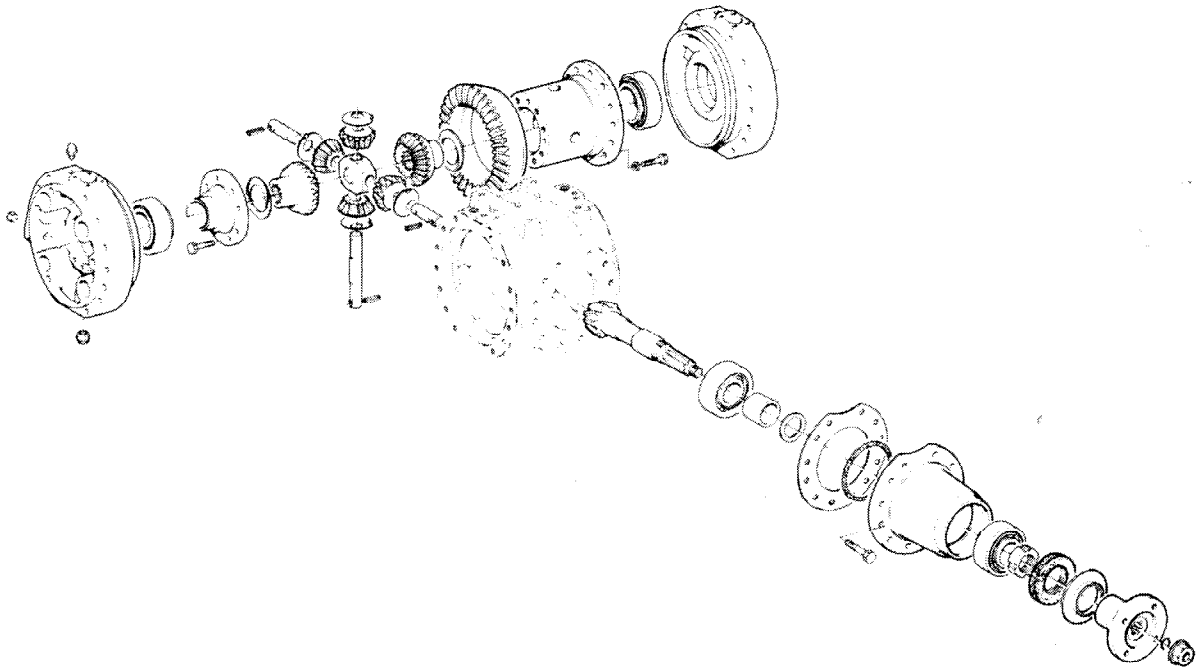
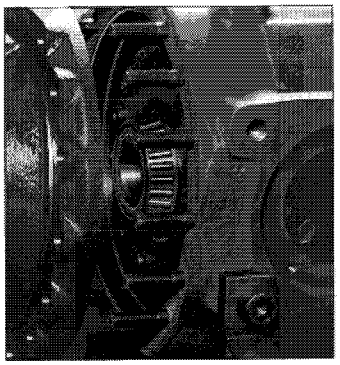
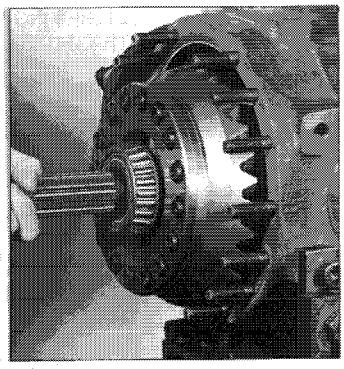




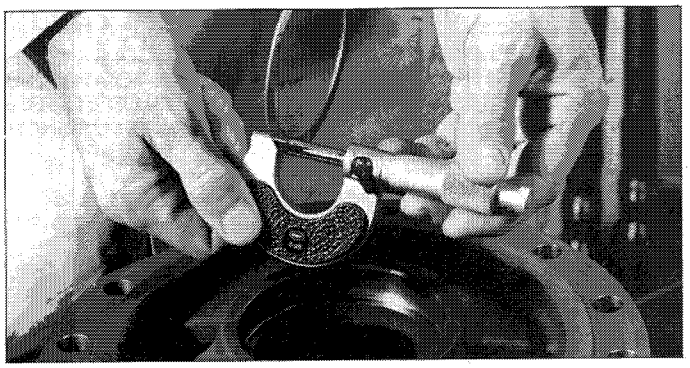


SMONTAGGIO.

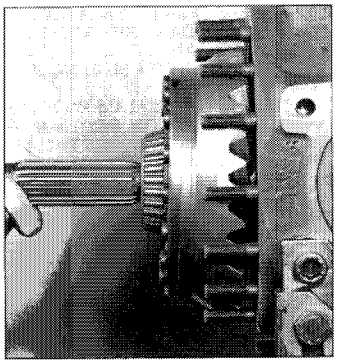
AUSBAU.

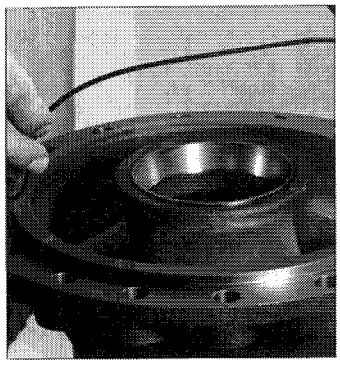
DÉMONTAGE.

DISASSEMBLY.



MONTAGGIO E REGISTRAZIONE
INSERIRE UNA QUOTA INIZIALE DI SPESSORI DI
0,8 mm LATO CORONA CONICA - 0,85 mm LATO OPPOSTO.
EINBAU UND EINSTELLUNG
MIT DEM EINLEGEN VON PASSCHEIBEN VON
0,8 mm AUF DER SEITE DES TELLERRADES UND VON - 0,85 mm AUF DER GEGENSEITE BEGINNEN.
MONTAGE ET RÉGLAGE
PLACER INITIALEMENT
0,8 mm D'ÉPAISSEUR DU COTÉ DE LA COURONNE, ET 0,85 mm DU COTÉ OPPOSÉ.
ASSEMBLY AND ADJUSTMENT
INSERT AN INITIAL SHIM THICKNESS OF
0,8 mm ON THE CROWN WHEEL SIDE AND 0,85 mm ON THE OPPOSITE SIDE.



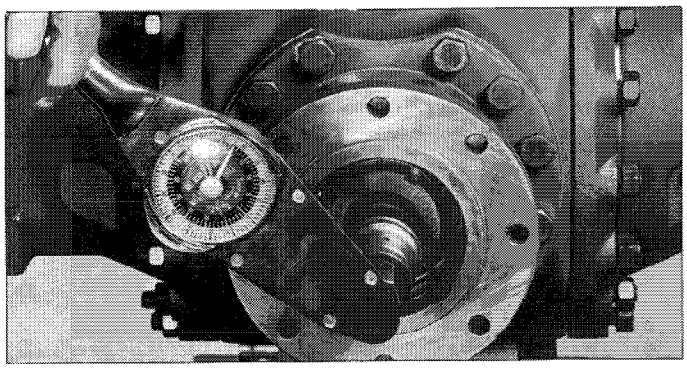


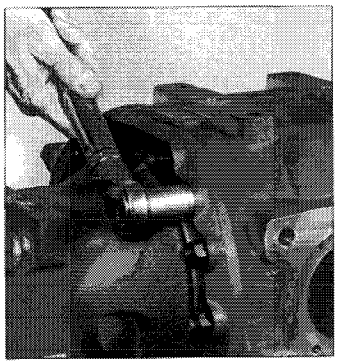
ASSEMBLARE IL DIFFERENZIALE CON I BRACCI LASCIANDO DAL LATO CORONA I DADI LENTI E UN LEGGERO GIOCO QUINDI VERIFICARE LA COPPIA DI ROTAZIONE DEL PIGNONE CONICO.

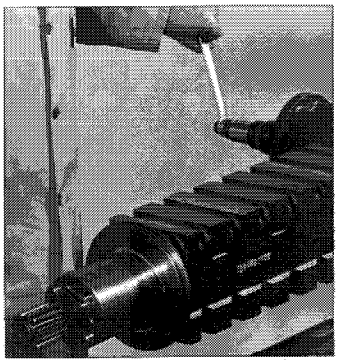
ACHSMITTENGEHÄUSE UND ACHSKÖRPER ZUSAMENBAUEN UND AUF DER SEITE DES TELLERRADES DIE SECHSKANTMUTTERN NUR LEICHT ANZIEHEN UND EIN GERING ES SPIEL LASSEN. DANN DAS DREHMOMENT DES KEGEL RITZELS PRÜFEN.

ASSEMBLER LE DIFFÉRENTIEL AVEC LES BRAS, EN LAISSANT LES DENTS DESSERRÉES, COTÉ COURONNE, ET UN PEU DE JEU. PUIS VÉRIFIER LE COUPLE DE ROTATION DU PIGNON CONIQUE.

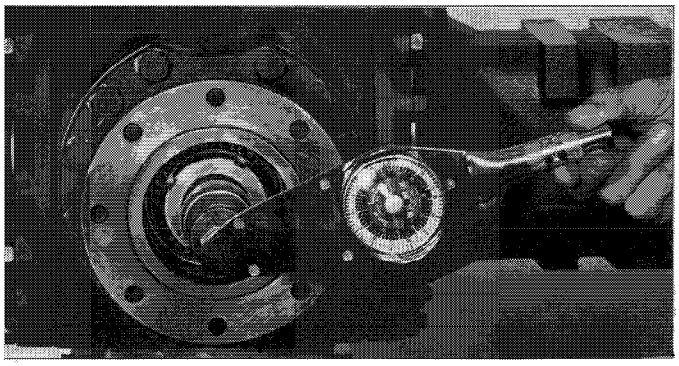
MOUNT HTE DIFFERENTIAL WITH THE LATERAL AXLE HOUSINGS, LEAVING THE BEVEL GEAR SIDE NUTS LOOSE. CHECK ROTATIONAL TORQUE OF BEVEL PINION.



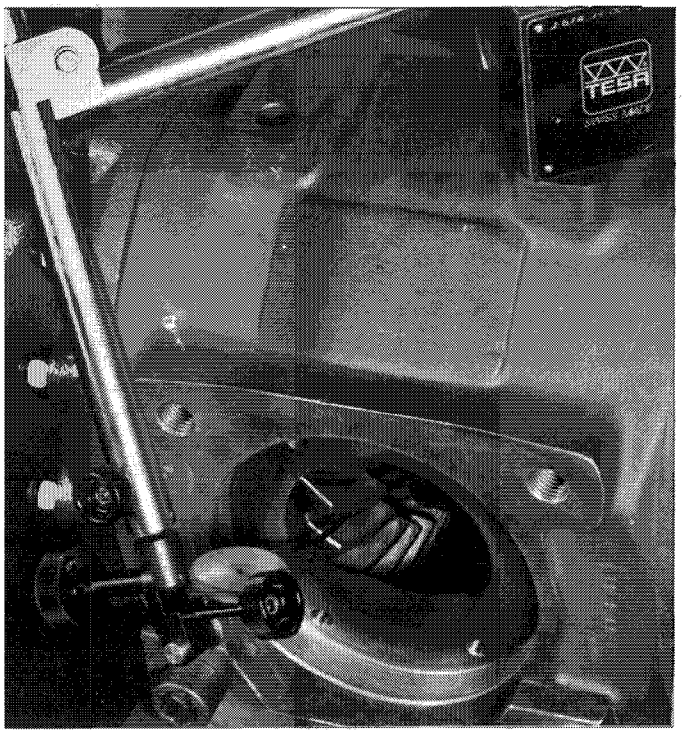




SERRARE TUTTI I DADI DEI BRACCI .
ASSESTARE I CUSCINETTI A RULLI CONICI DEL DIFFERENZIALE MEDIANTE DEI SEMIASSI E CONTEMPORANEAMENTE FARE RUOTARE IL PIGNONE.
ALLE SECHSKANTMUTTERN DER BEIDEN ACHSKÖRPER ANSIEHEN. DIE KEGELROLLENLAGER DES DIFFERENTIALS EINSTELLEN, INDEM MAN VON BEIDEN SEITEN MIT DEN ACHSWELLEN DARAUFSCHLÄGT UND GLEICHZEITIG DAS KEGELRITZEL IN DREHUNG BRINGT.
SERRER TOUS LES ÉCROUS DES BRAS.
AJUSTER LES ROULEMENTS À ROULEAUX CONIQUES DU DIFFÉRENTIEL EN TAPANT DES DEUX COTÉS À L'AIDE DES ESSIEUX, TOUT EN FAISANT TOURNER LE PIGNON.
TIGHTEN ALL NUTS OF THE LATERAL AXLE HOUSING.
SEAT THE TAPER ROLLER BEARINGS OF THE DIFFERENTIAL BY TAPPING ON BOTH SIDES BON THE AXLE SHAFTS WHILE TURNING THE PINION.



VERIFICARE LA COPPIA DI ROTAZIONE DEL PIGNONE CHE DEVE ESSERE AUMENTATA DI 35÷45 Ncm.
PER EVENTUALI CORREZIONI TOGLIERE O AGGIUNGERE SPESSORI PER RISPETTIVAMENTE ABBASSARE O AUMENTARE LA COPPIA DI ROTAZIONE.
DAS DREHMOMENT DES KEGELRITZELS PRÜFEN, WELCHES UM 35÷45 Ncm HøOHER LIEGEN MUß.
GGF. PASSCHEIBEN HINZUFÜGEN ODER ENTFERNEN, UM DAS DREHMOMENT ZU ERHÖHEN ODER ZU SENKEN.
VÉRIFIER LE COUPLE DE ROTATION DU PIGNON QUI DOIT ETRE AUGMENTE DE 35÷45 Ncm.
POUR LES CORRECTIONS ENLEVER OU AJOUTER DES CALES POUR DIMINUER OU AUGMENTER LE COUPLE DE ROTATION.
CHECK THE ROTATION TORQUE OF THE PINION WHICH MUST BE INCREASED BY 35÷45 Ncm.
IF CORRECTIONS ARE REQUIRED, REMOVE OR ADD SHIMS TO RESPECTIVELY DECREASE OR INCREASE THE ROTATION TORQUE.

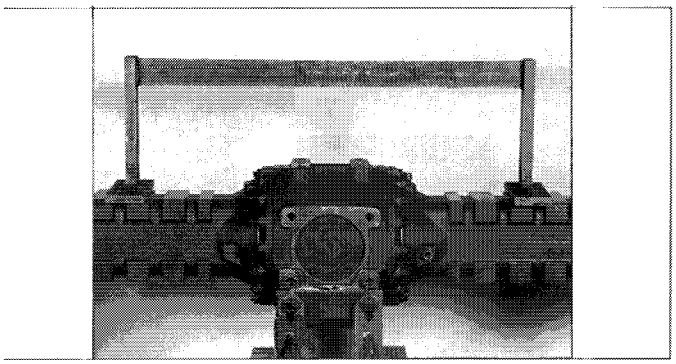


VERIFICA DEL GIOCO TRA I DENTI DELLA COPPIA CONICA.
GIOCO = 0,18÷0,25 mm.
PER EVENTUALI CORREZIONI SPOSTARE DA UN LATO ALL'ALTRO GLI SPESSORI FINO AD OTTENERE IL GIOCO CORRETTO.
ES: TROPPO GIOCO: TOGLIERE DAL LATO OPPOSTO DELLA CORONA CONICA DEGLI SPESSORI E INSERIRLI DAL LATO CORONA CONICA.

ERMITTLUNG DES ZAHNFLANKENSPIELES, SPIEL = 0,18 ÷ 0,25 mm.
LIEGT DAS ZAHNFLANKENSPIEL NICHT INNERHALB DER ZULÄSSIGEN TOLERANZ, SO IST DURCH AUSTAUSCH VON PASSCHEIBEN EINE KORREKTUR VORZUNEHMEN.

