MECHANICAL COMPONENTS 1

MAN
058881

BX

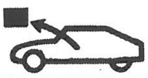
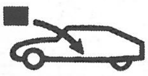
⚠	D	Achtung ! Wichtiger Punkt oder Fehlerquelle
	DK	Pas på ! Vigtigt punkt eller fejlmulighed
	E	Atención ! Punto importante o posible dificultad
	GB	Caution ! Important detail or possible trap
	I	Attenzione ! Punto importante o possibilita di errore
	NL	Let op ! Belangrijk punt, kan gemakkelijk fout gaan !
	P	Atenção ! Ponto importante ou possibilidade de errar
	S	Varning ! Viktigt arbetsmoment eller mójlighet till misstag
	F	Attention ! Point important ou piège possible

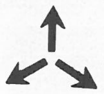
⚠	D	Darauf achten, dass keine Teile herunterfallen oder abspringen
	DK	Risiko for at delene falder ud eller forskübber sig
	E	Riesgo de caida o de proyección de piezas
	GB	Parts may drop or spring out
	I	Rischio di caduta o di proiezione di pezzi
	NL	Kans op naar beneden vallen of wegspringen van onderdelen
	P	Risco de queda ou de projecção de peças
	S	Risk för att delar faller ned eller spritter ut
	F	Risque de chute ou de projection de pièces

⚠	D	Unbedingt Spezialschrauben verwenden
	DK	Special - skruer skal anvendes
	E	Empleo imperativo de tornillos especiales
	GB	Use of special fixing - hardware essential
	I	Uso obbligatorio di bulloneria speciale
	NL	Uitluitend speciale bouten gebruiken
	P	Utilização imperativa de parafusos or porcas especiais
	S	Specialskruv måste ovillkorligen användas
	F	Emploi imperatif de visserie spéciale

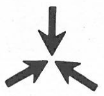
⚠?	D	Arbeitsvorgang, falls erforderlich durchführen
	DK	Arbejdsoperation der udføres hvis det er nødvendigt
	E	Operación a efectuar si es necesario
	GB	Operation to be carried out if necessary
	I	Operazione da effettuare se necessario
	NL	Indien noodzakelijk handeling uitvoeren
	P	Operação a efectuar se necessário
	S	Arbetsmoment/arbete att utföra vid behov
	F	Opération à effectuer si nécessaire

 1/8-85 Citroën, Kbh 217,35

	D	DK	E	GB	I	NL	P	S	F
	Rechts	Højre	Derecho	Right	Destro	Rechts	Direita	Höger	Droite
	Links	Venstre	Izquierdo	Left	Sinistro	Links	Esquerda	Vänster	Gauche
	Oben	Opad	Alto	Up	Alto	Boven	Alto	Uppåt	Haut
	Unten	Nedad	Bajo	Down	Basso	Onder	Baixo	Nedåt	Bas
	Hinten	Bag	Trasero	Rear	Dietro (Posteriore)	Achter	Traseira	Bak (åt). bakre	Arrière
	Vorn	For	Delantero	Front	Avanti (Anteriore)	Voor	Dianteira	Fram (åt). främre	Avant
	Ausbau. Ausbauen	Fjernelse. Fjerne	Quitado. Quitar	Removal. Remove	Stacço. Staccare	Verwijder. Uitbouwen	Desmontagem. Desmontar.	Demontering. Demontera	Dépose - Déposer
	Einbau. Einbauen	Anbringelse. Anbringe	Colocacion. Poner	Fitting. Fit	Riattacco. Riattaccare	Monteer. Inbouwen	Montagem. Montar	Återmontering. Återmontera	Pose - Poser



- (D) Zerlegen
- (DK) Afmontering. Afmontere
- (E) Desmontaje. Desmontar
- (GB) Dismantling. Dismantle
- (I) Smontaggio. Smontare
- (NL) Demontage. Demonteren
- (P) Desarmar
- (S) Isärtagning - Tag isär
- (F) Démontage - Démonter



- (D) Zusammenbau
- (DK) Påmontering. Påmontere
- (E) Montaje. Montar
- (GB) Assembly. Assemble
- (I) Montaggio. Montare
- (NL) Montage. Monteren
- (P) Armar
- (S) Hopsättning. Sätt ihop
- (F) Montage - Monter

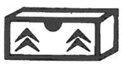
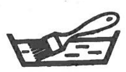
- (D) Lösen
- (DK) Adskille
- (E) Desconectar
- (GB) Disconnect
- (I) Disinnestare
- (NL) Losmaken
- (P) Desligar
- (S) Koppla bort
- (F) Déconnecter

- (D) Verbinden
- (DK) Samle
- (E) Conectar
- (GB) Connect
- (I) Innestare
- (NL) Aan elkaar maken
- (P) Ligar
- (S) Koppla in
- (F) Connecter

- (D) Die Drehung oder Übertragung muss ohne Hartpunkt erfolgen
- (DK) Sørg for at drejningen eller bevaegelsen sker jaevnt og ensartet
- (E) Asegurarse de que la rotación o la translación se efectua sin punto duro
- (GB) Ensure that the rotation or movement is without high spots
- (I) Assicurarsi che la rotazione o la translazione avvenga senza sforzo
- (NL) Controleer of het draaien of de overbrenging zonder zwaar punt verloopt
- (P) Certificar-se que a rotação ou a translação se efectua sem ponto duro
- (S) Kontrollera att runtdragningen eller manövreringen kan ske utan kärvning
- (F) S'assurer que la rotation ou la translation s'effectue sans point dur

- (D) Anschrauben. 1 = Anzahl der Umdrehungen. 180° = Einstellwinkel
- (DK) Skruel. 1 = Antal omdrejninger. 180° = Drejningsvinkel
- (E) Roscar. 1 = Núméro de vueltas. 180° = Angulo que se debe efectuar
- (GB) Screw In. 1 = Númber of turns. 180° = Angular value
- (I) Avvitare 1 = Numero di giri. 180° = Rotazione da effettuare
- (NL) Aandraaien. 1 = Aantal slagen. 180° = In te stellen hoek
- (P) Aparafusar 1 = Número de voltas. 180° = Ângulo a efectuar
- (S) Skruva In 1 = Antal Varv 180° = Antal grader
- (F) Visser - 1 = Nombre de tours. 180° = Angle à effectuer

	(D) Losschrauben. 1 = Anzahl der Umdrehungen. 180° = Einstellwinkel (DK) Skrue løs. 1 = Antal omdrejninger. 180° = Drejningsvinkel (E) Desenroscar. 1 = Número de vueltas. 180° = Angulo que se debe efectuar (GB) Unscrew. 1 = Number of turns. 180° = Angular value (I) Svitare. 1 = Numero di giri. 180° = Rotazione da effettuare (NL) Losdraaien. 1 = Aantal slagen. 180° = In te stellen hoek (P) Desaparafusar. 1 = Número de voltas. 180° = Ângulo a efectuar (S) Skruva ut. 1 = Antal varv. 180° = Antal grader (F) Dévisser - 1 = Nombre de tours. 180° = Angle à effectuer
	(D) Verbot. Nicht verwenden oder wiederverwenden (DK) Forbud. Må ikke anvendes eller genbruges (E) Prohibido. No utilizar o volver a utilizar (GB) Prohibited. Do not use or reuse (I) Proibizione. Non usare o riutilizzare (NL) Verboden Niet gebruiken of niet opnieuw gebruiken (P) Proibido Não utilizar ou reutilizar (S) Förbud Använd eller återanvänd ej (F) Interdiction - Ne pas utiliser ou réutiliser
	(D) Federring (DK) Fjederskive (E) Arandela Grower (GB) Spring washer (I) Rondella Grower (NL) Veerring (P) Anilha Grower (S) Grower - Bricka (F) Rondelle Grower
	(D) Unterlegscheibe (DK) Kontakt Skive (E) Arandela de Contacto (GB) Contact washer (I) Rondella a Contatto (NL) Contactring (P) Anilha de Contacto (S) Kontaktbricka (F) Rondelle Contact
	(D) Zahnscheibe (DK) Stjerneskive (E) Arandela Estrellada (GB) Serrated washer (I) Rondella a Ventaglio (NL) Kartelring (P) Anilha Recartilhada (S) Solfjäderbricka (F) Rondelle Eventail
	(D) Flachscheibe (DK) Flad Skive (E) Arandela Plana (GB) Flat washer (I) Rondella Piatta (NL) Platte Ring (P) Anilha Plana (S) Planbricka (F) Rondelle Plate

	D Anzahl der Schraubelemente : Schrauben, Muttern, Stiftschrauben usw DK Antal dele I skruesamlingen E Cantidad de elementos de tornilleria : tornillos, tuerca, esparrago, etc. GB Number of threaded components : screw, nut, stud, etc. I Numero di elementi di bulloneria, viti, dadi, prigionieri, ecc. NL Aantal : bouten, moeren, tapeinden enz. . . . P Número de elementos de parafusos ou porcas, porca, perno, etc. S Antal förskruvningspunkter : skruv, mutter, pinnbult, etc. F Nombre d'éléments de visserie : vis, écrous, goujons, etc.
	D Sichern bzw. Entsichern DK Låse eller frigøre E Frenar o quitar el freno, según el caso GB Lock or unlock as appropriate I Bloccare o sbloccare, secondo i casi NL Borgen of borg verwijderen P Travar ou destravar conforme o caso S Lås eller avlägsna låsningen F Freiner ou défreiner suivant le cas
	D Unbedingt Neuteile verwenden DK Ny del skal anvendes E Empleo imperativo de una pieza nueva GB Use of new part essential I Uso obbligatorio di un pezzo nuovo NL Noodzakelijk een nieuw onderdeel te gebruiken P Utilizacão imperativa duma peça nova S Ny del måste ovillkorligen användas F Emploi impératif d'une pièce neuve
	D Schmieren DK Smøre E Aceitar GB Oil I Oliare NL Oliën P Olear S Anolja F Huiler
	D Reinigen ...(je nach eventueller Markierung, siehe Tabelle der Klebe-, Schmier-und Dichtmittel) DK Rengøre med ... (afhængig af evt. mærkning af produkt) E Limpiar ... (siguiendo lo señalado eventualmente, ver cuadro de productos) GB Clean ... (according to symbol, if present, see table of recommendations) I Pulire ... (secondo eventuale riferimento, vedere tabella ingredienti) NL Reinigen ... (zoals aangegeven, zie lijts met benodigdheden) P Limpar ... (conforme marca eventual, ver quadro ingredientes) S Rengör ... (enligt eventuell märkning. se listan över olika produkter) F Nettoyer ... (suivant repère éventuel, voir tableau ingrédients)