VÉRIFICATION DU JEU ENTRE LES DENTS DU COUPLE CONIQUE JEU = 0,18 À 0,25 mm.
POUR LES CORRECTIONS DÉPLACER LES CALES D'UN COTÉ À L'AUTRE JUSQU'À RETROUVER LE JEU CORRECT.EX.: TROP DE JEU; METTRE LES CALES, ENLEVÉES COTÉ OPPOSÉ, DU COTÉ DE LA COURONNE.

CHECK THE BACKLASH BETWEEN THE TEETH OF THE BEVEL GEAR PAIR GAP = 0,18 ÷ 0,25 mm.
IF CORRECTIONS ARE REQUIRED, MOVE THE SHIMS FROM ONE SIDE TO THE OTHER UNTIL THE CORRECT PLAY IS OBTAINED. EG.: EXCESSIVE PLAY: REMOVE THE SHIMS FROM THE SIDE OPPOSITE THE RING BEVEL GEAR AND INSERT THEM ON THE RING BEVEL GEAR SIDE.

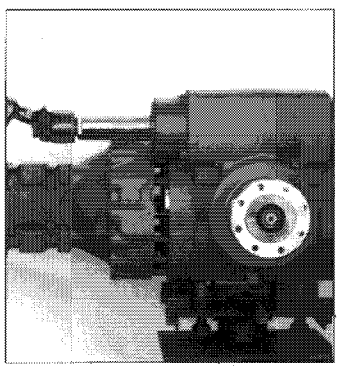
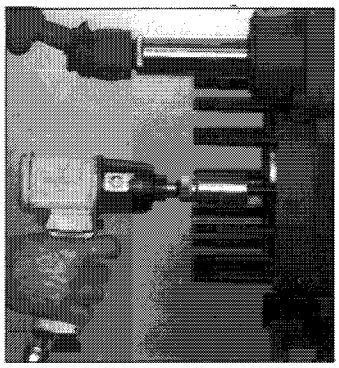
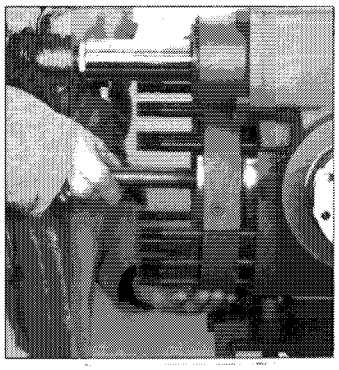
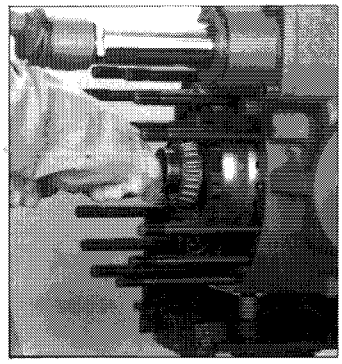


VERIFICA DI PLANARITÀ DEI BRACCI A FINE MONTAGGIO.

NACH VOLLENDETER MONTAGE DIE EBENHEIT DER ACHSKÖRPER PRÜFEN.

A LA FIN DU MONTAGE VÉRIFIER LA PLANÉITÉ DES BRAS.

CHECK LATERAL AXLE HOUSING LEVELNESS AFTER ASSEMBLE.

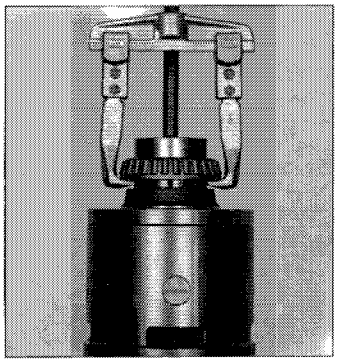
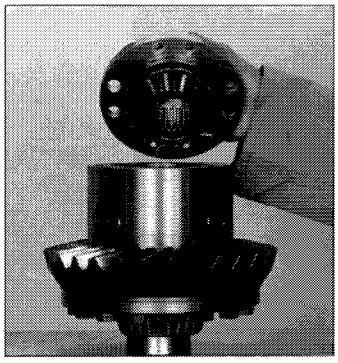
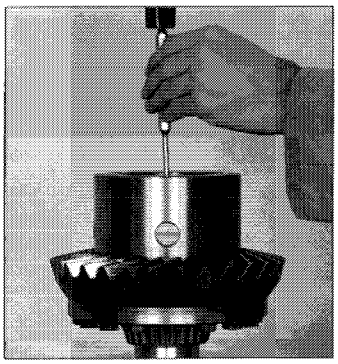
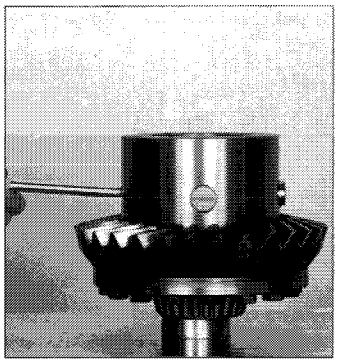
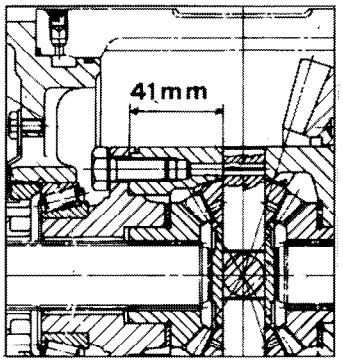





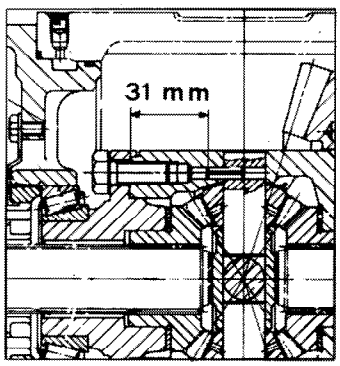
SMONTAGGIO DIFFERENZIALE DALL'ASSALE.

AUSBAU DES DIFFERENTIALS AUS DER ACHSE.

DEMONTAGE DIFFERENTIEL DU PONT.

REMOVAL OF THE DIFFERENTIAL FROM THE AXLE.



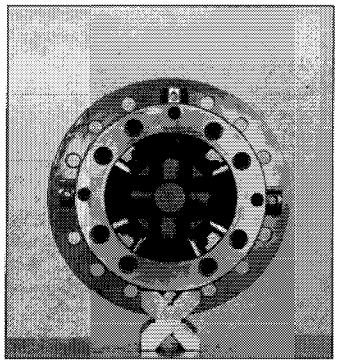
NOTE: SOSTITUIRE LE VITI DI FISSAGGIO DELLA CORONA CONICA OGNI VOLTA CHE SI DEVONO SMONTARE.

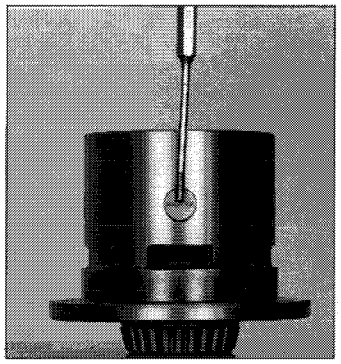
ACHTUNG: BEFESTIGUNGSSCHRAUBEN DES TELLERRADES VOR JEDEM EINBAU ERNEUERN.

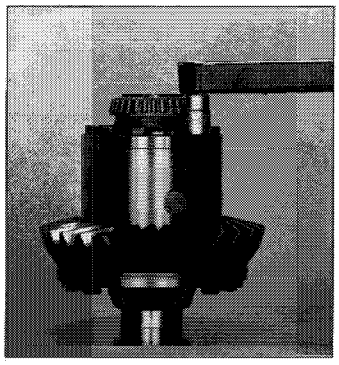
NOTE: REMPLACER LES VIS DE FIXATION DE LA COURONNE CHAQUE FOIS QUE L'ON DOIT LES DEMONTER.

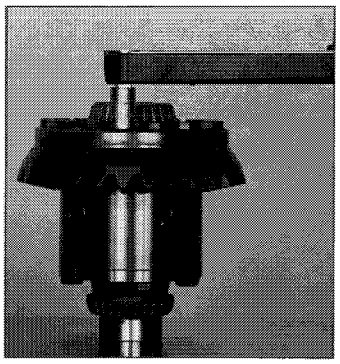
NOTE: REPLACE THE FITTING BOLTS OF THE CROWN WHEEL EVERY TIME THAT THEY HAVE TO BE REMOVED.

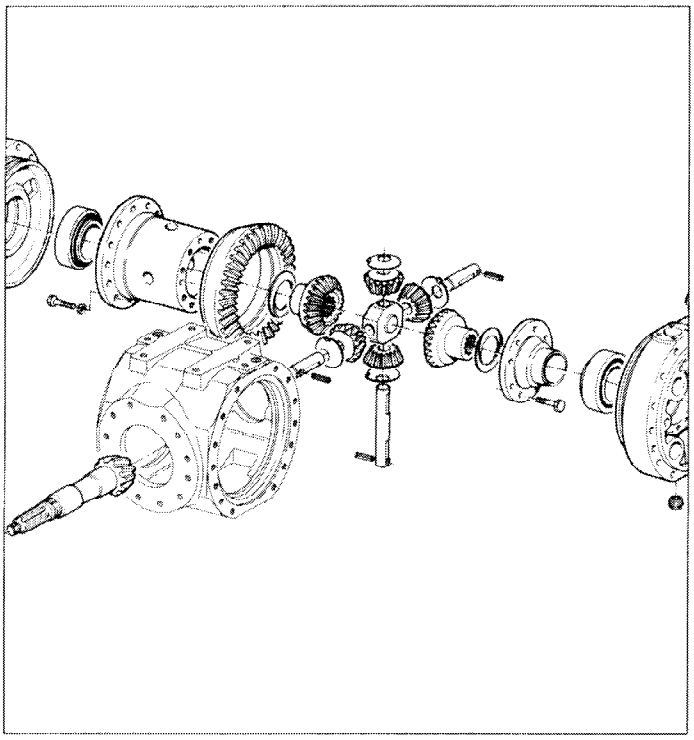
MONTAGGIO DIFFERENZIALE/*EINBAU DES DIFFERENTIALS*
MONTAGE DIFFERENTIEL/ ASSEMBLY OF THE DIFFERENTIAL











INSERIRE LE SPINE ELASTICHE FINO A METÀ DEL PERNO.

DIE SPANNHÜLSEN BIS ZUR BOLZENMITTE EINFÜHREN

INTRODUIRE LES GOUPILLES ÉLASTIQUE JUSQU'À MI-AXE.

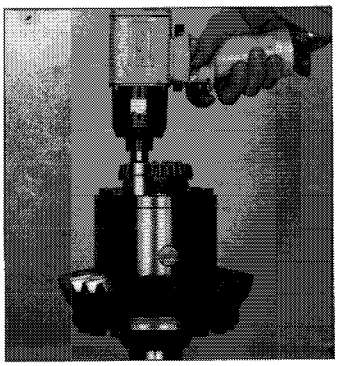
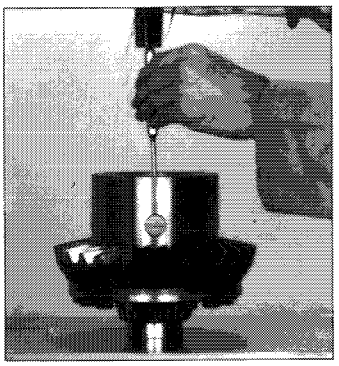
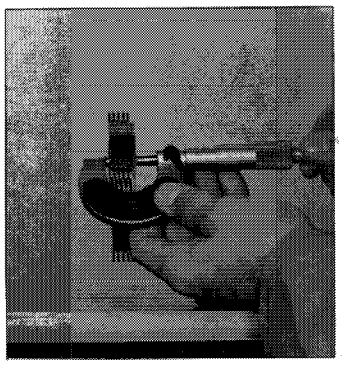
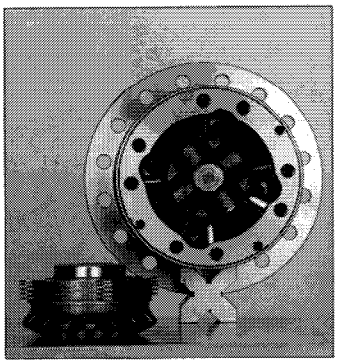
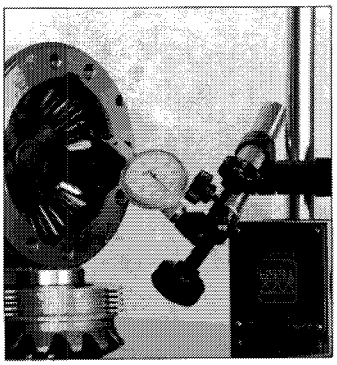
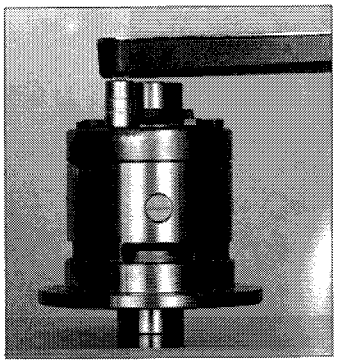
INSERT THE SPRING PINS HALF WAY UP THE PIN.

SERRARE TUTTE LE VITI CON CHIAVE DINAMOMETRICA. M10X1,25X25 COPPIA DI SERRAGGIO Nm73.
M12X30 COPPIA DI SERRAGGIO Nm 89. MONTARE CON LOCTITE 270.

ALLE SCHRAUBEN M10x1,25x25 MIT EINEM DREHMOMENTENSCHLÜSSEL MIT DREHMOMENT VON 73 Nm ANZIEHEN. DIE SCHRAUBEN M12x30 BEI EINEM DREHMOMENT VON 89 Nm.ANZIEHEN UND MIT LOCTITE 270 SICHERN.

SERRER TOUTES LES VIS AVEC UNE CLÉ DYNAMOMÉTRIQUE M10x1,25x25, COUPLE DE SERRAGE 73 Nm, M12x30 COUPLE DE SERRAGE 89 Nm. MONTER AVEC DE LA LOCTITE 270.

TORQUE ALL BOLTS M10x1,25x25 WITH A TORQUE WRENCH CLAMPING TORQUE 73 Nm.
M12x30 BOLTS CLAMPING TORQUE 89 Nm. USE LOCTITE 270.

VERIFICA DEL PACCO DEI DISCHI PER DETERMINARE LA QUOTA DEGLI SPESSORI.
IL PACCO TOTALE DEI DISCHI COMPRESI EVENTUALI SPESSORI DEVE ESSERE DI 16,2 mm ± 0,1mm.

ÜBERPRÜFUNG DES LAMELLEN PAKETES ZUR ERMITTLUNG DER PASS-SCHEIBEN.
DIE GESAMTSTAERKE DES SCHEIBENPAKETES MIT EVENTUELLEN PASS-SCHEIBEN MUß 16,2 mm± 0,1 mm BETRAGEN.

CONTROLE DU PAQUET DES DISQUES POUR DETERMINER LA COTE DES CALES.
L'ENSEMBLE DU PAQUET DES DISQUES AVEC LES CALES DOIT ETRE DE 16,2 ± 0,1 mm.