(D) Mit ... schmieren (gemäss Markierung, siehe Tabelle der Klebe-, Schmier- und Dichtmittel)
(DK) Overstryge med ... (afængig af referance produkt)
(E) Untar con ... (siguiendo lo señalado, ver cuadro de productos)
(GB) Smear with ... (according to symbol, see table of recommendations)
(I) Spalmare di ... (secondo riferimento, vedere tabella ingredienti)
(NL) Insmeren met ... (zoals aangegeven, zie lijst met benodigdheden)
(P) Untar com ... (conforme marca, ver quadro ingredientes)
(S) Bestryk med ... (enligt mäkning, se listan över olika produkter)
(F) Enduire de ... (suivant repère, voir tableau ingrédients)

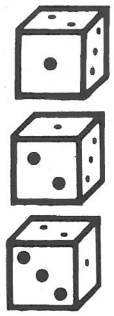
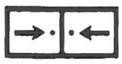
OK

(D) Gut
(DK) God
(E) Bueno
(GB) Serviceable
(I) Buono
(NL) Goed
(P) Bom
(S) Korrekt
(F) Bon

(D) Siehe
(DK) Se ... henvisning til ...
(E) Ver ... dirigirse a ...
(GB) See ... refer to ...
(I) Vedere ... riportarsi a ...
(NL) Zie .:. verwijzen naar ...
(P) Ver ... reportar- se a ...
(S) Se ... gå tillbaka till ...
(F) Voir ... se reporter à ...

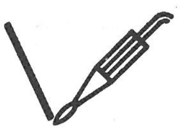
(D) Sichtprüfung oder Prüfung mit der Hand
(DK) Kontrollere visuelt eller manuelt
(E) Controlar visualmente o manualmente
(GB) Check visually or physically
(I) Controllare visivamente o manualmente
(NL) Visuele of handmatige controle
(P) Controlar visual ou manualmente
(S) Gör en manuell kontroll eller en okulärkontroll
(F) Contrôler visuellement ou manuellement

(D) Mit einem Messgerät prüfen
(DK) Kontrollere med måleinstrument
(E) Controlar con un instrumento
(GB) Check with a measuring instrument
(I) Controllare con uno strumento
(NL) Controleren met een instrument
(P) Controlar com um instrumento
(S) Kontrollera med instrument
(F) Contrôler avec un instrument

	(D) Mehrere Einbaumöglichkeiten (1 - 2 - 3) (DK) Flere monteringsmuligheder (1; 2; 3...) (E) Varios montajes posibles (1. 2. 3) (GB) Several assembly possibilities (1, 2, 3) (I) Diversi montaggi possibili (1; 2; 3) (NL) Verschillende mogelijkheden voor montage (1 ; 2 ; 3...) (P) Várias montagens possiveis (1. 2. 3) (S) Flera monteringsutföranden förekommer (1; 2; 3) (F) Plusieurs montages possibles (1 - 2 - 3)
	(D) Markieren. Biem Wiedereinbau auf Zugehörigkeit der Teile achten (DK) Afmœrke. Ved genmontering skal delenes rette sammenpasning respekteres (E) Señalar. Respetar el apareado de las piezas para el nuevo montaje (GB) Mark. The parts must be kept paired for re-assembly (I) Segnare. Rispettare l'accoppiamento dei pezzi per il rimontaggio (NL) Merken. Zorg bij montage dat de onderdelen bij elkaar komen (P) Marcar. Respeitar o acasalamento das perças para armá-las (S) Märk ut. Respektera a delarnas märkning vid återmonteringen (F) Repérer - Respecter l'appariement des pièces pour le remontage
	(D) Einstellen (DK) Justere (E) Regular (GB) Adjust (I) Regolare (NL) Afstellen (P) Afinar (S) Ställ in (F) Régler
	(D) Abstand, Spiel (DK) Spil (E) Juego (GB) Clearance (I) Gioco (NL) Speling (P) Folga (S) Spel (F) Jeu
	(D) Einbau durch Pressen, Vorspannen oder genaues Einpassen (DK) Montering med forspænding, prespasning eller itrykning (E) Montaje con esfuerzo, precarga o apriete ajustado (GB) Assembly force fit, with preload or interference fit (I) Montaggio forzato, precarico o accoppiamento serrato (NL) Montage onder spanning, voorspanning of klemspanning (P) Armar em esforço, précarga ou encaixe apertado (S) Montering med förspanning, presspassning eller ihoptryckt (F) Montage sous contrainte, précharge ou emmanchement serré

(D) Leicht anziehen
(DK) Skrue sammen uden fastspaending
(E) Aproximar sin apretar
(GB) Screw up without tightening
(I) Avvicinare senza serrare
(NL) Aandraaien zonder vast te zetten
(P) Aconchegar sem apertar
(S) Skruva i utan att dra åt
(F) Approcher sans serrer

(D) Vorgeschriebenes Anziehdrehmoment
(DK) Tilspændingsmoment skal overholdes
(E) Par de apriete que se debe respetar imperativamente
(GB) Observation of tightening torque essential
(I) Coppia di serraggio da rispettare obbligatoriamente
(NL) Voorgeschreven aanhaalspanning aanhouden
(P) Aperto a respeitar imperativamente
(S) Åtdragningsmoment som ovillkorligen måste respekteras
(F) Couple de serrage à respecter impérativement



(D) Hartlöten
(DK) Lodde
(E) Soldar con metal
(GB) Braze
(I) Brasare
(NL) Soideren
(P) Soldar a metal
(S) Löd
(F) Braser

(D) Schweissnaht
(DK) Svejsesøm
(E) Cordón de soldadura
(GB) Fillet of weld
(I) Cordone di saldatura
(NL) Lasrups
(P) Cordão de soldadura
(S) Svetssträng
(F) Cordon de soudure

(D) Lochpunktschweissen
(DK) Stubsvejsning
(E) Soldadura por puntos de "tapón"
(GB) Plug weld
(I) Saldatura con punti "a tappo"
(NL) Proplassen
(P) Soldadura por pontos "tampão"
(S) Pluggsvetsning
(F) Soudage par points "bouchon"

D Einen Gang einlegen (z.B. 3. Gang)
DK Sæt i gear (f. eks. : 3. gear)
E Poner una relación de velocidades (ejemplo : 3°)
GB Engage a gear (for example : 3rd)
I Inserire una marcia (esempio : 3°)
NL Schakel een versnelling in (bijv : de 3 de)
P Engatar uma velocidade (por exemplo : 3°)
S Lagg i en växel (till exempel : 3 : an)

F Engager un rapport de vitesse (ex. : 3^{e})

D Ein- oder Auffüllen
DK Fylde eller efterfylde
E Lienar o poner a nivel
GB Fill or top up to level
I Riempire o effecttuare il rabbocco
NL Vullen of niveau op hoogte brengen of bijvullen
P Encher ou pôr a nivel
S Fyll eller korrigera nivån

F Remplir ou effectuer la mise à niveau

D Gelenkwelle
DK Transmissión
E Transmision
GB Drive Shaft
I Trasmissióne
NL Aandrijving
P Transmissão
S Drivaxel

F Transmission

D Lenkung
DK Styrtøj
E Dirección
GB Steering
I Sterzo
NL Stuurinrichting
P Direcção
S Styrsystem

F Direction

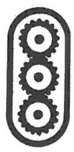
D Motor
DK Motor
E Motor
GB Engine
I Motore
NL Motor
P Motor
S Motor

F Moteur

D Zylinderkopf
DK Topstykke
E Culata
GB Cylinder Head
I Testata
NL Cilinderkop
P Cabeça
S Topplock

F Culasse

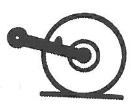
D	Getriebe	NL	Versnellingsbak
DK	Gearkasse	P	Caixa de velocidades
E	Caja de velocidades	S	Växellåda
GB	Gearbox		
I	Scatola cambio	F	Boîte de vitesses



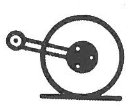
D	Zwischengetriebe	NL	Overbrengingstandwielen
DK	Overføsels - gearhjul	P	Carretos de transferencia
E	Piñones de transferencia	S	Överföringsdrev
GB	Transfer gear assembly		
I	Pignoneria di movimento	F	Pignons de transfert

D	Federung und Radaufhängung	NL	Vering
DK	Ophængning eller affjedring	P	Suspensão
E	Suspensión	S	Fjädring
GB	Suspension		
I	Sospensione	F	Suspension

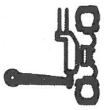
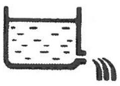
D	Bremsen	NL	Remmen
DK	Bremser	P	Travões
E	Frenos	S	Bromssystem
GB	Brakes		
I	Freni	F	Freins



D	Hinterachse : Längslenker	NL	Achterbrug : Draagarm
DK	Bagbro : Bærearm	P	Eixo traseiro : Braço
E	Eje trasero : Brazo	S	Bakvagn : Bärarm
GB	Rear axle : Arm		
I	Assale posteriore : Braccio	F	Essieu arrière : Bras



D	Hinterachse : Radnabe	NL	Achterbrung : Naaf
DK	Bagbro : Nav	P	Eixo traseiro : Cubo
E	Eje trasero : Buje	S	Bakvagn : Nav
GB	Rear axle : Hub		
I	Assale posteriore : Mozzo	F	Essieu arrière : Moyeu

	(D) Vorderachse : Unterer Querlenker (DK) Forbro : Nederste bærearm (E) Eje delantero : Brazo inférior (GB) Front axle : Lower arm (I) Assale anteriore : Braccio inferiore (NL) Voorbrug : Onderdraagarm (P) Eixo dianteiro : Braço inferior (S) Framvagn : Undre länkarm (F) Essieu avant : Bras inférieur
	(D) Vorderachse : Achsschenkel (DK) Forbo : Styrebolt (E) Eje delantero : Pivote (GB) Front axle : Swivel assembly (I) Assale anteriore : Pivot (NL) Voorbrug : Fusee (P) Eixo dianteiro : Pivot (S) Framvagn : Pivot (F) Essieu avant : Pivot
	(D) Klasse (DK) Klasse (E) Clase (GB) Class (I) Classe (NL) Klasse (P) Classe (S) Klass (F) Classe
	(D) Ablassen (DK) Tømme (E) Vaciar (GB) Drain (I) Svuotare (NL) Aftappen (P) Esvaziar (S) Töm ur (F) Vidanger
	(D) Entlüften (DK) Udlufte (E) Purgar (GB) Bleed (I) Spurgare (NL) Ontluchten (P) Purgar (S) Lufta (F) Purger
	(D) Bearbeiten (DK) Bearbejde (E) Mecanizar (GB) Machine (I) Lavorare (NL) Bewerken (P) Trabalhar a maquina (S) Bearbeta, slipa, etc. (F) Usiner

DIMENSIONS

1,5 à 2,5 mm	1.5 to 2.5 mm

ABBREVIATIONS

Admission	**A** **ADM**	Inlet
Arrière	**AR** **R**	Rear
Avant	**AV**	Front
Distribution	**DT**	Timing
Echappement	**E** **ECH**	Exhaust
Liquide hydraulique minéral	**LHM**	Mineral hydraulic fluid
Point mort bas	**PMB**	Bottom dead center (BDC)
Point mort haut	**PMH**	Top dead center (TDC)
Tours/minutes	**Tr/mn**	Revolutions per minute (rpm)

COLOURS

Blanc	**Bc**	White
Bleu	**Bl**	Blue
Gris	**Gr**	Grey
Jaune	**J**	Yellow
Incolore	**Ic**	Colourless
Marron	**Mr**	Brown
Mauve	**Mv**	Mauve
Noir	**N**	Black
Orange	**Or**	Orange
Rouge	**R**	Red
Vert	**Ve**	Green
Violet	**Vi**	Violet

VOCABULARY

1r CORPS	1st CHOKE
2e CORPS	2nd CHOKE
Repère	Mark
Vue suivant	View as per . . . . . .

TO OBTAIN **FREE SUBSCRIPTION** TO ADDITIVE AND CORRECTIVE SHEETS DO NOT FORGET TO FILL IN AND SEND THE FORM HEREWITH. sendt 21/8.85 TD

IMPORTANT

FREE SUBSCRIPTION to ADDITIVE AND CORRECTIVE SHEETS to Repair Manuals

Buying a document does not automatically imply the registration on the subscribers lists (even if the document had been included in a systematic distribution).

To benefit from the subscription, the application form (below) must be filled in immediately on receipt of the document, and sent to the address mentioned on this form.

SUBSIDIARIES :
The Branches and Import Dealers of the Citroën Network are the only ones that are entitled to benefit from it.

The corrective sheets of the documents they have sold must be distributed by themselves to the users.

WORDING OF THE SUBSCRIPTION APPLICATION

SUBSCRIBER NUMBER :

Each member of the Citroën Network has been attributed a subscriber number which he should write down on the application form.
This number is printed on the label of each envelope containing the technical bulletins.

SUBSCRIBER CATEGORIES : 3 = Branch - 6 = Import Dealer

QUANTITY :
If several copies of the same document have been received, only one application form should be filled in, by indicating the number of copies.

APPLICATION FORM for SUBSCRIPTION to CORRECTIVE SHEETS

TO BE FILLED IN BY THE USER

Date : 21.8.1985

Factory use only

Code Mvt : D 5 O b

No. bordereau :

5 11

DOCUMENT REFERENCE : MAN 0 5 8 8 8 1

QUANTITY : ....
(of the same docum.) :

SUBSCRIBER No. : *(8 digits - no letter)*

Factory use only

letter

subscriber
CATEGORY :

Sections below : Your trade mark ink-stamp should be used by preference. If not, write in block letters.

NAME or trade name : DANMARKS TEKNISKE BIBLIOTEK
Address : Anker Engelundsvej 1 2800 Lyngby

TOWN : DK 2800 Lyngby
COUNTRY : Denmark

Please forward this form to the following address : Automobiles **CITROËN**
Dept. **PIECES DE RECHANGE** - Informatique
92208 NEUILLY-S-SEINE CEDEX
FRANCE

CITROËN
AUTOMOBILES CITROËN
Société anonyme au capital de 970.000.000 F

CUSTOMER SERVICES
AFTER-SALES TECHNICAL DEPARTMENT

REPAIR MANUAL No. 8881

JUNE 1983

Supplement No. 1 : Included
No. 2 : ....
No. 3 : ....

BX VEHICLES

MECHANICAL COMPONENTS 1

Printed in France

SIEGE SOCIAL : 62, BD. VICTOR HUGO — NEUILLY-SUR-SEINE (HAUTS DE SEINE) · R.C.S. NANTERRE B 642 050 199
TÉLÉPHONE : (1) 759.41.41 · TÉLÉGRAMME ET TÉLEX : CITR 614830 F · SIRET 642 050 199 00644 · APE 3111
ADRESSE POSTALE : 92208 NEUILLY SUR SEINE CEDEX

USE OF THE MANUAL

PRESENTATION.

The **Repair Manual** covering this type of vehicle is in **three volumes.**

The **MECHANICAL COMPONENTS, PART 1 (8881)** and **MECHANICAL COMPONENTS, PART 2 (8882) volumes** cover operations on the vehicle MECHANICAL COMPONENTS and the BODYWORK which may be carried out by a general workshop.

The two volumes together are divided into **15 chapters** separated by vinyl tabbed **inserts** numbered
0 to 15

- 0 : General
- 1 : Engine
- 2 : Fuel system - Carburettor
- 3 : Ignition system
- 4 : Clutch
- 5 : Gearbox - Drive shafts
- 6 : Source and reserve of pressure
- 7 : Front axle
- 8 : Rear axle
- 9 : Suspension - wheels - tyres
- 10 : Steering
- 11 : Braking system
- 12 : Electrical equipment and radio
- 13 : Heater, ventilation and air conditioning
- 15 : Bodywork
  (Removable parts and panelling)

The **Chapters** numbered 0 to 5 are in the **MECHANICAL COMPONENTS, PART 1 volume.**
The **Chapters** numbered 6 to 15 are in the **MECHANICAL COMPONENTS, PART 2 volume.**

The **BODYWORK volume (8883)** covers only operations involving the **BODYWORK.**
It is divided into three chapters in the same way as the **MECHANICAL COMPONENTS, PARTS 1 and 2 volumes.**

- 0 : General
- 14 : Welded parts
- 15 : Removable parts and panelling

Each volume comes in a pinkish-purple binder with a « MULTO » type mechanism to facilitate filing of updated pages or removal of a part for an operation in the workshop.

COMPOSITION OF A CHAPTER.

Each chapter includes :
- the list of operations in it,
- the operations in numerical order,
- where applicable, the execution drawings for the MR tools necessary for the operations covered in the chapter.

OPERATIONS.

The order of operations has been designed to obtain the best standard of work in the shortest time.

The numbers of the operations are as follows :
a) Vehicle reference number :
- **« XB »** for working on vehicles of all types,
- **«XB.14 »** for working on vehicles fitted with 1360 cc engines,
- **« XB.16 »** for working on vehicles fitted with the 1580 cc engine.

b) a number with three figures identifying the assembly or assembly part
c) a figure indicating the type of repair.
- the figures **0 0 0** indicate the type of vehicle,
- the figures **0 0** indicate the type of assembly
- the figures **0** indicate checking and adjustments
- the figures **1, 4, 7** indicate removal and fitting
- the figures **2, 5, 8** indicate dismantling and re-assembly
- the figures **3, 6, 9** indicate reconditioning.

OPERATIONS (continued)

The various operations are presented differently :

a) For the operations : **General, Checks** and **Removal/Fitting of Mechanical components,** the working process is explained through **texts** and **photos.**

b) For the operations on **Reconditioning Mechanical Components** and **Bodywork** the working process is explained through **photos** and **symbols.**
A **GLOSSARY** has been placed at the beginning of each volume for this purpose.
In the glossary (the one in the Mechanical Components volume is different from the one in the Bodywork volume), the meaning for each symbol has been translated into **nine languages.**
It is **a removable set of « plastic » sheets** bound with two manœuvrable metal rings to facilitate the extraction of one or several sheets (and obtain photocopies from them, for instance).

TOOLING

In the **MECHANICAL COMPONENTS, PART 1 and 2**, for **each chapter,** the summary lists and photos of the special tooling, required for proper completion of the work, are given at the end of the operation description.
00 : Assembly characteristics and special points.