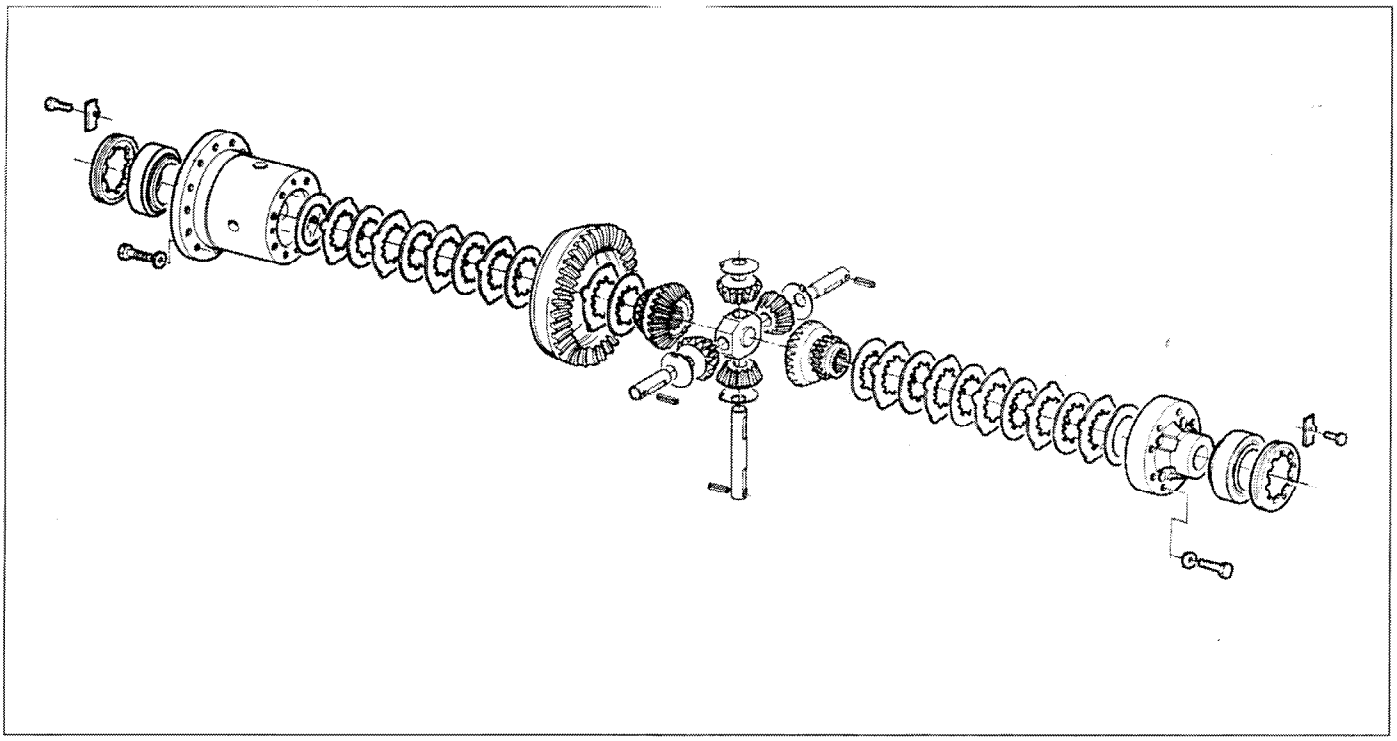
CHECK THE DISC PACK TO DETERMINE THE SHIMS.
THE TOTAL THICKNESS OF THE DISC PACK WITH EVENTUAL SHIMS MUST BE 16,2 mm ± 0,1 mm.

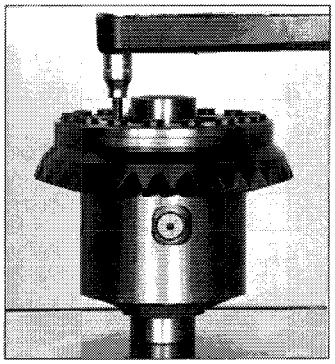
SERRARE LE VITI CON CHIAVE DINAMOMETRICA.
M10X40-10 K COPPIA DI SERRAGGIO Nm 69÷72 MONTARE CON LOCTITE 242.

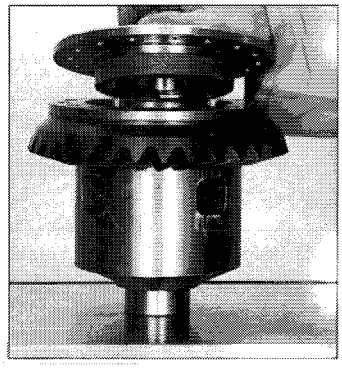
DIE SCHRAUBEN M10x40-10 K MIT EINEM DREHMOMENTENSCHLÜSSEL MIT EINEM.
DREHMOMENT VON 69-72 Nm ANZIEHEN UND MIT LOCTITE 242 SICHERN.

SERRER LES VIS AVEC UNE CLÉ DYNAMOMÉTRIQUE.
M10x40-10 K COUPLE DE SERRAGE 69 À 72 Nm; MONTER AVEC DE LA LOCTITE 242.

TORQUE THE BOLTS WITH A TORQUE WRENCH.
M10x40-10 K TIGHTENING TORQUE 69÷72 Nm USE LOCTITE 242.





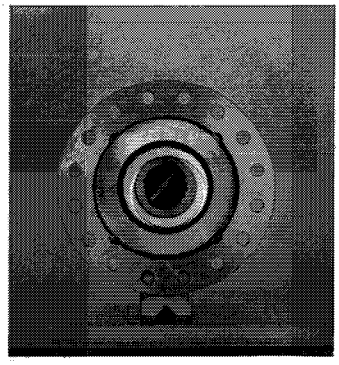


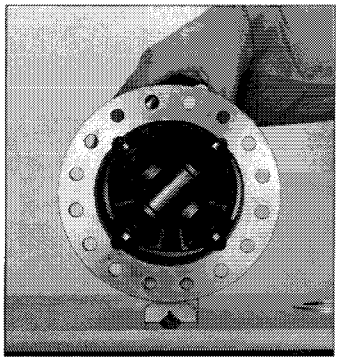
SMONTAGGIO

AUSBAU

DEMONTAGE

DISASSEMBLY



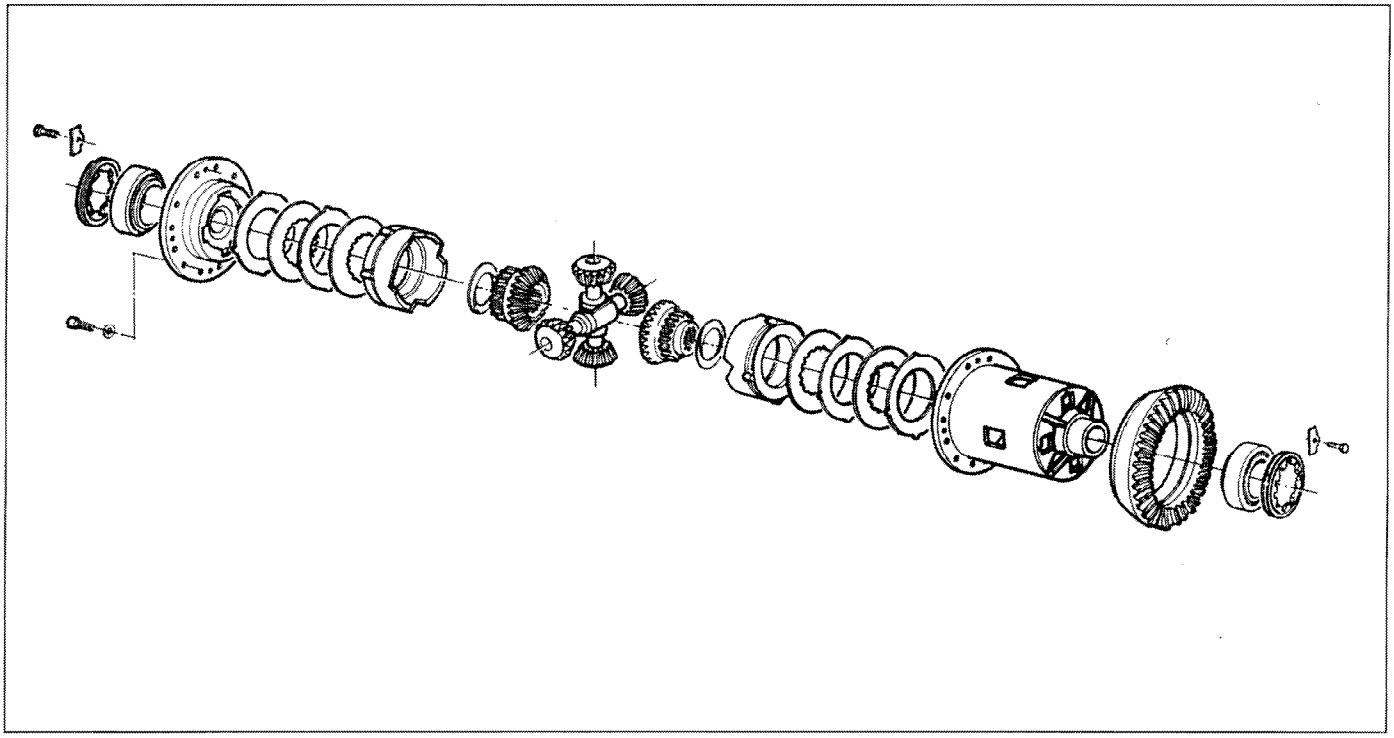


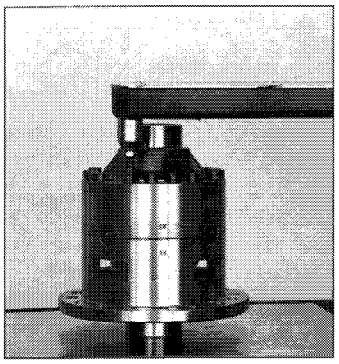
PER IL MONTAGGIO ESEGUIRE LE OPERAZIONI IN SENSO INVERSO.
CONTROLLARE CHE I DISCHI NON SIANO DEFORMATI.

ZUR MONTAGE DIE VORGÄNGE IN UMGEKEHRTER REIHENFOLGE DURCHFÜHREN.
PRÜFEN, DAß DIE LAMELLEN NICHT VERFORMT SIND.

POUR LE MONTAGE EXÉCUTER LES OPÉRATIONS EN SENS INVERSE.
CONTROLER QUE LES DISQUES NE SOIENT PAS ORDER DÉFORMES.

CARRY OUT THE OPERATIONS IN REVERSE TO ASSEMBLE.
CHECK THAT THE DISKS ARE NOT DEFORMED.



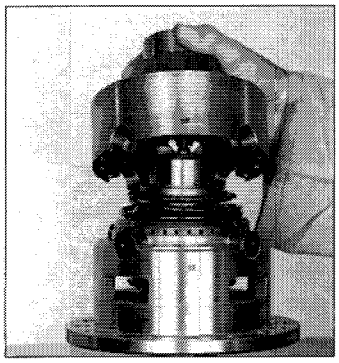


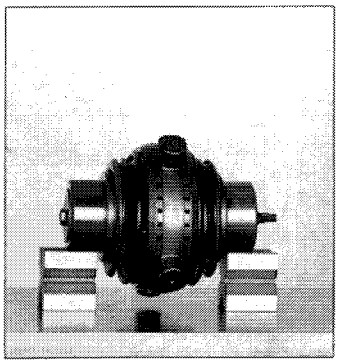
SMONTAGGIO

AUSBAU

DEMONTAGE

DISASSEMBLY



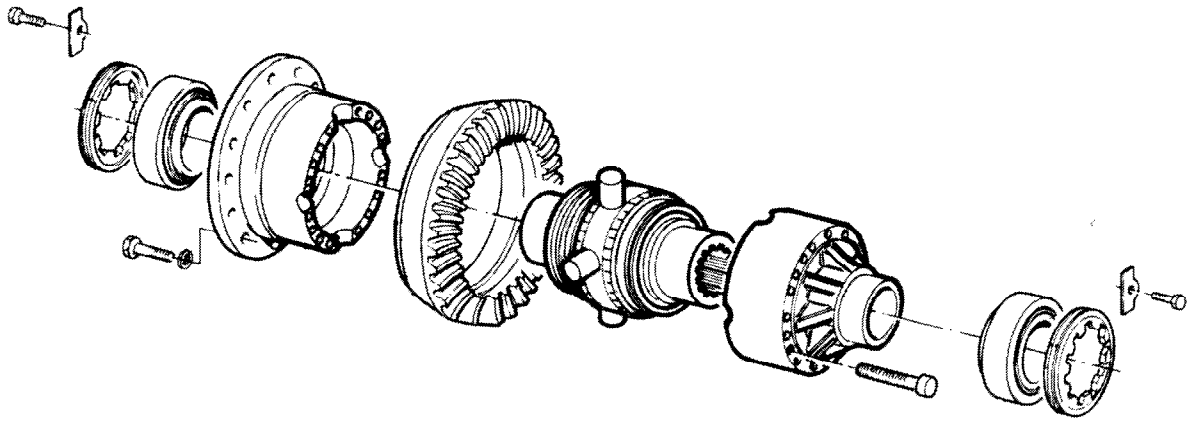


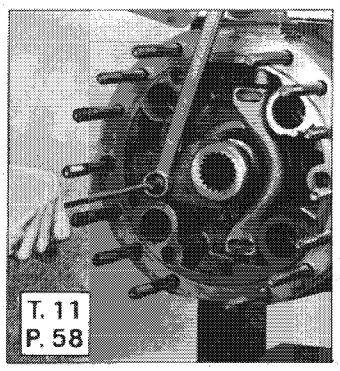
PER IL MONTAGGIO PROCEDERE IN SENSO INVERSO.
NOTE: FARE ATTENZIONE AI NUMERI DI ACCOPPIAMENTO STAMPIGLIATI SULLE MEZZE SCATOLE DIFFERENZIALE. SERRARE LE VITI DI CHIUSURA DELLE MEZZE SCATOLE E TOGLIERE LA VITE DI PRE-ASSEMBLAGGIO.
VITE M8X65-10K COPPIA DI SERRAGGIO Nm 35÷37.

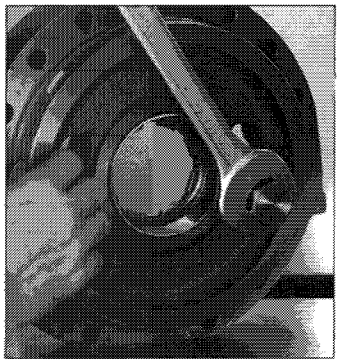
ZUR MONTAGE IN UMGEKEHRTER REIHENFOLGE VORGEHEN. ACHTUNG: PAARUNGSNUMMERN AUF DEN GEHÄUSEHÄLFTEN BEACHTEN. BEFESTIGUNGSSCHRAUBEN DER GEHAEUSEHÄLFTEN ANZIEHEN UND MONTIERSCHRAUBE ENTFERNEN. SCHRAUBE M8X65-10K DREHMOMENT Nm 35÷37.

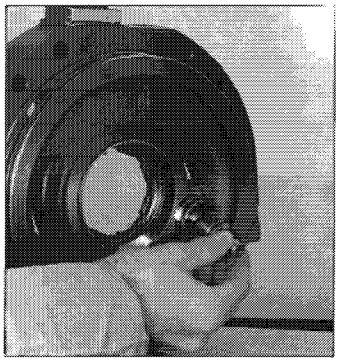
POUR LE MONTAGE PROCÉDER EN SENS INVERSE
NOTE: FAIRE ATTENTION AUX NUMEROS D'APPARIEMENT MARQUES SUR LES DEMI-CARTERS DIFFERENTIEL. ENLEVER LA VIS DE PRE-ASSEMBLAGE APRES A VOIR SERRE LES VIS DE FERMETURE DES DEMI-CARTERS.
VIS M8X65-10K COUPLE DE SERRAGE Nm 35-37.

PROCEED IN REVERSE ORDER FOR ASSEMBLY.
NOTE: OBSERVE PAIRING NUMBER ON CASE HALVES. TIGHTEN THE FIXING BOLTS OF THE CASES AND REMOVE MOUNTING BOLT. BOLT M8X65-10K TORQUE Nm 35-37.









SMONTAGGIO

AUSBAU

DEMONTAGE

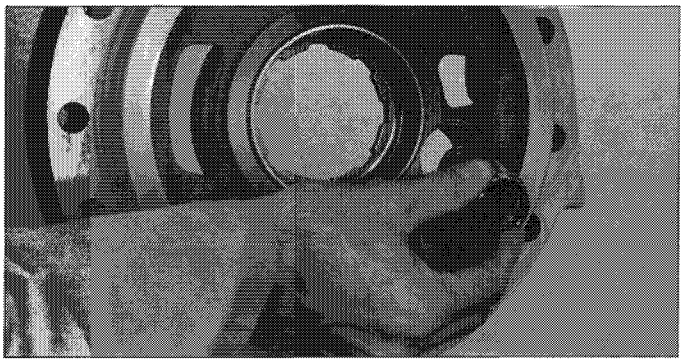
DISASSEMBLY

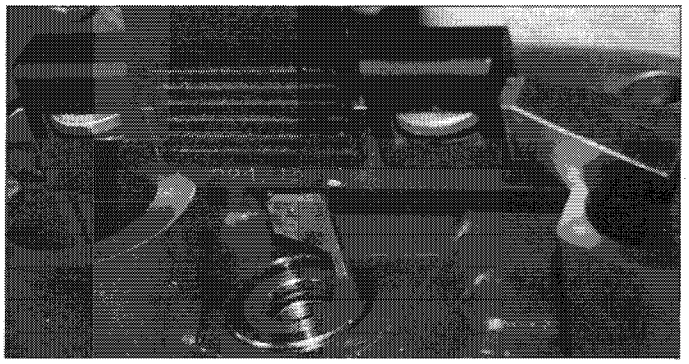
PER IL MONTAGGIO PROCEDERE IN SENSO INVERSO.

ZUR MONTAGE IN UMGEKEHRTER REIHENFOLGE VORGEHEN.

POUR LE MONTAGE PROCÉDER EN SENS INVERSE.

PROCEED IN REVERSE ORDER FOR ASSEMBLY.





MONTAGGIO E VERIFICA POSIZIONAMENTO CILINDRETTO BLOCCO.

EINBAU UND ÜBERPRÜFUNG DER LAGE DES BETÄTIGUNGSZYLINDERS.

MONTAGE ET CONTROLE DU POSITIONNEMENT CYLINDRE DE BLOCAGE.

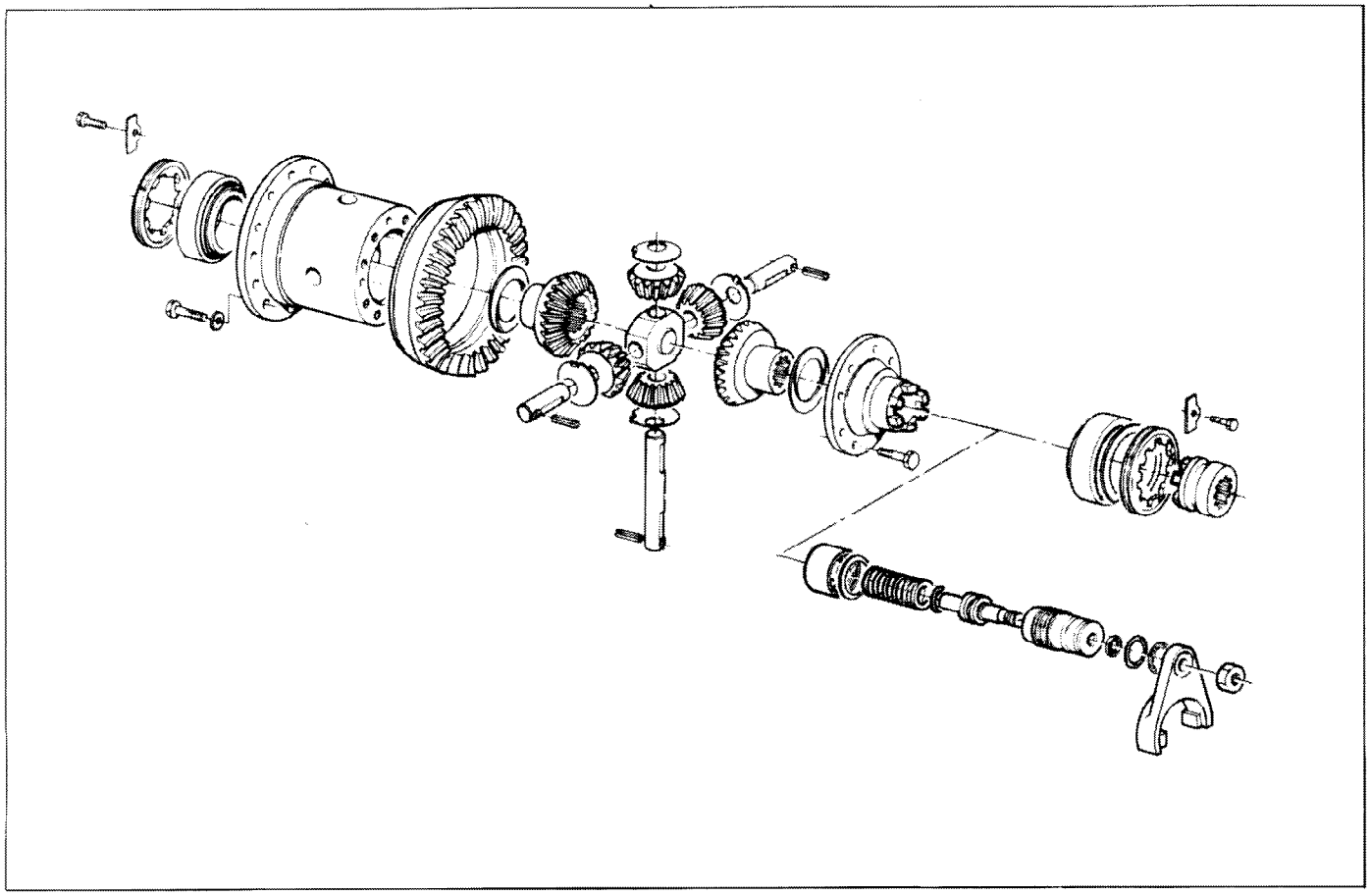
ASSEMBLY AND CHECK POSITION OF CYLINDER.

MONTAGGIO E VERIFICA
POSIZIONAMENTO CILINDRETTO BLOCCO.

MONTAGE UND PRÜFUNG
POSITIONIERUNG DES BETÄTIGUNGSZYLINDERS.

MONTAGE ET VÉRIFICATION
POSITIONNEMENT DU PETIT CYLINDRE DE BLOCAGE.

ASSEMBLY AND INSPECTION
POSITIONING THE CYLINDER.



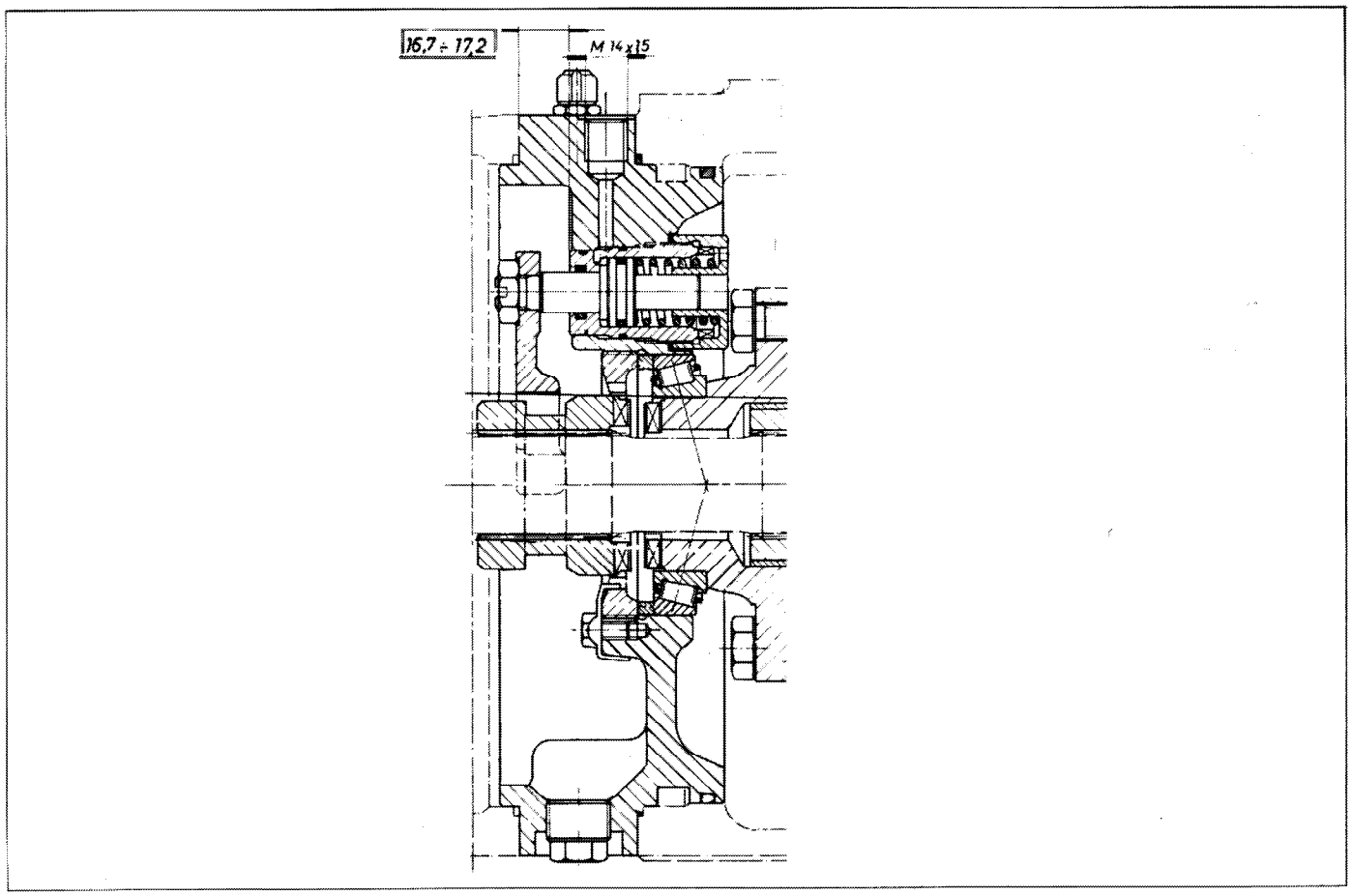

16,7 ÷ 17,2
M 14 x 15

TABELLE DI CONVERSIONE/*UMRECHNUNGSTABELLEN*
TABLEAUX DE CONVERSION/*CONVERSION TABLES*

1 Atm ≡ 1 bar ≡ 10^5 Pa ≡ 14.4 Psi
Pa

	N	da N	KN	Kg	Lbs
1N	1	0,1	0,001	0,102	0,225
1 da N	10	1	0,01	1,02	2,25
1 KN	1000	100	1	102	225
1 Kg	9,81	0,981	0,00981	1	2,205
1 Lbs	4,44	0,444	0,00444	0,4536	1

	Nm	da Nm	KNm	Kgm	Lb-in
1Nm	1	0,1	0,001	0,102	8,854
1 da Nm	10	1	0,01	1,02	88,54
1 KNm	1000	100	1	102	8854
1 Kgm	9,81	0,981	0,00981	1	86,8
1 Lb-in	0,1129	0,01129	0,0001129	0,01152	1
1 Kg cm	0,0981	0,00981	0,0000981	0,01	0,868

COPPIE DI SERRAGGIO/*ANZIEHDREHMOMENTE*
COUPLES DE SERRAGE/*TIGHTENING TORQUES*

TIPO VITE *GEWINDE* TYPE DE VIS *SIZE OF BOLT*	8G/8.8	10K/10.9	12K/12.9
M 4	2,9	4,1	-
M 6	10,0	14,0	-
M 8	25,0	35,0	-
M 10	49,0	69,0	-
M 10x1,25	52,0	73,0	88,0
M 12	86,0	120,0	-
M 14	135,0	190,0	-
M 14x1,5	150,0	210,0	250,0
M 16	210,0	295,0	-
M 18x1,5	325,0	460,0	550,0
A 22	550		

PROBLEMA/*PROBLEM* PROBLEME/*PROBLEM*	CAUSE/*URSACHE* CAUSE/*CAUSE*	RIMEDI/*ABHILFE* REMEDE/*CORRECTION*
Frenatura insufficiente *Ungenëgende Bremswirkung* Freinage insuffisant *Insufficient braking*	1. Incorretta registrazione *1. Fehlerhafte Einstellung* 1. Mauvais reglage *1. Incorrect adjustment*	Ispezionare lo spessore dei dischi freno (vedi pag.8) e, se i dischi freno possono essere riutilizzati, registrarli come da istruzioni del manuale del veicolo. *Bremsscheibenstärke überprüfen, siehe Seite 8; koennen die Bremscheiben noch verwendet werden, Spiel neu einstellen gemäß Anweisungen im Handbuch des Fahrzeuges.* Inspecter l'épaisseur des disques frein (voir page 8) et, si les disques frein sont en bon etat, regler selon les instructions du manuel du vehicule. *Inspect disc thickness (see page 8) and if discs are usable readjust brakes to the specifications in the vehicle's manual.*
	2. Dischi freno usurati *2. Bremsscheiben verschlissen* 2. Disques frein usés *2. Brake discs worn out*	Ispezionare lo spessore dei dischi freno (vedi pag.8) e, se necessario, sostituirli. *Bremsscheibenstärke überprüfen, siehe Seite 8 und falls erforderlich ersetzen.* Inspecter l'épaisseur des disques frein (voir page8) et si nécessaire remplacer les disques. *Inspect disc thickness (see page 8) and replace if necessary.*
	3. Fluido non idoneo nel circuito *3. Ungeeignete Fluessigkeit in der Bremsanlage* 3. Fluide inadéquat dans le circuit *3. Incorrect brake fluid*	Sostituire tutti gli anelli di tenuta del ponte e del cilindro master che sono venuti a contatto con il fluido non idoneo nonchè i tubi flessibili. Se il fluido non idoneo è entrato nel ponte e si è mescolato con il lubrificante tutti gli anelli di tenuta ed o-rings devono essere sostituiti. *Alle Dichtringe und Gummischläuche die mit der falschen Flüssigkeit in Kontakt gekommen sind, in der Achse und im Hauptbremszylinder ersetzen. Sollte diese Flüssigkeit auch in die Achse gelaugt sein, sind auch sämtliche O-Ringe und Dichtringe der Achse zu ersetzen.* Substituer tous les joints d'étancheité du pont et du maître-cylindre qui ont ete en contact avec ce fluide mais aussi les tubes flexibles. Si le fluide incorrect est entré dans le pont et s'est melange avec le l ubrifiant tous les joints d'étanchéité et o-ring doivent être changés. *Replace all seals in axle and master cylinder that have made contact with the incorrect fluid and all brake hoses.* *If incorrect fluid leaked into axle oil, seals and o-rings in axle must be replaced.*
	4. Perdita del fluido dal circuito freno *4. Verlust von Bremsflüssigkeit* 4. Fluidé dans le circuit de freinage *4. Loss of brake fluid*	Ispezionare e riparare tutte le perdite del circuito esterno o del cilindro master. Se la causa è dovuta al fluido non idoneo vedi rimedio n. 3. Se la perdita è verso l'esterno del ponte sostituire gli o-rings tra la scatola centrale ed i coperchi intermedi. Se la perdita è verso l'interno del ponte sostituire gli o-rings sopra menzionati e quelli dei pistoncini freno. *Äussere Bremsanlage und Hauptbremszylinder auf Ölverluste prüfen.* *Sollte der Verlust auf ungeeignete Bremsfluessigkeit zurückzuführen sein, siehe Abhilfe N. 3.* *Sollte der Verlust nach aussen sein, die O-Ringe zwischen dem Achsmittengehäuse und den Zwischengehäuse ersetzen.* *Sollte der Verlust nach innen sein, oben genannte O-Ringe und jene der Bremskolben ersetzen.* Inspecter et réparer toutes les fuites du circuit externe ou du maître-cylindre. Si la cause est dûe à l'utilisation d'un fluide non indique voir remède N. 3. Si la fuite est vers l'exterieur du pont, substituer les o-rings entre le carter central et les carters intermediaires. Si la fuite est vers l'interieur du pont substituer les o-rings mentionnés ci-dessus et ceux des pistons frein.