In the **BODYWORK volume,** the numbers and photos of the special tooling are given in the description as the work progresses.

- Tooling referenced **OUT** followed by **6 figures** ending in the letter **T** is sold by the **Replacement Parts Department.**
- The tooling referenced with **4 figures** followed by the letter **T** is sold by **Société FENWICK Département AMA,** 24 Bld Biron - 93404 St-Ouen, telephone : 252-82-85
- The tooling referenced **MR** must be made up by the repairer himself.

VOLUME UPDATING

The number of the volume *(8881, 8882 or 8883)* is given at the bottom right hand side of the recto side of the page.

There is a figure 0 to 15 in a circle at the top of each page, recto and verso, indicating the chapter in which it is to be filed.
Updating is identified by black spots to the left of the volume number.
The number of spots indicates the updating number.

For example : 1 spot ● *8881* supplement No. 1.
2 spots ●● *8881* supplement No. 2.

TIGHTENING TORQUES

The **tightening torques** are expressed in metre Decanewtons **(mdaN)** the official torque measuring unit.
0.981 mdaN = 1 mkg (former measuring unit)
In practice, **1 mdaN = 1 m.kg**

IMPORTANT NOTES :

For all technical information concerning these vehicles, please consult :
DEPARTEMENT TECHNIQUE APRES-VENTE, ASSISTANCE TECHNIQUE
163, avenue G. Clémenceau - 92022 NANTERRE CEDEX - Telephone : 725-97-10

For all technical information concerning operating incidents, ask for internal extension number 5065, 5077 or 5278.

For information concerning tools or repairs, ask for extension number 5277.

REPAIR MANUALS

MECHANICAL COMPONENTS 1 AND MECHANICAL COMPONENTS 2

CHAPTER FILING

Operation number	DESCRIPTION
XB. 000	General characteristics - Identification - Jacking and towing points
XB. 01	Protection of electrical components
XB. 03 Mechanical components	Recommended products
XB. 03 Bodywork	Recommended products

GENERAL CHARACTERISTICS
IDENTIFICATION
JACKING AND TOWING POINTS

GENERAL CHARACTERISTICS.

	BX	BX 14 E BX 14 RE	BX 16 RS BX 16 TRS
Commercial name	BX	BX 14 E / BX 14 RE	BX 16 RS / BX 16 TRS
Official symbol	XB series XA	XB series XD	XB series XB
French fiscal rating	6 CV	7 CV	7 CV
Factory symbol (warranty type)	XA	XD	XB
Date of introduction	Sept. 82	Sept. 82	Sept. 82
Number of seats	5	5	5

Dimensions

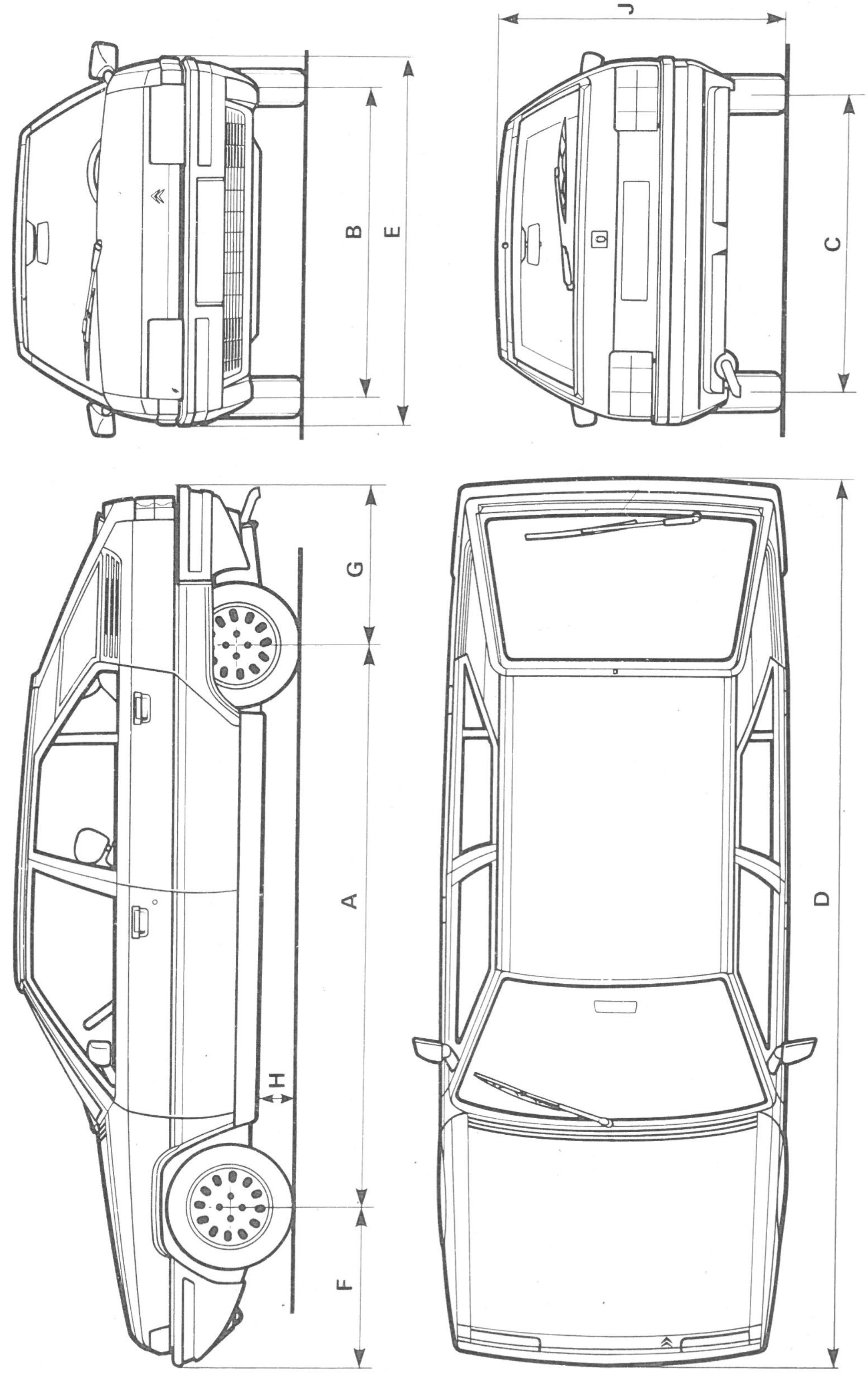
	All models
A : Wheelbase	2.655 m
B : Front track	1.410 m
C : Rear track	1.354 m
D : Overall length	4.230 m
E : Overall width	1.660 m
F : Front overhang	0.822 m
G : Rear overhang	0.753 m
H : Ground clearance in normal running position	0.160 m
J : Overall height in normal running position	1.358 m

Weights

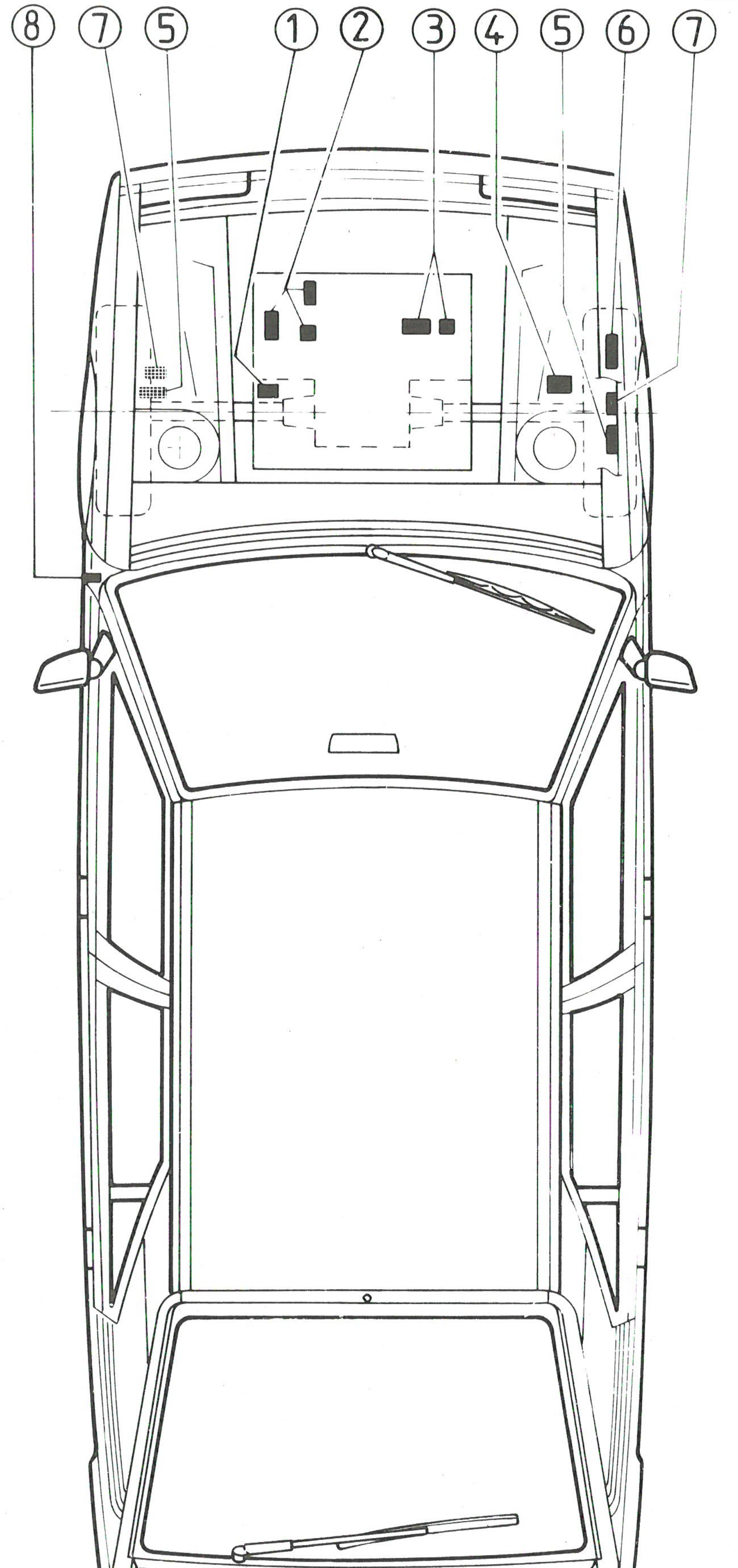
	BX / BX 14 E / BX 14 RE	BX 16 RS / BX 16 TRS
Kerb weight	900 kg	950 kg
weight on front axle	543 kg	577 kg
weight on rear axle	357 kg	373 kg
Gross vehicle weight	1,380 kg	1,430 kg
weight on front axle (maximum)	720 kg	760 kg
weight on rear axle *(maximum)*	680 kg	690 kg
Gross train weight	2,380 kg	2,530 kg
Maximum towing weight *(trailer with over run brakes)*	1,000 kg	1,100 kg
Maximum towing weight *(with an unbraked trailer)**	450 kg	475 kg
Maximum weight on tow hitch	60 kg	70 kg
Maximum weight on roof rack	75 kg	75 kg