PROBLEMA/*PROBLEM* PROBLEME/*PROBLEM*	CAUSE/*URSACHE* CAUSE/*CAUSE*	RIMEDI/*ABHILFE* REMEDE/*CORRECTION*
	4. Loss of brake fluid	*Inspect for and repair any leaks in outside circuit or master cylinder.* *If caused by incorrect brake fluid see correction n. 3.* *If leak is to the outside replace the o-rings between the center and intermediate housings.* *If leak is to the inside replace above o-rings and brake piston o-rings.*
	5. Surriscaldamento del ponte con vaporizzazione del fluido (i freni ritornano quando il ponte si raffredda). *5. Verdunstung der Bremsflussigkeit wegen Überhitzung. (Im abgekühlten Zustand ist die Bremswirkung wieder hergestellt).* 5. Surchauffe du pont avec vaporisation du fluide (les freins fonctionnent à nouveau quand le fluide se refroidit). *5. Overheated axle causing brake fluid to vaporize (brake return when axle cools).*	Vedi problema: Surriscaldamento. *Siehe Problem: Überhitzung.* Voir probleme: Surchauffe. *See "overheating" problem.*
Pedale del freno non risponde *Leichtes Bremspedal* Pedale du frein ne repond pas *Soft brake pedal*	6. Aria nel circuito freno *6. Luft in der Bremsanlage* 6.. Air dans le circuit *6. Air in brake circuit*	Spurgare il circuito freno come da istruzioni di spurgo del manuale del veicolo. *Bremsen entlüften gemäß Anweisungen im Handbuch des Failrzeuges.* Purger le circuit de frein selon "instructions de purge" du manuel du véhicule. *Bleed brakes as described in the vehicle's service manual.*
Freno negativo inefficiente *Federspeicherbremse ohne Funktion* Inefficacite du frein negatif *Ineffective safety brake*	8. Registrazione incorretta *8. Fehlerhafte Einstellung des Bremsscheibenspieles* 8. Mauvais reglage *8. Incorrect adjustment*	Vedi rimedio N. 1. *Siehe Abhilfe N. 1.* Voir remède N. 1. *See correction N. 1.*
	9. Dischi freno usurati *9. Bremslamellen verschlissen* 9. Usure disques frein *9. Brake disc worn out*	Vedi rimedio N. 2. *Siehe Abhilfe N. 2.* Voir remède N. 2. *See correction N. 2.*
Surriscaldamento *Überhitzung* Surchauffe *Overheating*	10. Livello olio non corretto *10. Niedriger Ölspiegel-Falscher Ölstand* 10. Niveau d'huile pas incorrect *10. Oil level wrong*	Scaricare, sciaquare e riempire d'olio fino a livello. *Öl ablassen, reinigen und richtigen Ölstand wieder herstellen.* Vidanger, rincer et refaire le niveau d'huile. *Drain, flush and refill oil to proper level.*
	11. Poco gioco tra i dischi freno *11. Zu wenig Spiel zwischen den Bremslamellen* 11. Peu de jeu entre les disques frein *11. Too small of a brake gap.*	Registrare il freno come istruzioni da manuale del veicolo. *Spiel gemäß Anweisungen im Handbuch des Fahrzeuges herstellen.* Regler le frein selon les instructions du manuel du véhicule. *Réadjust brakes to the specifications in the vehicle's service manual.*
	12. Freno di parcheggio in trazione *12. Feststellbremse zieht* 12. Frein de parc mal réglé *12. Park brake dragging*	Sbloccare il freno ripristinando il gioco corretto. *Bremsen lösen und richtiges Lamellenspiel einstellen.* Débloquer le frein et régler le jeu. *Unlock the brake and adjust the correct gap.*

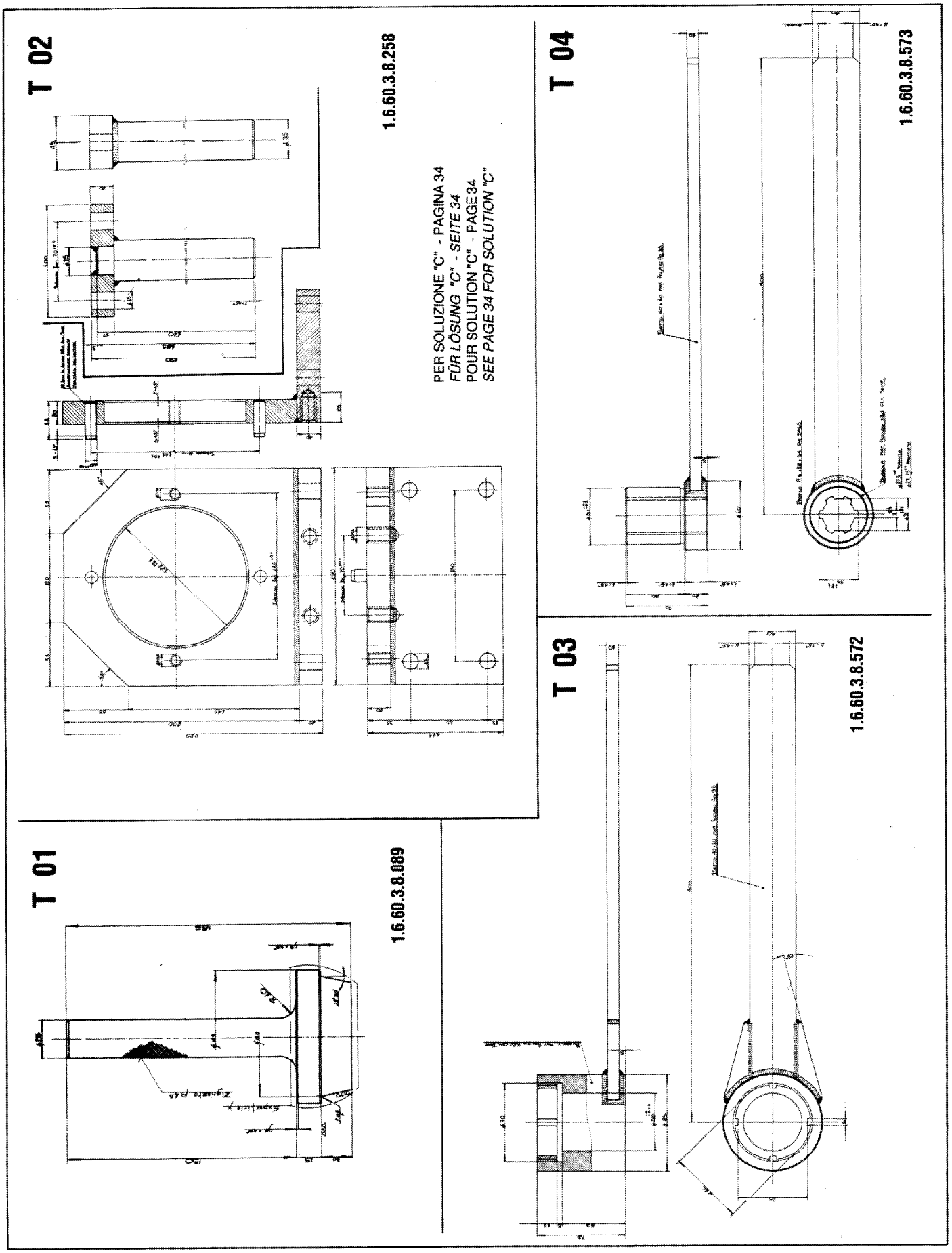
PROBLEMA/*PROBLEM* PROBLEME/*PROBLEM*	CAUSE/*URSACHE* CAUSE/*CAUSE*	RIMEDI/*ABHILFE* REMEDE/*CORRECTION*
	13. Fluido non idoneo nel circuito *13. Ungeeignete Flüssigkeit in der Bremsanlage* 13. Fluide incorrect dans le circuit *13. Incorrect brake fluid in system*	Vedi rimedio N. 3 *Siehe Abhilfe N. 3* Voir remède N. 3 *See correction N. 3*
	14. Non c'è corsa a vuoto sul cilindro master *14. Kein Leerweg am Bremspedal* 14. Pas de garde sur la pedale du maître-cylindre *14. No free-pedal at master cylinder*	Registrare il pedale del freno come istruzioni da manuale del veicolo. *Bremspedal gemäß Anweisungen im Handbuch des Fahrzeuges einstellen.* Régler la pedale du frein selon les instrucions du manuel du véhicule *Readjust brake pedal as described in the vehicle's service manual*
	15. Restringimento sul circuito del freno *15. Verengung in der Bremsanlage* 15. Reglage sur circuit du frein *15. Restriction in brake lines*	Ispezionare e riparare i condotti ammaccati o piegati. *Anlage überprüfen und verbeulte oder geknickte Leitungen ersetzen.* Inspecter et réparer les conduites endommagees. *Inspect for and repalce damage lines.*
	16. Restringimento sul condotto di ritorno del sistema servo. *16. Verengung in der Rückflussleitung des Servobremssystems* 16. Etranglement sur la conduite de retour du servo-frein *16. Restriction in return line of brake Servo system*	Ispezionare e riparare il condotto ammaccato o piegato. Ispezionare e sostituire tutti i filtri e raccordi sul circuito o qualsiasi altro ostacolo nel condotto di ritorno. *Anlage überprüfen und verbeulte oder geknickte Leitungen ersetzen.* *Alle Filter und Abzweigungen in der Anlage überprüfen, sämtliche Hindernisse für den freien Durchfluß entfernen.* Inspecter et réparer la conduite endommagée. Inspecter et changer tous les filtres, raccords en "T" ou autre obstacle sur le circuit de retour. *Inspect for and replace damaged return line.* *Inspect for and remove any filter, tee'd in line or any other source of back pressure from the return line.*
	17. Lubrificante non idoneo *17. Ungeeignetes Schmieroel* 17. Lubrifiant incorrect *17. Incorrect lubricant*	Sostituire gli anelli di tenuta del circuito freno e della pompa freno. *Die Abdichtungsringe des Bremskreislaufs der Bremspumpe ersetzen.* Replacer les anneaux d'étanchéité du circuit et de la pompe de frein. *Change the retaining rings of the brake circuit and brake pump.*
Il blocco differenziale non funziona *Differentialsperre ohne Wirkung* Mauvais fonctionnement du blocage du différentiel *Diff-lock inoperative*	18. Se è manuale: comando scollegato o registrato male *18. Bei mechanisch betätigter Sperre, loser oder schlecht eingestellter Hebel* 18. Si manuel: commande déconnectée ou mal réglée *18. If manual, loose or misadjusted linkage*	Ispezionare, riparare e registrare il comando indicato nel manuale del veicolo. *Hebel überprüfen und gemaß Anweisungen im Handbuch des Fahrzeuges einstellen.* Inspecter, réparer et régler la commande selon le manuel du véhicule. *Inspect and correct linkage and readjust as indicated in vehicle's service manual.*
	19. Se è a comando idraulico: problemi nel circuito elettrico del veicolo *19. Bei hydraulisch betätigter Sperre, Probleme in der hydraulischen oder elektrischen Anlage des Fahrzeuges* 19. Si commande hydraulique: problème dans le circuit électrique dans le véhicule *19. If hydraulic, problems in the hydraulic or electrical circuits of the vehicle.*	Fare riferimento alle istruzioni nel manuale del veicolo Siehe Anweisungen im Handbuch des Fahrzeuges. Voir instructions dans manuel du véhicule *Refer to the service manual for the vehicle.*

PROBLEMA/*PROBLEM* PROBLEME/*PROBLEM*	CAUSE/*URSACHE* CAUSE/*CAUSE*	RIMEDI/*ABHILFE* REMEDE/*CORRECTION*
	20. Se è a comando idraulico: problemi nell'-attuatore (caratterizzati da perdite del fluido idraulico o da aumento del livello d'olio nel ponte). *20. Bei hydraulisch betätigter Sperre, Ölverlust im Betätigungszylinder (erkentlich durch Verlust von hydr. Fluessigkeit oder Anstieg des Oelniveaus in der Achse)* 20. Si commande hydraulique: problèmes dans le vérin (caracterisés par des fuites de fluide hydraulique ou augmentation du niveau d'huile dans le pont) *20. If hydraulic: problems in actuating cylinder (noteable through loss of hydr. oil or increase of the oillevel in axle).*	Ispezionare e riparare il cilindro come da istruzioni a pagina 47. *Überprüfen und gemäß Anweisungen auf Seite 47 reparieren.* Inspecter et reparer le cylindre selon les instructions a page 47. *Rebuilt cylinder as described on page 47.*
	21. Se differenziale autobloccante, dischi usurati. *21. Wenn mit Selbstsperrdifferential, Scheiben verschlissen* 21. Si avec différentiel à glissement limité, usure sur les disques. *21. If with lim. slip differential, worn discs.*	Sostituire i dischi come descritto a pag. 44-45. *Scheiben ersetzen gemäß Anweisungen auf Seite 44-45.* Remplacer les disques selon description page 44-45. *Replace discs as described on page 44-45.*
Olio fuoriesce dallo sfiato *Ölaustritt aus dem Entlüfter* Huile sort du reniflard *Oil coming out of breather*	22. Perdita di fluido idraulico dal sistema frenante *22. Verlust von hydr. Flüssigkeit der Bremsanlage* 22. Fuite de fluide hydraulique du systeme de freinage *22. Leak in internal brake system*	Vedi rimedi N. 2 e 3. *Siehe Abhilfe N. 2 und 3.* Voir remède N. 2 et 3 *See corrections N. 2 & 3*
	23. Perdita d'olio idraulico dal circuito del blocco differenziale *23. Verlust von Hydr. Flüssigkeit der hydr. Anlage der Differentialsperre* 23. Fuite d'huile hydraulique du circuit de blocage du différentiel *23. Leak in diff-lock actuating cylinder.*	Vedi rimedio N. 20 *Siehe Abhilfe N. 20* Voir remède N. 20 *See corrections N. 20*
Il NoSpin è rumoroso viaggiando sul rettilineo *NoSpin macht Geräusche bei Geracheausfahrt* Le No-Spin fait du bruit en roulant en ligne droite *NoSpin indexing noise when driving straight*	24. Pressione disuguale nei pneumatici sui due lati *24. Ungleichmässiger Reifendruck links und rechts* 24. Pressions différentes dans les pneumatiques sur les deux cotes du véhicule *24. Unequal tire pressure left anal right*	Gonfiare i pneumatici alla pressione raccomandata nel manuale o comunque fino ad ottenere un raggio statico uguale. *Reifen vorschriftsgemäß auf pumpen bis ein gleichgroßer statischer Halbmesser erreicht wird.* Gonfler les pneumatiques selon la pression Recommandée dans le manuel ou jusq'à obtenir le même rayon sous charge *Inflate tires to the recommended pressure in the service manual, or until the rolling radius is equal.*
	25. Pneumatico di disegno, marca o costruttore diversi sui due lati *25. Unterschiedliche Reifen, -größen -marken, links und rechts* 25. Pneumatiques de sculptures ou de constructeurs differents sur les deux côtes du vehicule *25. Different style, size or brand of tires between left and right hand side.*	Cambiare pneumatici o rendere i raggi statici dei pneumatici eguali. Variare la pressione dei pneumatici nei campi di tolleranza prescritti dai costruttori dei pneumatici stessi, fino ad ottenere un raggio statico uguale. *Reifen ersetzen sodaß ein gleich-großer Statischer Halbmesser erreicht wird.* *Reifendruck im Bereich der Vorschriften ändern bis ein gleichgroßer Halbmesser erreicht wird.* Changer les pneumatiques ou rendre les rayons sans charge des pneumatiques égaux. Modifier la pression des pneumatiques dans les tolérances prescrites par les constructeurs de ces memes pneumatiques, jusq'à obtenir un rayon sous charge identique. *Change tires to make the rolling radius equal.* *Vary the tire pressure within the specifications until the rolling radius is equal.*

Attenzione: con il NoSpin possono verificarsi avarie da fatica sul lato con il pneumatico più grande.
Achtung: Mit NoSpin können auf der Seite mit dem grösseren Reifenradius Ermüdungsschäden auftreten.
Attention: Avec le NoSpin, des ruptures de fatigue peuvent se produire du côté des pneumatiques les plus grands.
Caution: With NoSpin, fatigue damage can occur on the side with the larger tire.

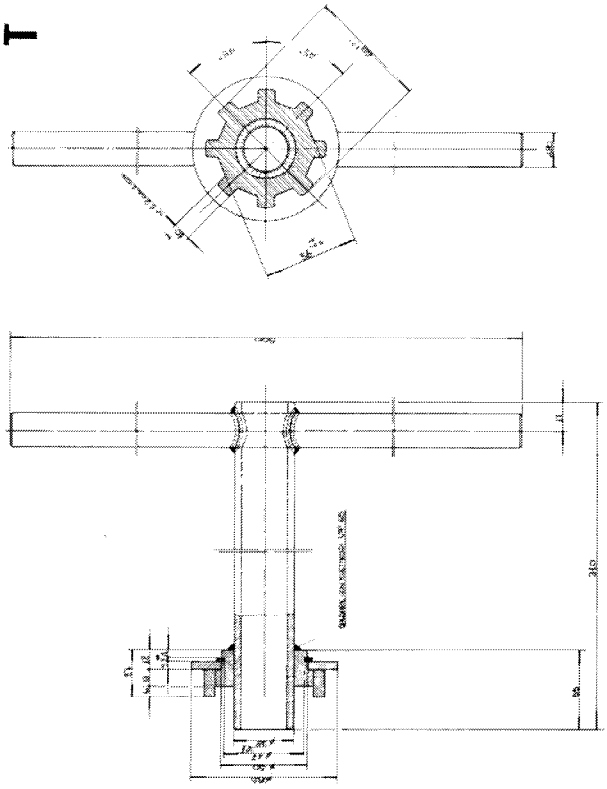
PROBLEMA/*PROBLEM* PROBLEME/*PROBLEM*	CAUSE/*URSACHE* CAUSE/*CAUSE*	RIMEDI/*ABHILFE* REMEDE/*CORRECTION*
Rumorosità uguale sia in tiro che in rilascio *Geräusch im Zug und im Schub gleich stark* Bruit en traction ou en retenue *Noise during coast and under power the same*	26. Cuscinetti dei mozzi danneggiati *26. Lager der Radnaben beschädigt* 26. Roulements des moyeux endommagés *26. Wheel bearings damaged*	Sostituire i particolari in avaria come descritto a pagina 17. *Beschädigte Teile gemäß Anweisungen auf Seite 17 ersetzen.* Remplacer les pièces endommagées selon description page 17. *Replace and adjust as described on page 17.*
Rumorosità più elevata in tiro piuttosto che in rilascio *Geraeusch staerker im Zug als im Schub* Bruit plus éleve en traction qu'en retenue *Noise under power greater than during coast*	27. Livello olio basso *27. Niedriger Ölstand* 27. Niveau d'huile insuffisant *27. Low oil level*	Rabboccare olio fino a livello. *Schmieröl nachfüllen bis richtiger Ölstand wieder hergestellt ist.* Refaire le niveau d'huile *Refill oil to proper level*
	28. Olio non idoneo *28. Ungeeignetes Schmieröl* 28. Huile incorrect *28. Incorrect lubricant*	Vedi rimedio N. 17 *Siehe Abhilfe N. 17.* Voir remède N.17 *See correction N. 17.*
	29. Coppia conica usurata *29. Kegel- und Tellerrad verschlissen* 29. Usure du couple conique *29. Ring and pinion worn*	Ispezionare attraverso il coperchio posteriore. Sostituire la coppia conica come descritto da pag.31 a 39. *Durch die heckseitige Bohrung überprüfen. Kegel- und Tellerrad gemäß Anweisungen von Seite 31 bis 39 ersetzen.* Inspectioner au travers du couvercle posterieur. Remplacer le couple conique comme décrit de la page 31 à la page 39. *Inspect through rear cover. Replace and adjust as described from page 31 to 39.*
	30. Cuscinetti della coppia conica usurati *30. Kegelrollenlager des Kegel- und Tellerrad-paares verschlissen* 30. Usure des roulements du couple conique *30. Worn ring and pinion bearings*	Sostituire i particolari in avaria come descritto da pagina 31 a 39. *Beschädigte Teile gemäß Anweisungen von Seite 31 bis 39 ersetzen.* Remplacer les pièces endommagées comme décrit de la page 31 à la page 39. *Replace and adjust as described from page 31 to 39.*
	31. Planetari o cuscinetti dell'epicicloidale usurati *31. Planetenräder oder Lager der Planetenab-triebe verschlissen* 31. Usure des planétaires ou roulement de l'épicycloïdale *31. Worn planetary gears or bearings*	Sostituire i particolari in avaria come descritto a pagina 16. *Beschädigte Teile gemäß Anweisungen auf Seite 16 ersetzen.* Remplacer les pièces endommagées selon description page 16. *Replace as described on page 16.*
Rumorosità più elevata in rilascio piuttosto che in tiro *Geräusch stärker im Schub als im Zug* Bruit plus eleve en retenue qu'en traction *Noise during coast greater than under power*	32. Ghiera pignone allentata *32. Wellenmutter des Kegelritzels lose* 32. Ecrou du pignon dévissé *32. Loose pinion nut*	Ispezionare la coppia conica ed i rispettivi cuscinetti, se non fossero danneggiati serrare la ghiera come descritto a pagina 32 - 33. *Kegel- und Tellerrad und Lager überprüfen. Sollten diese nicht beschädigt sein, Wellenmutter anziehen gemäß Anweisungen auf Seite 32 - 33.* Inspecter le couple conique et les roulements et si rien n'est endommagé, resserrer l'ecrou selon description page 32 - 33. *Inspect ring, pinion and pinion bearings. If undamaged, retighten nut as described on page 32 - 33.*
	33. Solo un cuscinetto del pignone è danneggiato *33. Nur eines der Lager des Kegelritzels ist beschädigt* 33. Seulement un roulement du pignon est endommage	Vedi rimedio N. 30 *Siehe Abhilfe N. 30* Voir remède N.30 *See correction N. 30*

PROBLEMA/*PROBLEM* PROBLEME/*PROBLEM*	CAUSE/*URSACHE* CAUSE/*CAUSE*	RIMEDI/*ABHILFE* REMEDE/*CORRECTION*
Rumore sotto sterzo (senza NoSpin) *Geräusch während der Kurvenfahrt (ohne NoSpin)* Bruit en braquage (sans NoSpin) *Noise during turn (without NoSpin)*	34. Satelliti e/o planetari del differenziale danneggiati *34. Ausgleich kegelräder und/oder -wellenräder verschlissen* 34. Satellites et/ou planétaires du différentiel endommagés 34. Worn spider and/or side gears	Sostituire i particolari danneggiati come descritto a pagina 42. *Beschädigte Teile gemäß Anweisungen auf Seite 42 ersetzen.* Remplacer les pièces endommagées selon description page 42. Replace as described on page 42.
Un rumore tipo "Stick slip" si manifesta durante l'inversione di marcia *"Stick slip" -Geräusch bei Änderung der Fahrtrichtung* Un bruit type "Stick slip" se manifeste pendant l'inversion *A "Stick slip" noise when going from forward to reverse*	35. Giunto cardanico danneggiato *35. Kardanwelle beschädigt* 35. Joint cardan endommagé 35. Worn or damaged cardanshaft	Ispezionare e sostituire il giunto come indicato nel manuale del veicolo *Überprüfen und Kardanwelle gemäß Anweisungen im Handbuch des Fahrzeuges ersetzen.* Inspecter et remplacer le joint cardan selon les indications du manuel du véhicule *Inspect and replace as described in vehicle's service manual*
	36. Ruota allentata *36. Rad lose* 36. Roue dévissée 36. Loose wheel	Ispezionare eventuali danni al disco ed alle colonnette del mozzo ruota, se necessario sostituire i particolari danneggiati e serrare i dadi alla coppia prescritta a pagina. *Eventuelle Schäden an der Felge und an den Radbolzen überprüfen. Falls erforderlich beschädigte Teile ersetzen und Radmuttern gemäß auf Seite vorgeschriebenem Drehmoment anziehen.* Inspecter les éventuels dommages au disque et aux goujons du moyeu de roue. Si nécessaire remplacer les pieces endommagees et serrer les écrous au couple prescrit. *Inspect for wheel and wheel stud damage. Replace if needed and retorque lugnuts.*
	37. Giunto dell'articolazione di sterzo danneggiato *37. Kugelgelenk beschädigt* 37. Joint d'articulation de braquage endommagé *37. Worn or damaged ball joint at steering knuckle*	Ispezionare e sostituire i particolari danneggiati come descritto da pagina 24 a 27. *Überprüfen und beschädigte Teile gemäß Anweisungen von Seite 24 bis 27 ersetzen.* Inspecter et remplacer les pièces endommagées comme décrit de la page 24 à la page 27. *Inspect and repalce as described from page 24 to 27.*
	38. Satelliti liberi nella scatola differenziale *38. Ausgleich kegelräder im Differential lose* 38. Satellites libres dans le carter central *38. Spider pins loose in diff-carrier*	Ispezionare attraverso il coperchio posteriore, sostituire i particolari danneggiati come descritto a pagina 42. *Durch die heckseitige Bohrung überprüfen. Beschädigte Teile gemäß Anweisungen auf Seite 42 ersetzen.* Inspecter au travers du couvercle posterieur. Remplacer les pièces endommagées selon description page 42. *Inspect through rear cover. Replace as described on page 42.*
	39. Rondelle di rasamento del differenziale usurate *39. Anlaufscheiben im Differential verschlissen* 39. Usure des rondelles du différentiel *39. Damaged or missing spider and/or side gear washers*	Vedi rimedio N. 34. *Siehe Abhilfe N. 34.* Voir remède N. 34 . *See correction N. 34.*


T 02
1.6.60.3.8.258
PER SOLUZIONE "C" - PAGINA 34
FÜR LÖSUNG "C" - SEITE 34
POUR SOLUTION "C" - PAGE 34
SEE PAGE 34 FOR SOLUTION "C"
T 04
1.6.60.3.8.573
T 03
1.6.60.3.8.572
T 01
1.6.60.3.8.089

T 06

1.6.60.3.8.846



T 05

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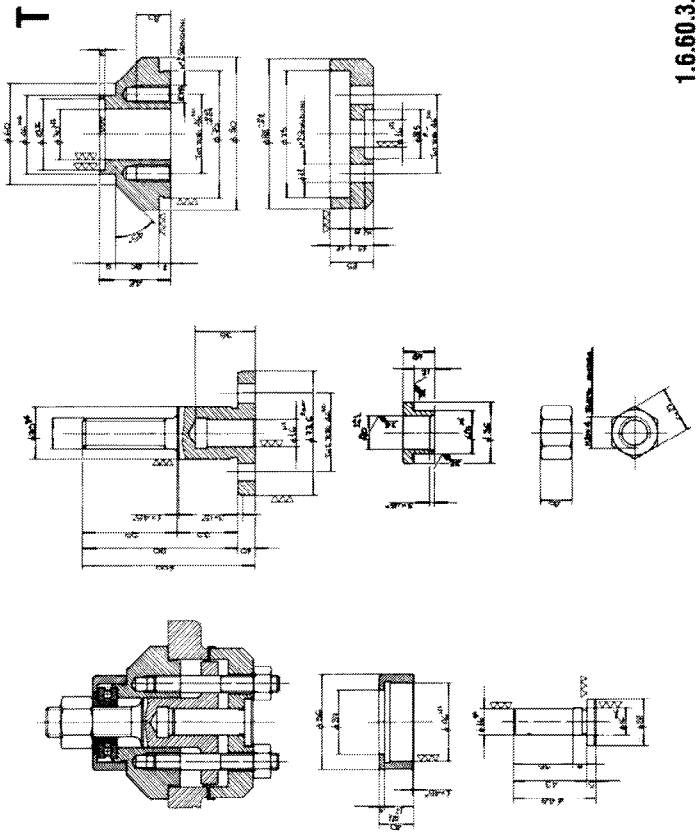