* **Important note :** *References to trailers without brakes do not apply in U.K.*

	All models
Boot capacity	444 dm³
Total load volume, with rear bench seat folded	1,402 dm³
Load volume, up to bottom of rear windows	907 dm³



BX 80-7



BX. 00-1 a

(4)

AUTOMOBILES CITROEN
VF7XBXB0000XB0001
1430
2530
1-760
2-690

MANUFACTURER'S PLATE

(8)

A M
83

MODEL YEAR

(6)

VF7XBXB0000XB0001

REPEAT CHASSIS NUMBER

(1)

2BL03
000022

STICKER
GEARBOX NUMBER (ALL TYPES)

(7)

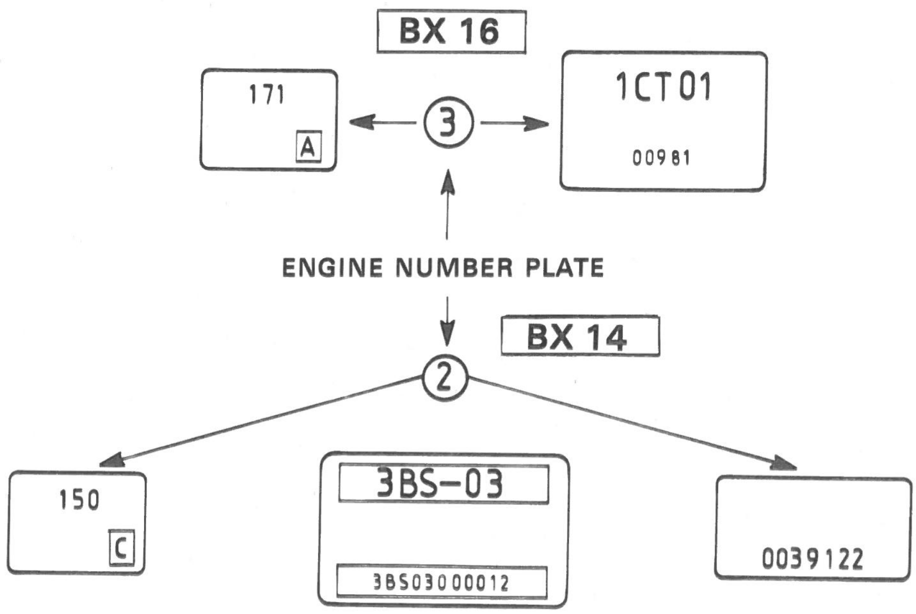
GVE-R

PAINT REFERENCE

(5)

2131

REPLACEMENT PARTS ORGANIZATION NUMBER



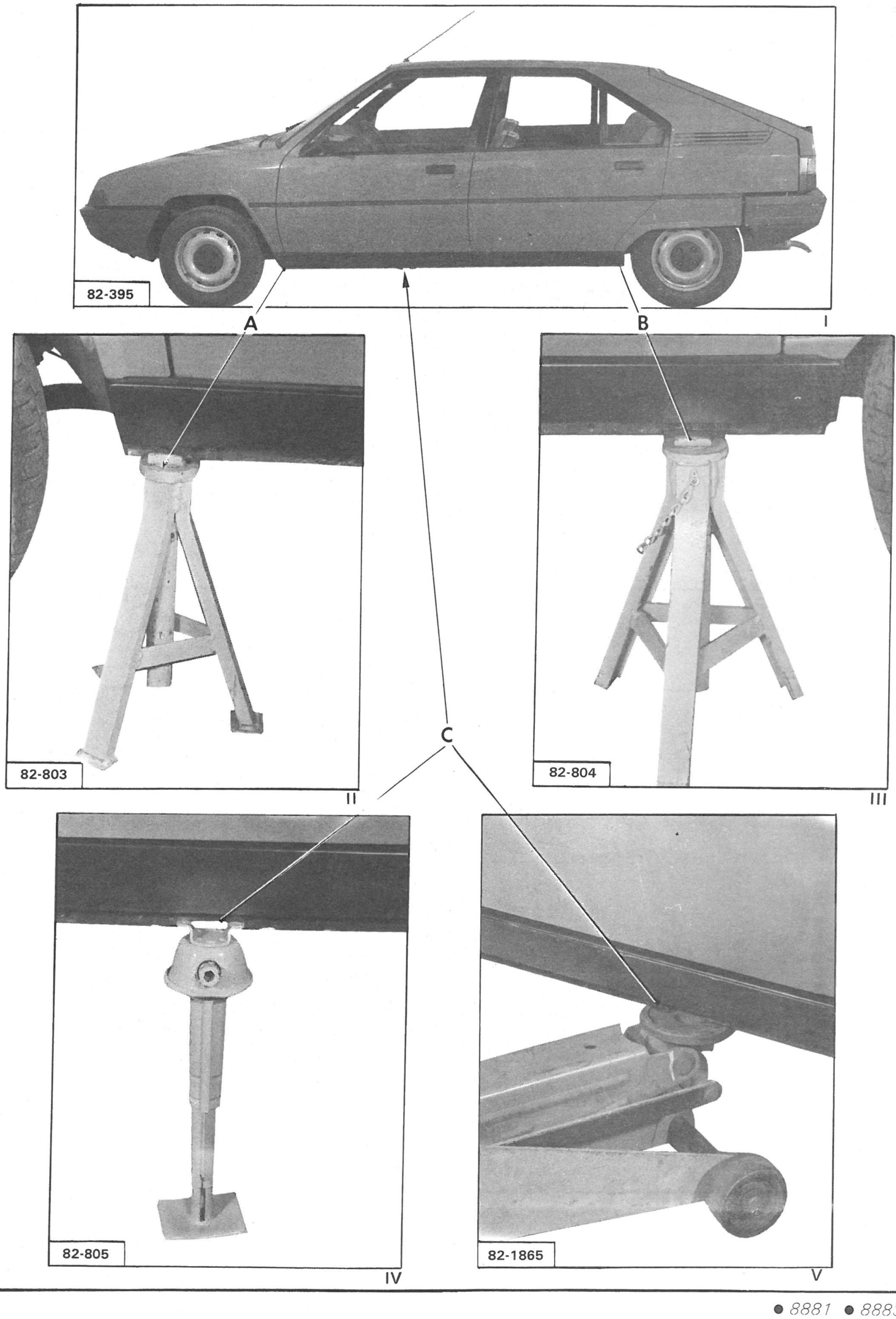
UNIT NUMBER
(CLUTCH HOUSING)
(2)