T 07

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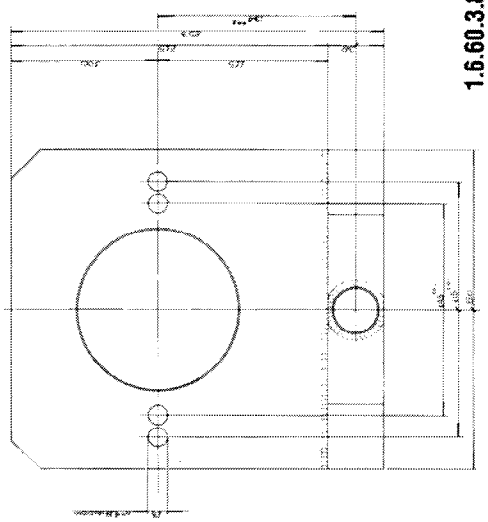
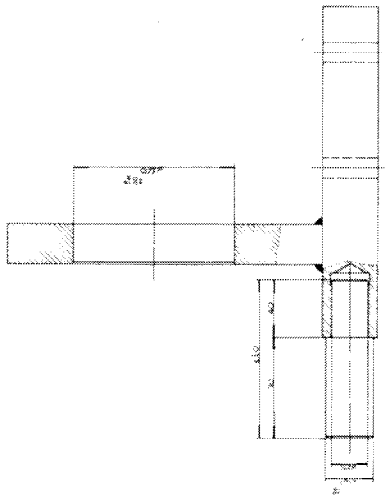
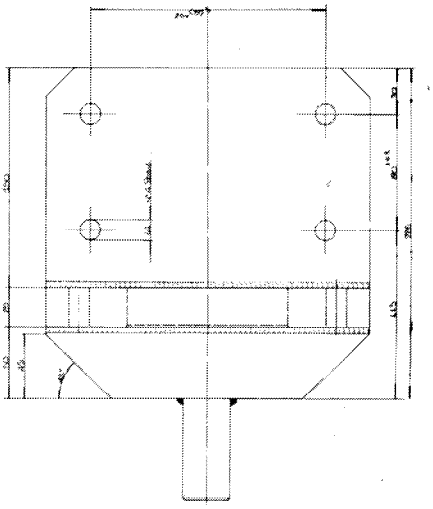
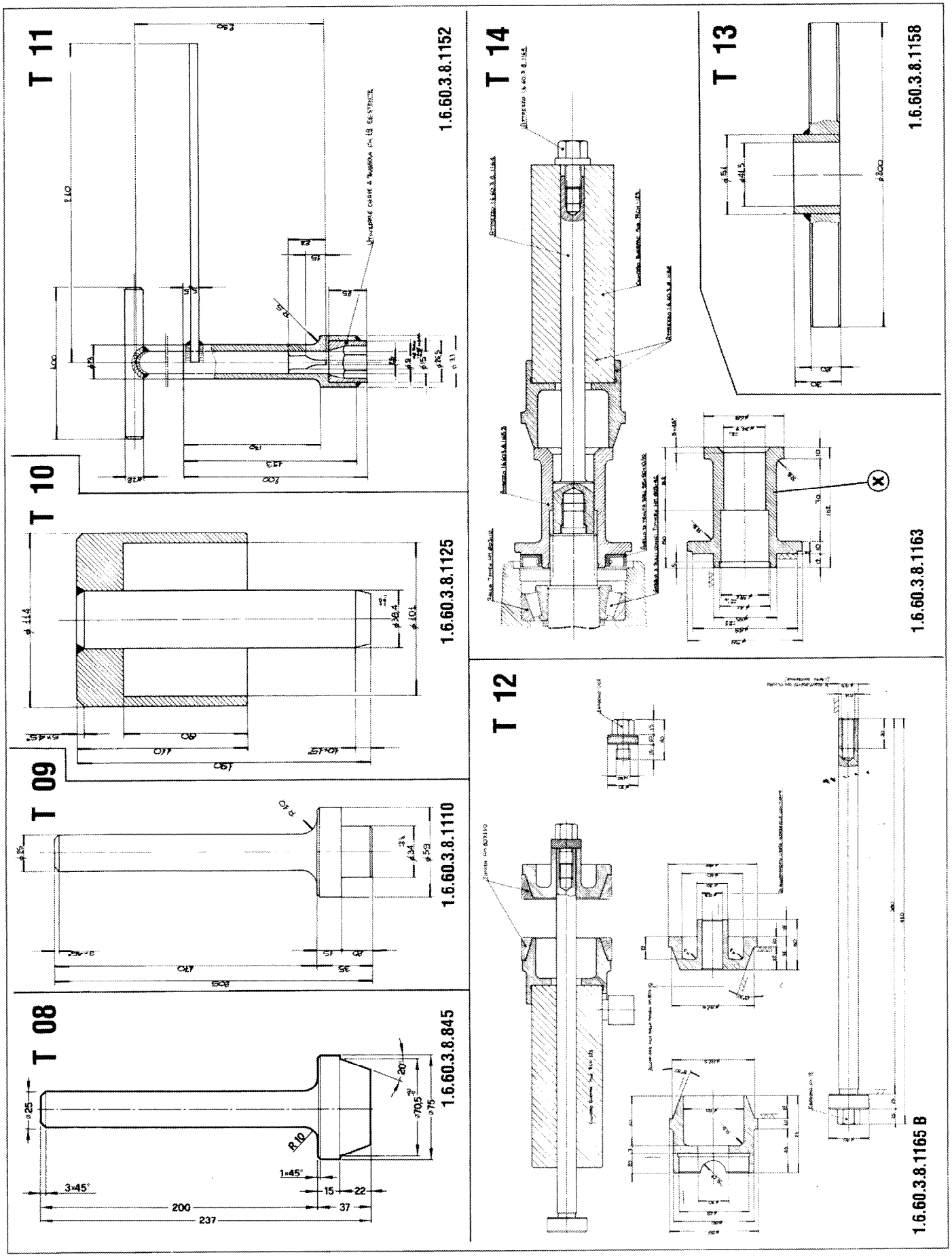






PER SOLUZIONE "A-B-D" - PAGINA 34
FÜR LÖSUNG "A-B-D" - SEITE 34
POUR SOLUTION "A-B-D" - PAGE 34
SEE PAGE 34 FOR SOLUTION "A-B-D"


T 11
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T 10
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T 09
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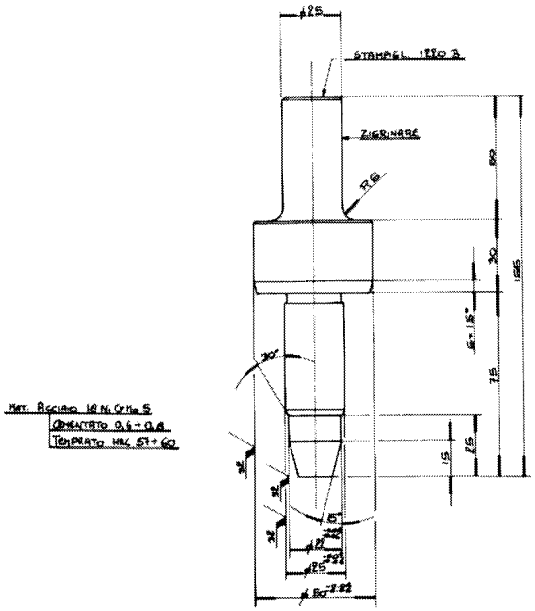
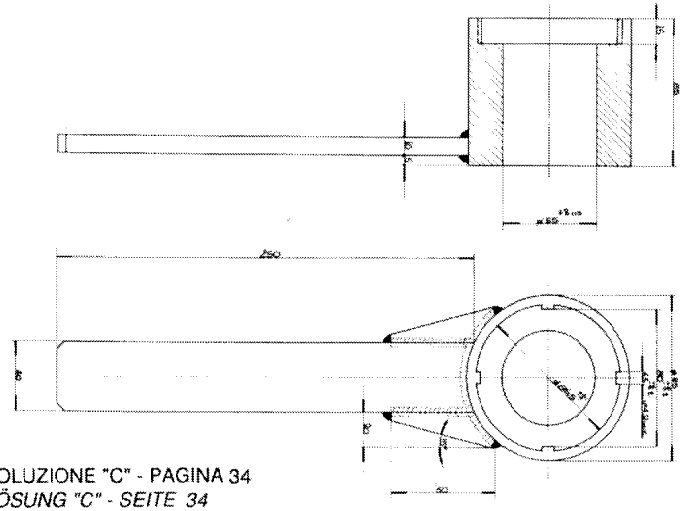
T 08
1.6.60.3.8.845
T 14
1.6.60.3.8.1163
T 13
1.6.60.3.8.1158
T 12
1.6.60.3.8.1165 B

T 15



1.6.60.3.8.1220

T 16

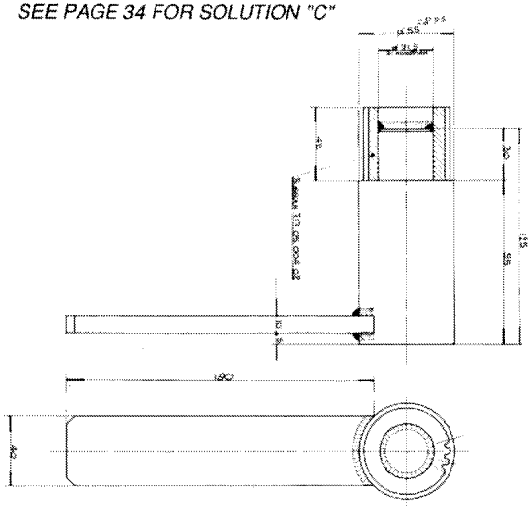


PER SOLUZIONE "C" - PAGINA 34
FÜR LÖSUNG "C" - SEITE 34
POUR SOLUTION "C" - PAGE 34
SEE PAGE 34 FOR SOLUTION "C"

1.6.60.3.8.1259 A

T 17

PER SOLUZIONE "C" - PAGINA 34
FÜR LÖSUNG "C" - SEITE 34
POUR SOLUTION "C" - PAGE 34
SEE PAGE 34 FOR SOLUTION "C"



1.6.60.3.8.1259 B

T 18

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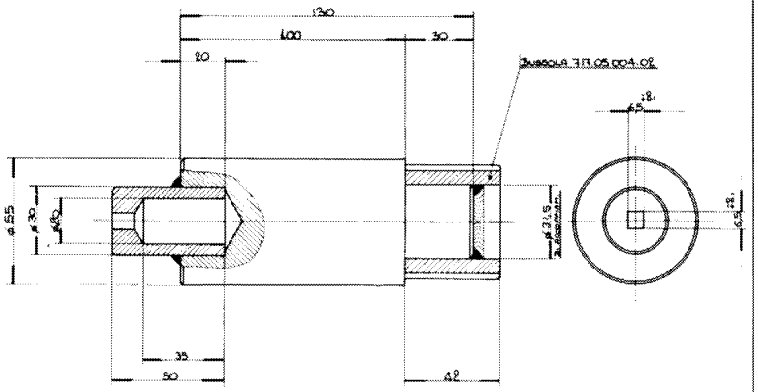
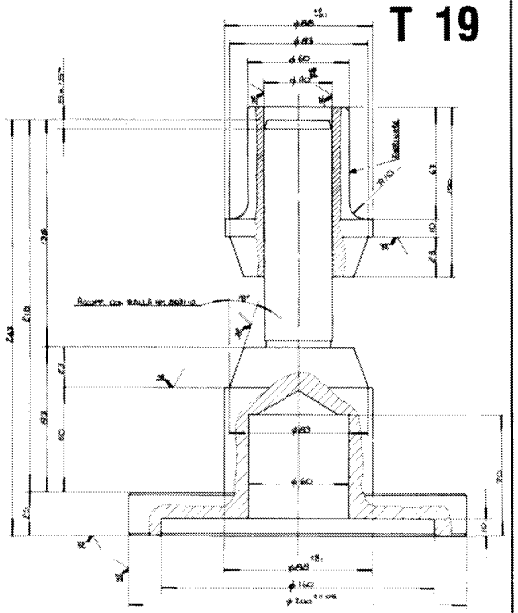
FÜR LÖSUNG "C" - SEITE 34
POUR SOLUTION "C" - PAGE 34
SEE PAGE 34 FOR SOLUTION "C"



1.6.60.3.8.1259 C

T 19



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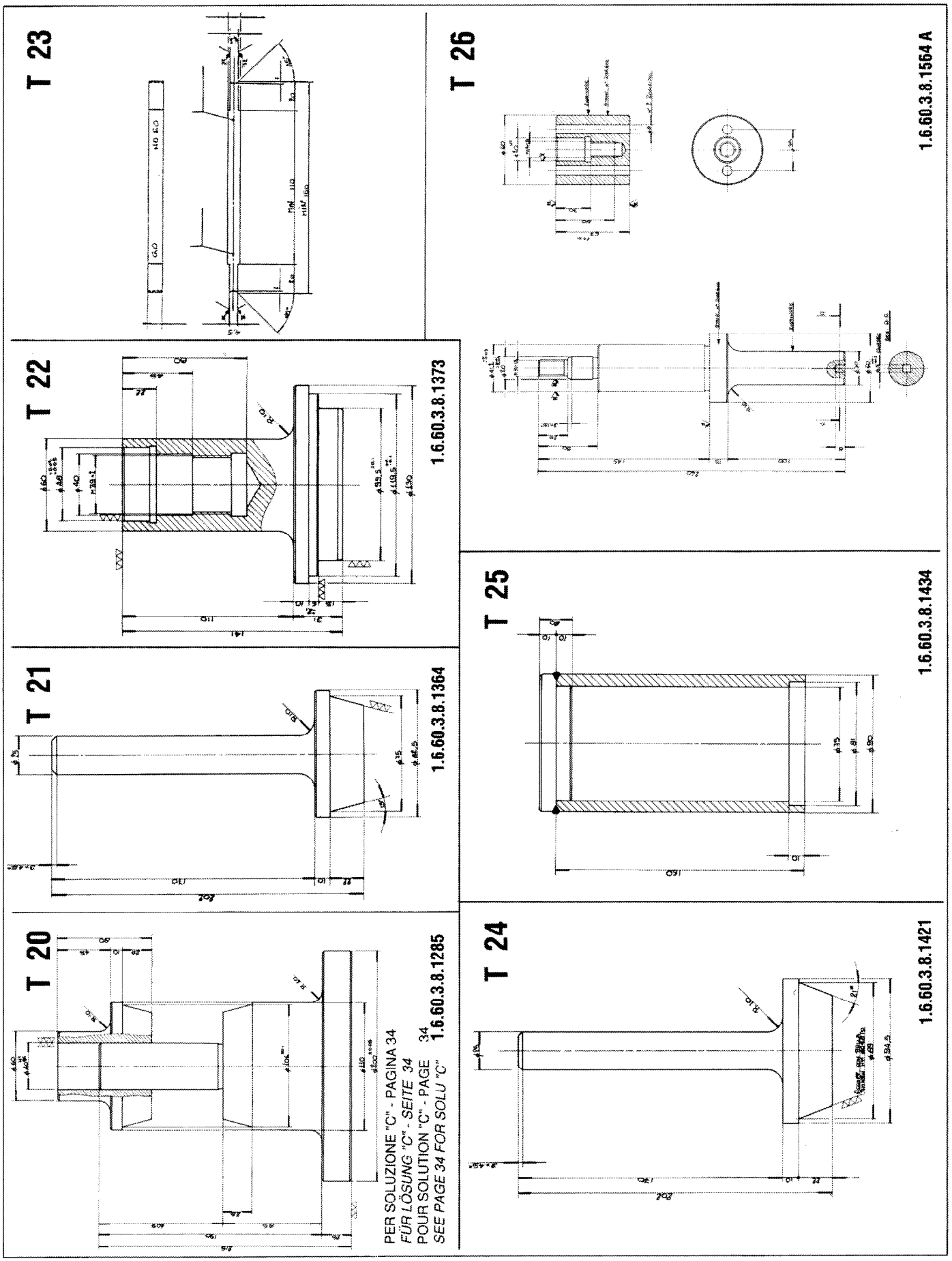
T 23
T 22
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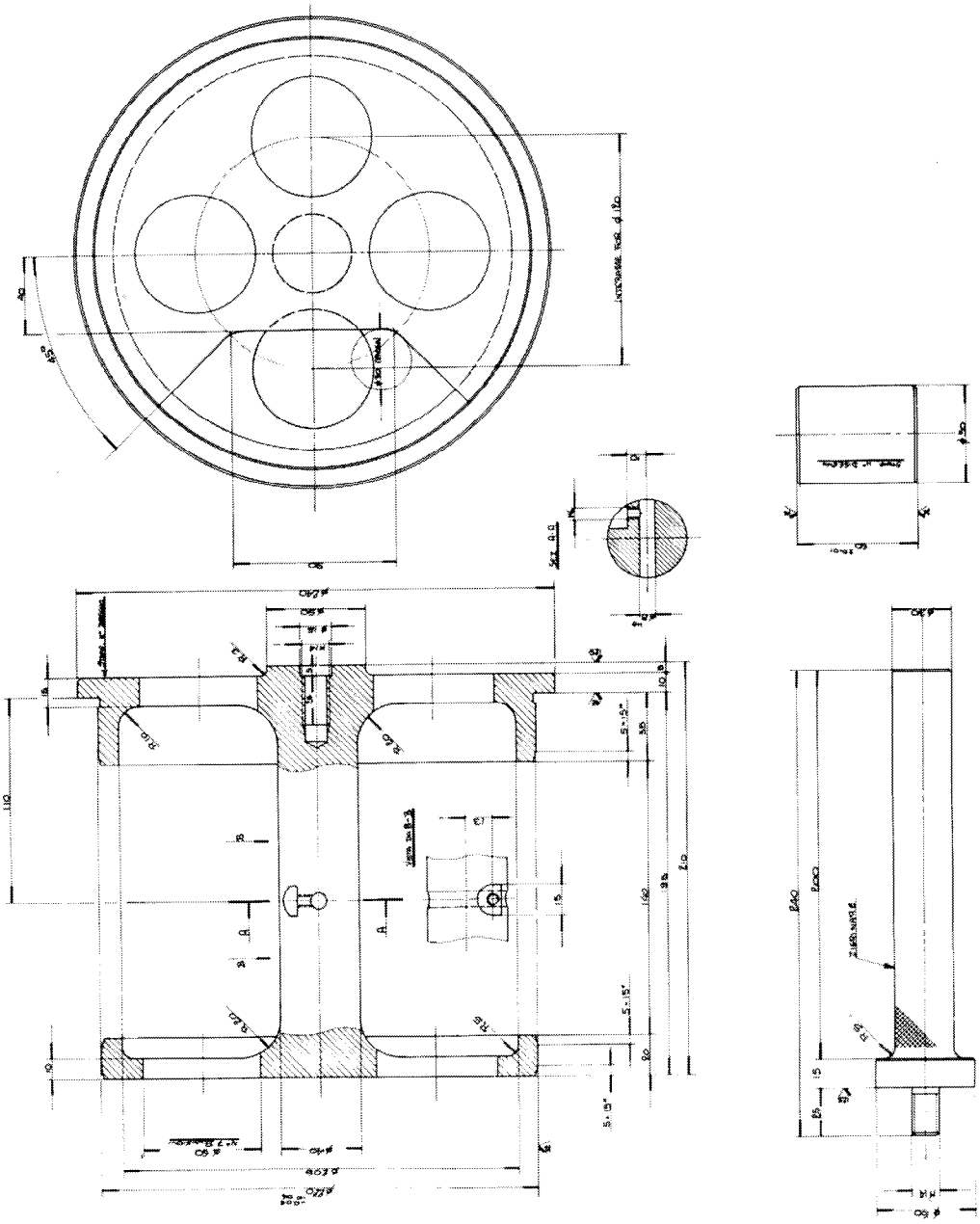
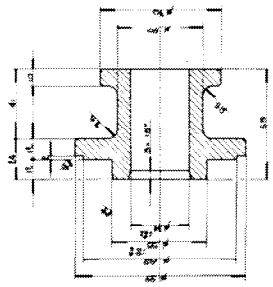
T 21
1.6.60.3.8.1364
T 20
1.6.60.3.8.1285
PER SOLUZIONE "C" - PAGINA 34
FÜR LÖSUNG "C" - SEITE 34
POUR SOLUTION "C" - PAGE 34
SEE PAGE 34 FOR SOLU "C"
T 26
1.6.60.3.8.1564 A
T 25
1.6.60.3.8.1434
T 24
1.6.60.3.8.1421