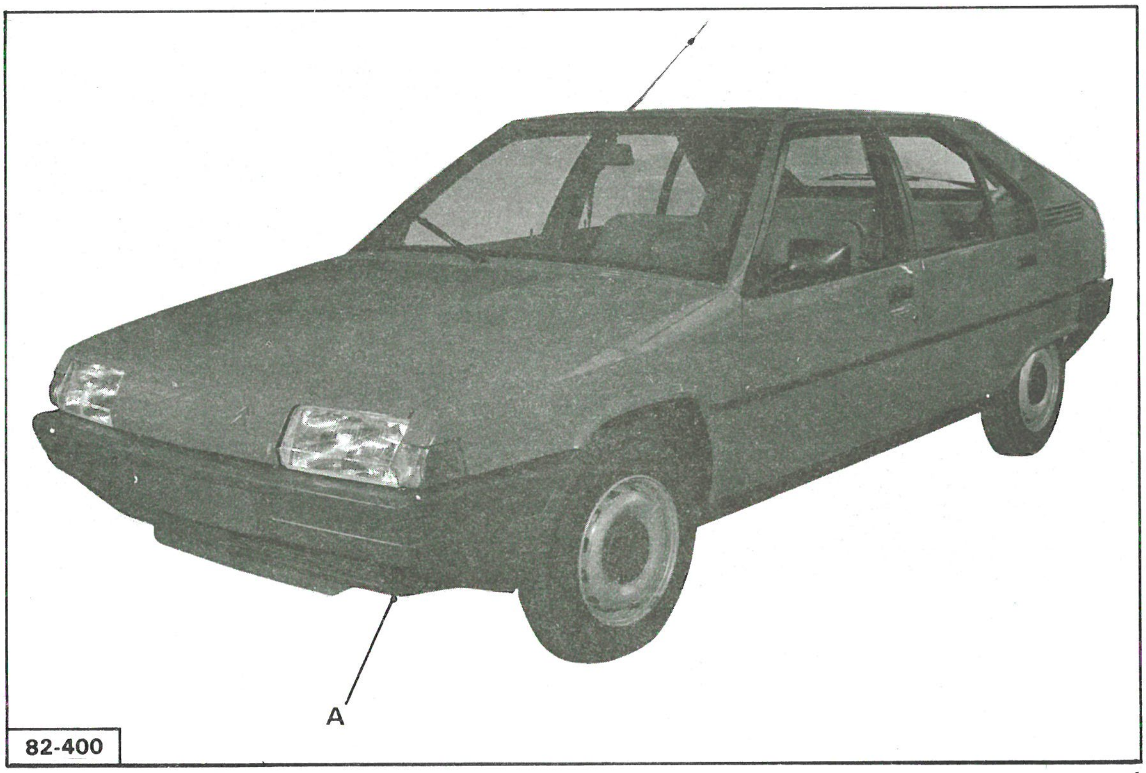
JACKING POINTS

A : Jacking point or stand location, front, **Fig. I and II**

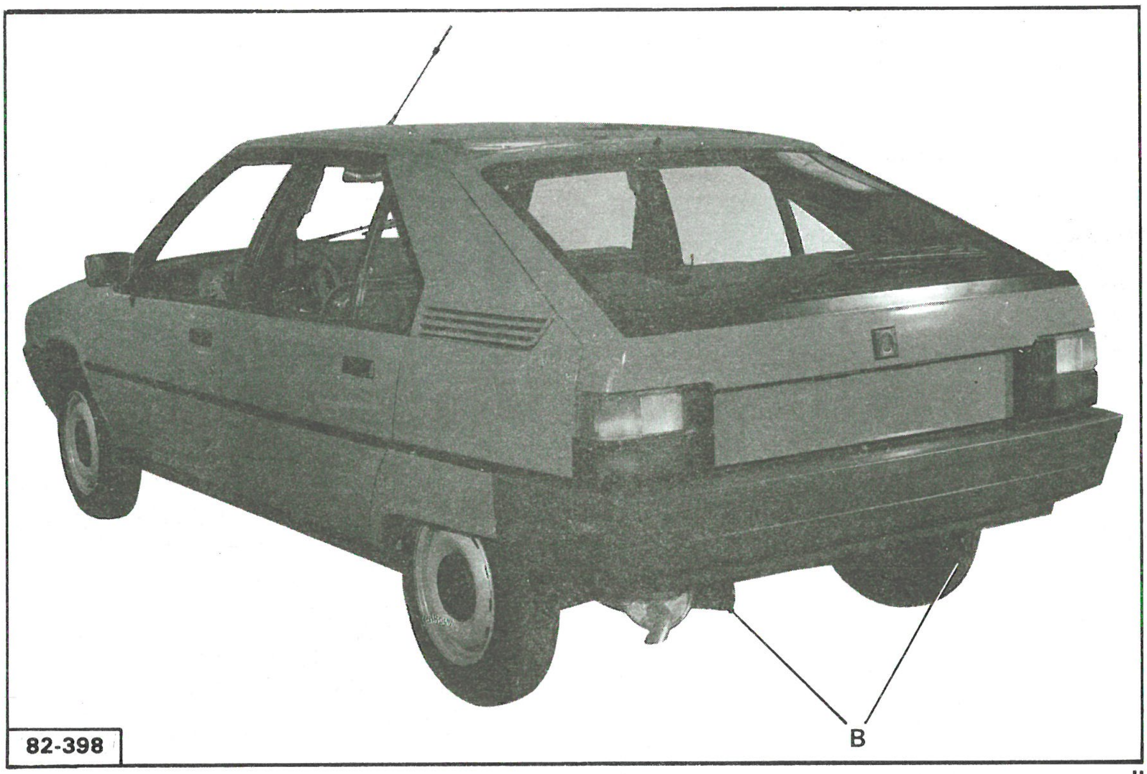
B : Jacking point or stand location, rear **Fig. I and III**

C : Location of car jack support. A garage trolley jack can also be used at this location, **Fig. I, IV and V.**


82-395
I
A
B
82-803
II
82-804
III
C
82-805
IV
82-1865
V



I



II

TOWING POINTS

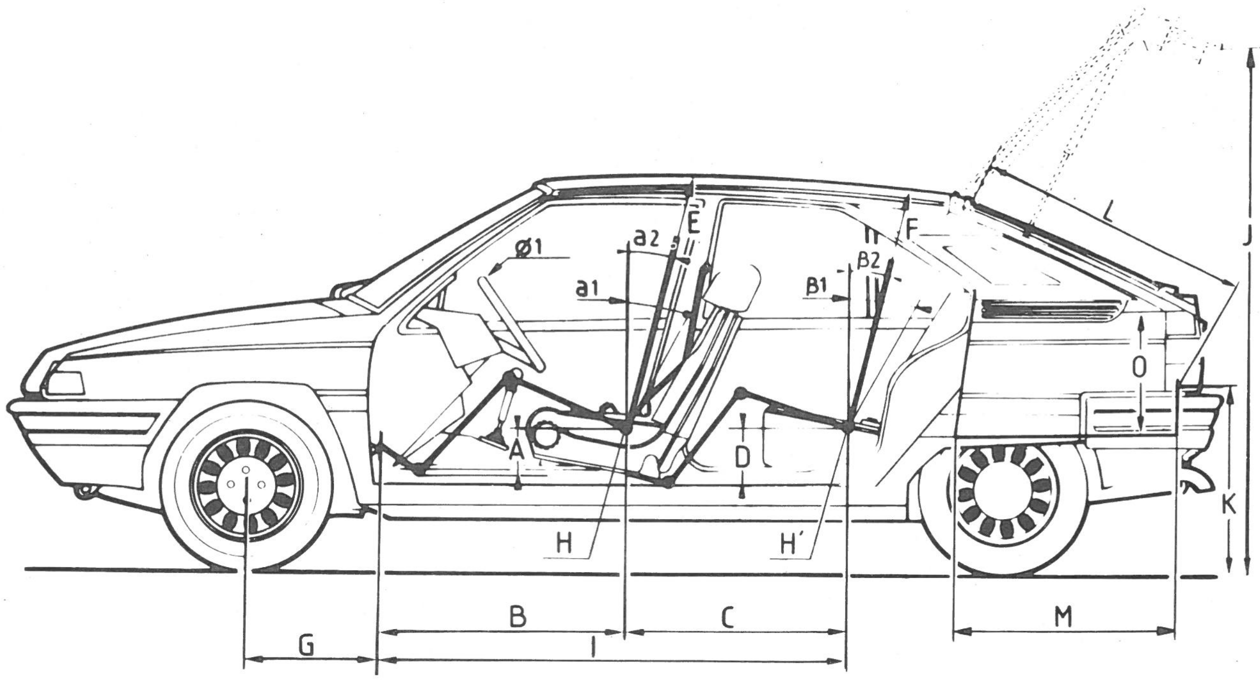
A : Towing point, front, **Fig. I.**

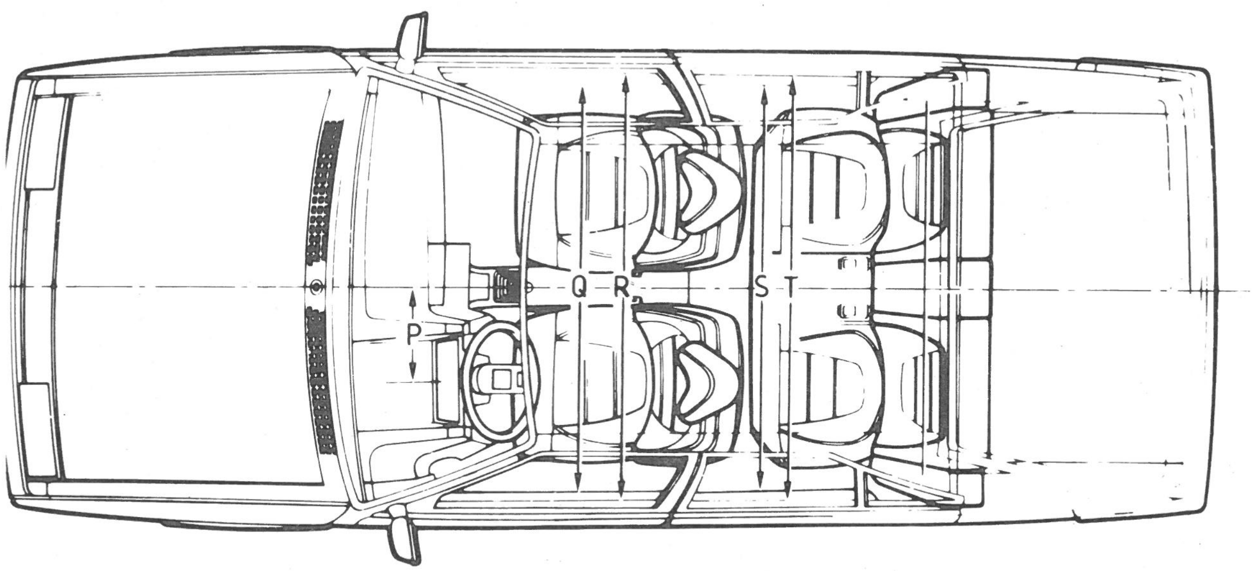
B : Towing point, rear, **Fig. II.**

GENERAL CHARACTERISTICS
INNER DIMENSIONS

A	: Distance from H to floor	0.262 m
B	: Distance from H to accelerator pedal	0.885 m
C	: Distance from H to H'	0.822 m
D	: Distance from H' to floor	0.305 m
E	: Distance from H to roof, front	0.888 m
F	: Distance from H' to roof, rear	0.850 m
a 1	: Angle of front seat backrest, corresponding to bust inclination of standard dummy	adjustable from 7° to 36°
a 2	: Calculated angle written down on documents	14°
1	: Angle of rear seat backrest, corresponding to bust inclination of standard dummy	27°
2	: Calculated angle written down on documents	14°
G	: Distance from wheel axis to accelerator pedal	0.428 m
I	: Distance from accelerator pedal to H'	1.707 m
J	: Distance from ground to rear hatch (open position)	1.924 m
K	: Distance from ground to boot sill	0.655 m
L	: Distance from boot sill to rear upper crossmember	0.905 m
M	: Boot length { with rear bench-seat in situ	0.892 m
	with rear bench-seat folded down	1.430 m
O	: Height from boot floor to parcel shelf	0.440 m
P	: Distance from vehicle centre line to steering wheel axis	0.325 m
Q	: Width at shoulder height, between front doors	1.380 m
R	: Width at elbow height level, between front doors	1.400 m
S	: Width at shoulder height, between rear doors	1.354 m
T	: Width at elbow height level, between rear doors	1.360 m
Q1	: Steering wheel diameter	0.380 m

NOTE : The dimensions for roominess have been calculated in relation to the standard dummy.


Ø1
a2
E
a1
β1
β2
F
L
J
O
A
D
H
H′
K
B
C
G
I
M


P
Q
R
S
T

PROTECTION OF ELECTRICAL COMPONENTS

PRECAUTIONS TO BE TAKEN WHEN CARRYING OUT AN OPERATION ON THE VEHICLE.

It is essential to avoid actions which damage the electrical or the electronic equipment or create a short circuit (with consequent risk of fire or accident).

Battery :

a) Disconnect the negative terminal first (connected to the earth), then the positive one.
b) Before connecting the negative lead to the battery, ensure that there is no short-circuit by briefly touching the negative terminal with the lead (bright sparks or arcs).
Small sparks may occur due to the interior lamp (door open), door locking device, clock or components permanently energized.
c) Make sure that the terminals are properly connected. Clips and terminals should be clean and correctly tightened.
d) When recharging, disconnect the two terminals first.
e) Do not reverse the negative and positive terminals on the battery. (It could destroy the alternator diodes).

Charging circuit :

a) Do not rotate the alternator unless it is connected to the battery. Do not disconnect the battery when the alternator is rotating.
b) Ensure that the regulator is correctly earthed.
c) Do not reverse the regulator leads (charge warning lamp and specific energizing).
d) Do not connect a suppressor capacitor to the regulator without taking precautions or following proper instructions.
e) Do not use an electric welding equipment on the vehicle without having first disconnected the alternator, the regulator and the battery (insulate the two terminals).

Starting :

Do not use a booster or a 24-volt battery. Only use a correctly charged 12-volt battery (a higher capacity battery may be used) : risk of deterioration of the ignition module.

Ignition :

a) Do not connect a suppressor capacitor to the negative terminal of the coil.
b) Do not operate the module if its radiator is not connected to the earth.
c) Only use recommended suppressor capacitors.

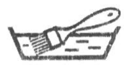
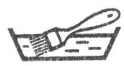
Q.I. bulb :

a) Never replace a Q.I. bulb with the headlamp switched on. If the headlamps have been in use, allow them to cool down.
b) Do not touch a Q.I. bulb with bare fingers. Any fingerprints must be cleaned with soapy water and the bulb dried with a dry, lint-free cloth.

Electronic components :

Avoid overvoltages due to a badly insulated charger, electric arcing or connections to the coil.
The units such as regulator, ignition module, tachometer, windscreen wiper timer, flasher unit, clock, radio, oil gauge unit, door locking device etc. . . . comprising electronic components may be deteriorated.

I- CLEANING PRODUCTS

USE AND SPECIAL FEATURES	PRODUCTS	SYMBOL	MARK	SUPPLIER or R.P.D. No.
Cold degreasing of mechanical units specially designed for use in cleaning tanks.	P3 RAFFINIT D. SPECIAL		**D1**	HENKEL FRANCE
Gelatinous liquid designed for cleaning joint contact faces and non-metallic gaskets.	MAGSTRIP		**D2**	MAGNUS
	DECAPLOC			FRAMET
Carburettor cleaning Products to be used pure Two packs : - aerosol - liquid	CARBURATOR CLEANER		**D3**	SADAPS - BARDHAL
	P.D.R.			AGIR
	CARBUCLIN			PANEURAFRIC-REDEX

II- SEALING COMPOUNDS

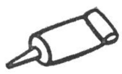
USE AND SPECIAL FEATURES	PRODUCTS	SYMBOL	MARK	SUPPLIER or R.P.D. No.
Joint contact faces, screw and nut sealing Clean with alcohol	CURTYLON		**E1**	CURTY
Hydrocarbon resistant	LOWAC		**E2**	S.E.B.I.S.
Locking and sealing of removable threaded assemblies.	FRENETANCH		**E3**	FRAMET

USE AND SPECIAL FEATURES	PRODUCTS	SYMBOL	MARK	SUPPLIERS or R.P.D. No.
Sealing of joint contact faces, locking of screws, studs and nuts Sealing of unions and joint contact faces	FORMETANCH		E4	FRAMET
Mounting of bearings, rings, sleeves, liners, inserts, pulleys . . . Strengthening of splined and pinned force fits.	SCELBLOC		E5	NOTE : The five FRAMET products are sold in a kit plus AUTOJOINT NOIR for tightness of door and windscreen sealing strips. .) and SUPERCLEAN (cleaning product)
Locking and sealing of studs, screws and nuts with a maximum of efficiency	FRENBLOC		E6	
Sealing of joint contact faces in replacement of traditional gaskets	FORMAJOINT		E7	
Sealing of housings Aluminium base	POXY-MATIC ALU		E8	FRAMET
Metal base	POXY-MATIC ACIER		E9	
Adhesive sealing gasket Remains flexible after drying	SILACTIC 732 R.T.V.		E10	DOW CORNING S.A.R.L.
Sealing of inlet chamber heater tubes	Refractory mastic past - Ref. 1500 (COLLAFEU)		E11	Ets BARTHELEMY

III- PENETRATING OILS

USE AND SPECIAL FEATURES	PRODUCTS	SYMBOL	MARK	SUPPLIER or R.P.D. No.
Oxydated or corroded parts and seized assemblies Aerosol spray	DEGRIPPANT		F1	MOLYDAL
Aerosol spray or 5-litre can	DEGRIPPANT M.O.			SADAPS - BARDHAL

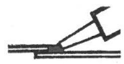
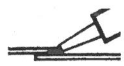
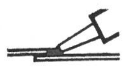
IV- GREASES AND LUBRICANTS

USE AND SPECIAL FEATURES	PRODUCTS	SYMBOL	MARK	SUPPLIERS or R.P.D. No.
Drive-shaft lubrication Multifunctional, high adhesive	GRAISSE 1495		G 1	MOLYDAL
High adhesive and water resistant high pressure grease	MOLYKOTE LONGTERM 2			DOW CORNING S.A.R.L.
Lubrication of the exhaust manifold ball-joint Grease resisting high temperatures	GRIPCOTT AF		G 2	MOLYDAL
Parts working under difficult conditions Aerosol lubricant resisting soft and salt water, high temperatures and pressure	HI LUB-HTC		G 3	FRAMET
Anti-seize lubricant for spark plug threads, resisting high temperatures	NO-BIND		G 4	CURTY
Multifunctional lubricant, with a molybdenum disulfide base	M.O.		G 5	TEROSON
Multifunctional grease	TOTAL MULTIS M.S.		G 6	TOTAL C.F.R.
Grease for elastic joints	KLUBER PROBA 270 AL TEMP		G 7	79 01973 067
Tallow			G 8	

LIST OF SUPPLIERS

SUPPLIER	ADDRESS	TELEPHONE
AGIR	69360 SEREZIN DU RHONE	(78) 47.80.27
SADAPS - BARDAHL	27-29, boulevard du Général Leclerc B.P. 15 - 59051 ROUBAIX - CEDEX	(20) 70.02.12
BARTHELEMY	61, rue Defrance - 94300 VINCENNES	328.42.87
CURTY	25, rue Aristide Briand 69800 SAINT PRIEST	(78) 20.81.24
C.F.R. (TOTAL)	11, rue du Docteur Lancereaux 75381 PARIS CEDEX 08	267.15.00
FRAMET	10, Av. Eugène Gazeau - ZI 60304 SENLIS CEDEX	(4) 453.38.88
DOW CORNING S.A.R.L.	36-38, rue de la Princesse 78430 LOUVECIENNES	(3) 918.92.50
HENKEL FRANCE	12, avenue de Raspail 94250 GENTILLY	581.12.80
MAGNUS	12, rue du Moulin de Cage 92390 VILLENEUVE-LA-GARENNE	798.13.30
MOLYDAL	60, rue des Orteaux - 75020 PARIS	370.75.50
PANEURAFRIC-REDEX	86 bis, avenue de la République 93303 AUBERVILLIERS	352.75.94
S.E.B.I.S.	3 à 5, rue de Metz - 75010 PARIS	770.13.08
TEROSON	175, avenue Jean Jaurès 75922 PARIS CEDEX 19	202.50.72

EXTRUDABLE SEALING COMPOUNDS

USE AND SPECIAL FEATURES	PRODUCT or R.P. No.	SYMBOL	MARK	SUPPLIER (if any)
- Sealing of the panel junctions : Compound with neoprene, rubber, elastomer base Air drying			A 1	
- Sealing of the welding seams : Welding compound to be applied on a panel before spot-welding Do not dry			A 2	
- Sticking and sealing : Polyurethane sealing compound			A 3	