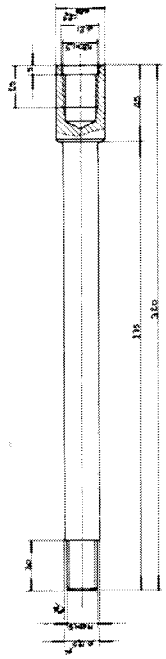
T 27

1.6.60.3.8.1564 B



T 30





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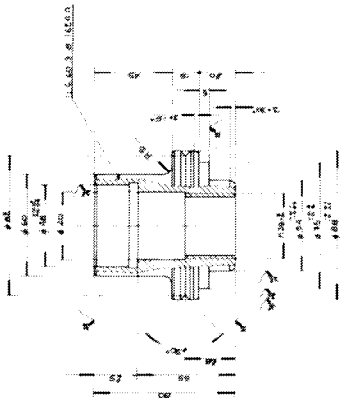
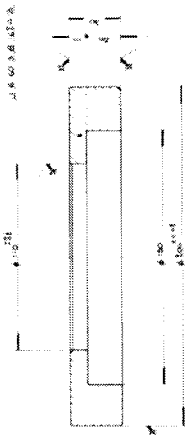
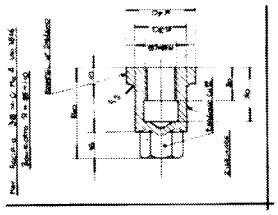
T 33

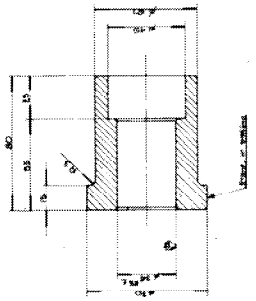


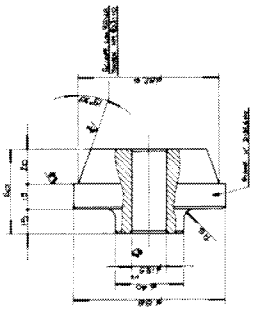


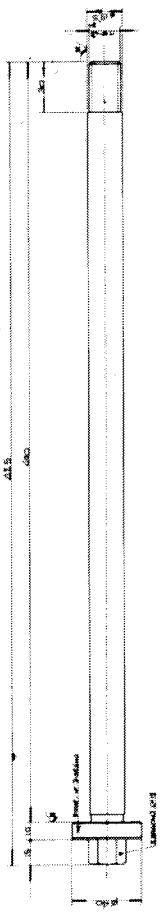
DRAWING
PER SOLUZIONE "A-B" - PAGINA 34
FÜR LÖSUNG "A-B" - SEITE 34
POUR SOLUTION "A-B" - PAGE 34
SEE PAGE 34 FOR SOLUTION "A-B"

1.6.60.3.8.1624









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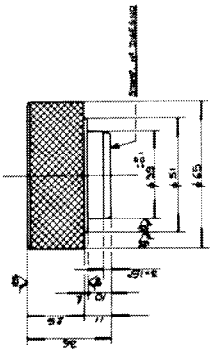

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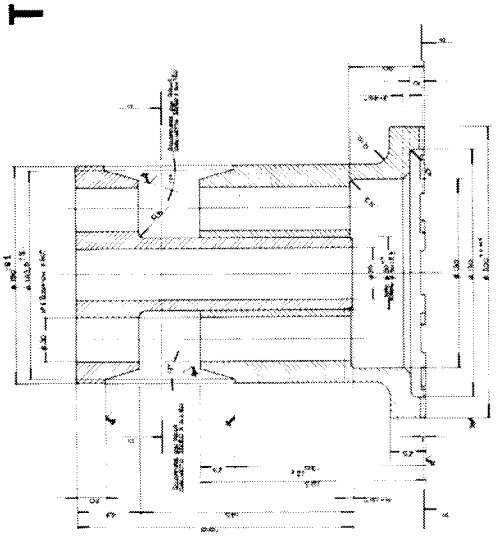
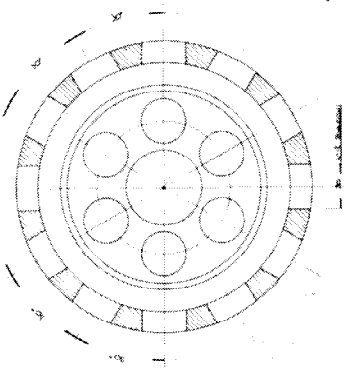
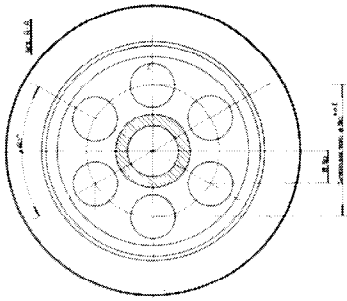
T 32







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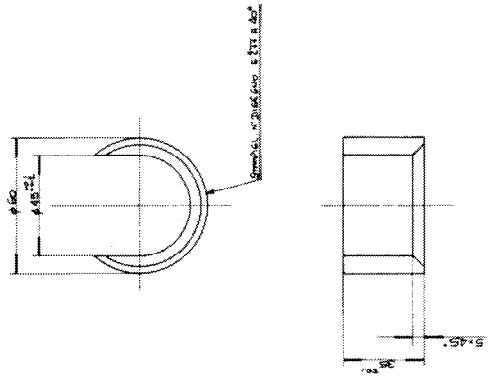

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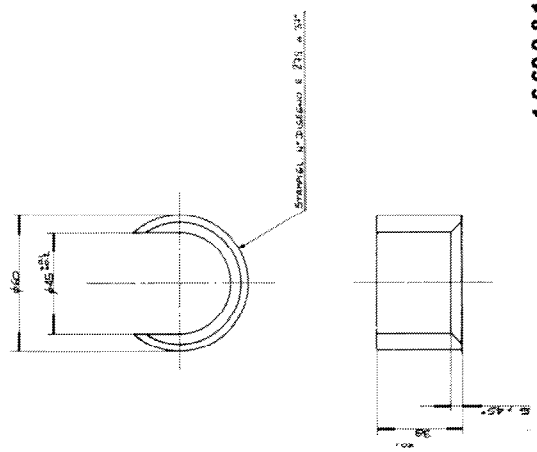
T 42



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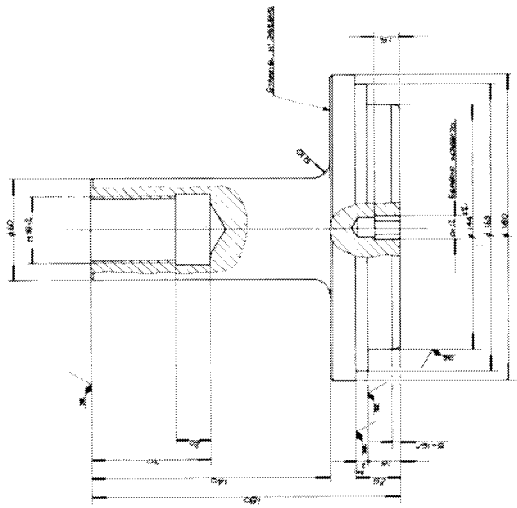
T 38



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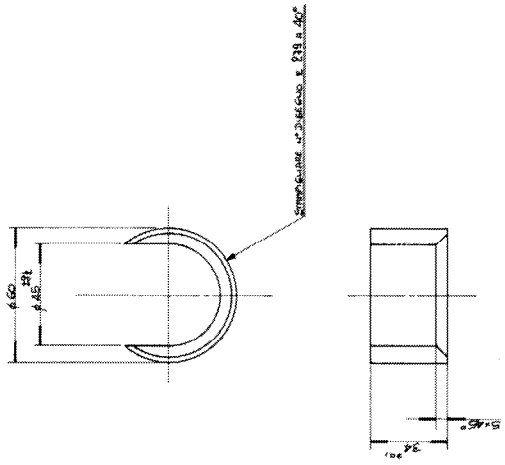
T 41



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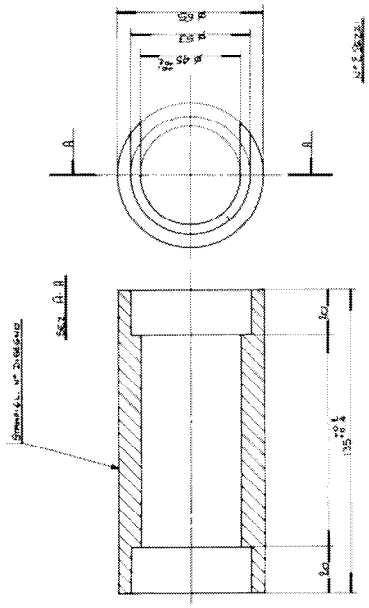
T 37



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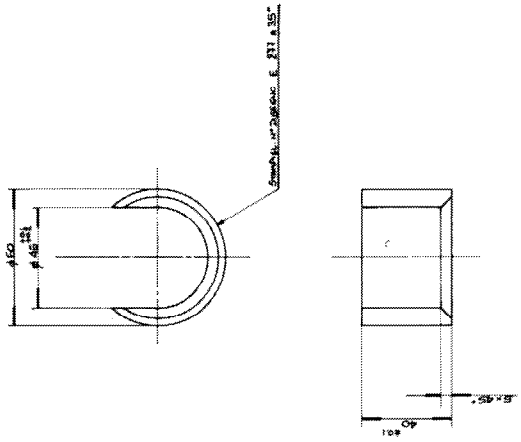

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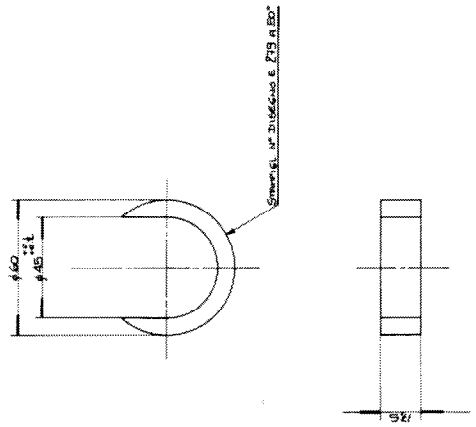
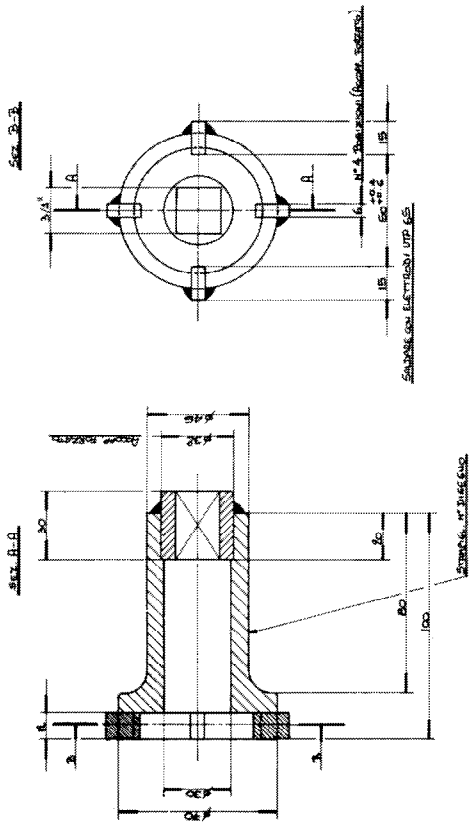
T 44



1.6.60.3.8.1998

T 43



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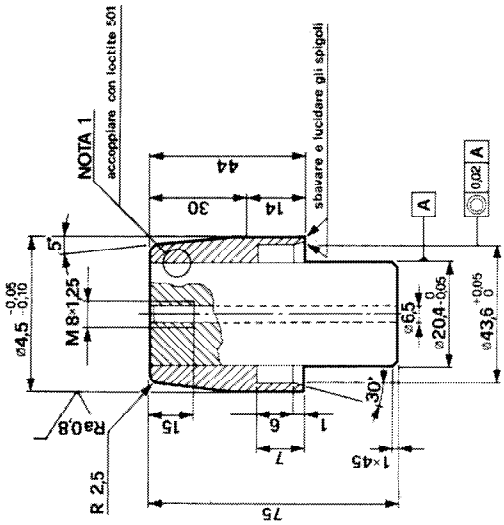
T 45



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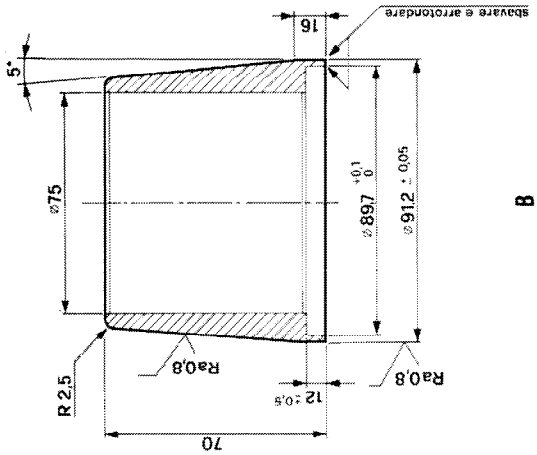

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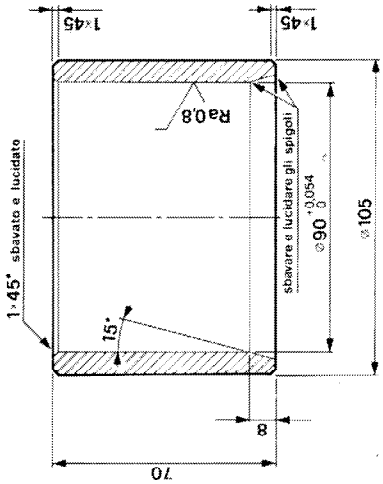

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