PREFORMED SEALING COMPOUNDS

USE AND SPECIAL FEATURES	PRODUCT or R.P. No.	SYMBOL	MARK	Supplier (if any)
Stuffing putty ensuring a correct tightness between the various screwed components (wings . . .)				
- Round section			dia. =	TEROSON BOSTIK BLACKSON 3 M FRANCE
- Box section			Dimension Ex: 2X18	TEROSON 3 M FRANCE BOSTIK BLACKSON

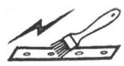
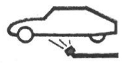
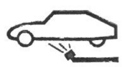
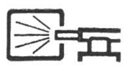
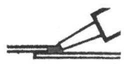
PASTES

USE AND SPECIAL FEATURES	PRODUCT or R.P. No.	SYMBOL	MARK	SUPPLIER (if any)
- Metal-glass sticking (rear-view mirror, lower part of the door windows)	ZC 9865561 U or ZC 9856689 U		B 1	
- Lining sticking - Neoprene type paste			B 2	
- Sticking two panels together Door clinching	ZC 9867263 U (TEROKAL 6015)		B 3	DPR TEROSON
- EPDM sticking (bumpers) Thermo melting paste			B 4	

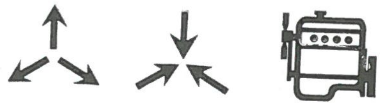
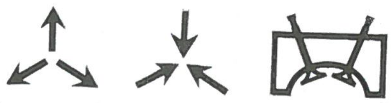
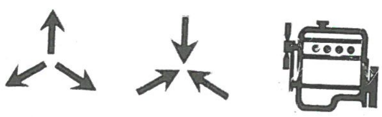
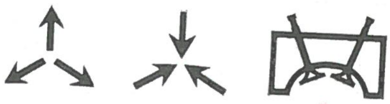
GREASES

USE AND SPECIAL FEATURES	PRODUCT or R.P. No.	SYMBOL	MARK	SUPPLIER (if any)
Multifunctional lubricant with a molybdenum disulfide base	M.O.		G 5	TEROSON
Multifunctional grease	TOTAL MULTIS M.S.		G 6	TOTAL C.F.R.

PROTECTIVE PRODUCTS

USE AND SPECIAL FEATURES	PRODUCT or R.P. No.	SYMBOL	MARK	SUPPLIER (if any)
- Inner protection of the spot-welding seams : Conductive primer applied on the inner face of the elements to be welded				BERGER CORONA Kent Industrie
- Protection and sound-proofing of underbodies Rubber coating (to be applied on precoated panels)			C 1	
- Gravel-proofing protection (lower body) Apply on pre-coated panels	ZC 9867264 U (TEROKAL 6018)		C 2	TEROSON
- Protection for hollow sections : Wax to be sprayed inside the hollow sections through the orifices designed for this purpose				
- Protection of the crimpings (bonnets, doors ...)	ZC 9867264 U			

1

Operation number	DESCRIPTION
XB. 181-0	Characteristics - Removing and fitting the exhaust
XB. 230-00	Characteristics and special features of the cooling circuit - Checks
	BX and BX 14 (1360 cc engines)
XB.14 100-00	Characteristics and special features of the engines
XB.14 100-1	Removing and fitting the engine-gearbox unit
XB.14 100-3	Reconditioning the engine 
XB.14 101-2	Separating the engine from the gearbox and from the transfer gear assembly
XB.14 112-0	Checking and adjusting the rockers
XB.14 112-3	Reconditioning a cylinder-head
XB.14 220-0	Checking the oil pressure 
	BX.16 (1580 cc engine)
XB.16 100-00	Characteristics and special features of the engine
XB.16 100-1	Removing and fitting an engine-gearbox unit
XB.16 100-3	Reconditioning an engine *(See Op. XU. 100-3 - MAN 058884)* 
XB.16 112-1	Reconditioning and fitting a cylinder-head
XB.16 112-3	Reconditioning a cylinder-head *(See Op. XU. 112-3 - MAN 058884)* 
XB.16 122-4	Removing and fitting a distribution belt
XB.16 123-0	Checking and adjusting the clearance between the cam and the valve tappet
XB.16 220-0	Checking the oil pressure

CHARACTERISTICS - REMOVING AND FITTING THE EXHAUST

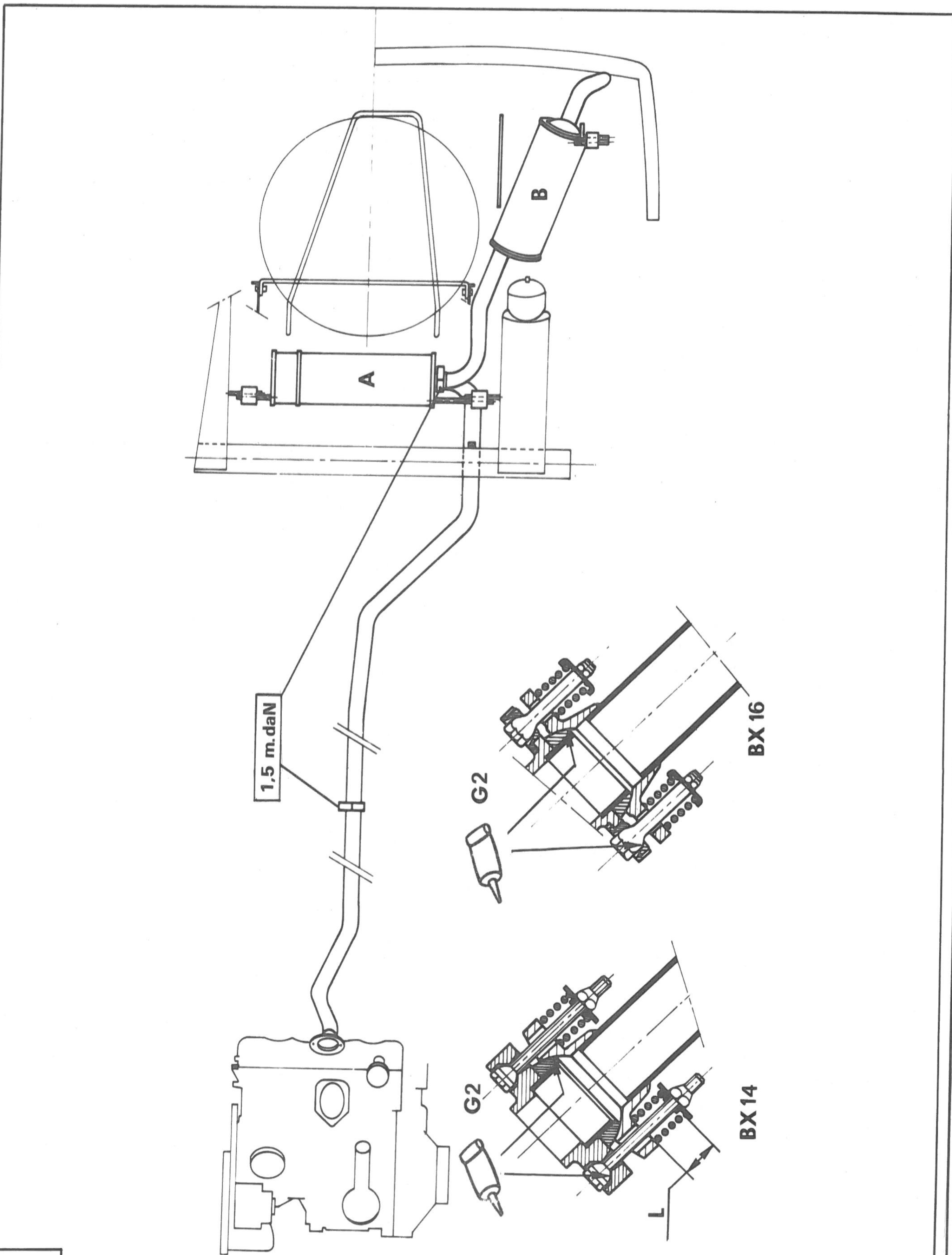
CHARACTERISTICS.

	ENGINE TYPE	
	150 A and 150 C	171 A
Resonator on exhaust manifold (ident. mark) :		AP-AC-AT 3102
Diameter of the connecting pipes :	40 mm	45 mm
Expansion chamber **A**, ident. mark :	AP-AC-AT 4007	AP-AC-AT 4005
Exhaust silencer **B**, ident. mark :	AP-AC-AT 4008	AP-AC-AT 4006

REMOVAL AND FITTING.

When re-fitting, lubricate the ball-joint and the screw heads with GRIPCOTT-AF grease resisting high temperature.

Tightening of the ball-joint screws :
BX 14 : The spring compression should be **L = 22 mm.**
BX 16 : Tighten until the cup comes into contact with the screw shoulder.


B
A
1,5 m.daN
G2
BX 16
G2
BX 14
L

CHARACTERISTICS AND SPECIAL FEATURES OF THE COOLING SYSTEM - CHECKS

BX 14

COOLING SYSTEM

1 - Engine coolant temperature switch
2 - Thermostatic regulator (calorstat)
3 - Radiator drain pipe
4 - Radiator bleed screw
5 - Radiator
6 - Electric fan
7 - Thermal switch for fan cutting-in
8 - Filler cap with calibration valve (1 bar)
9 - Water minimum level switch
10 - Water pump
11 - Inlet manifold
12 - Carburettor
13 - De-aeration chamber
14 - Water circuit bleed screw
15 - « Aerotherme » control unit
16 - « Aerotherme » (heating radiator)

NOTE : Crankcase drain plug (19 mm A/F) : at liner base, under the exhaust pipe, timing end.

Surface of radiator .... 14 dm^2

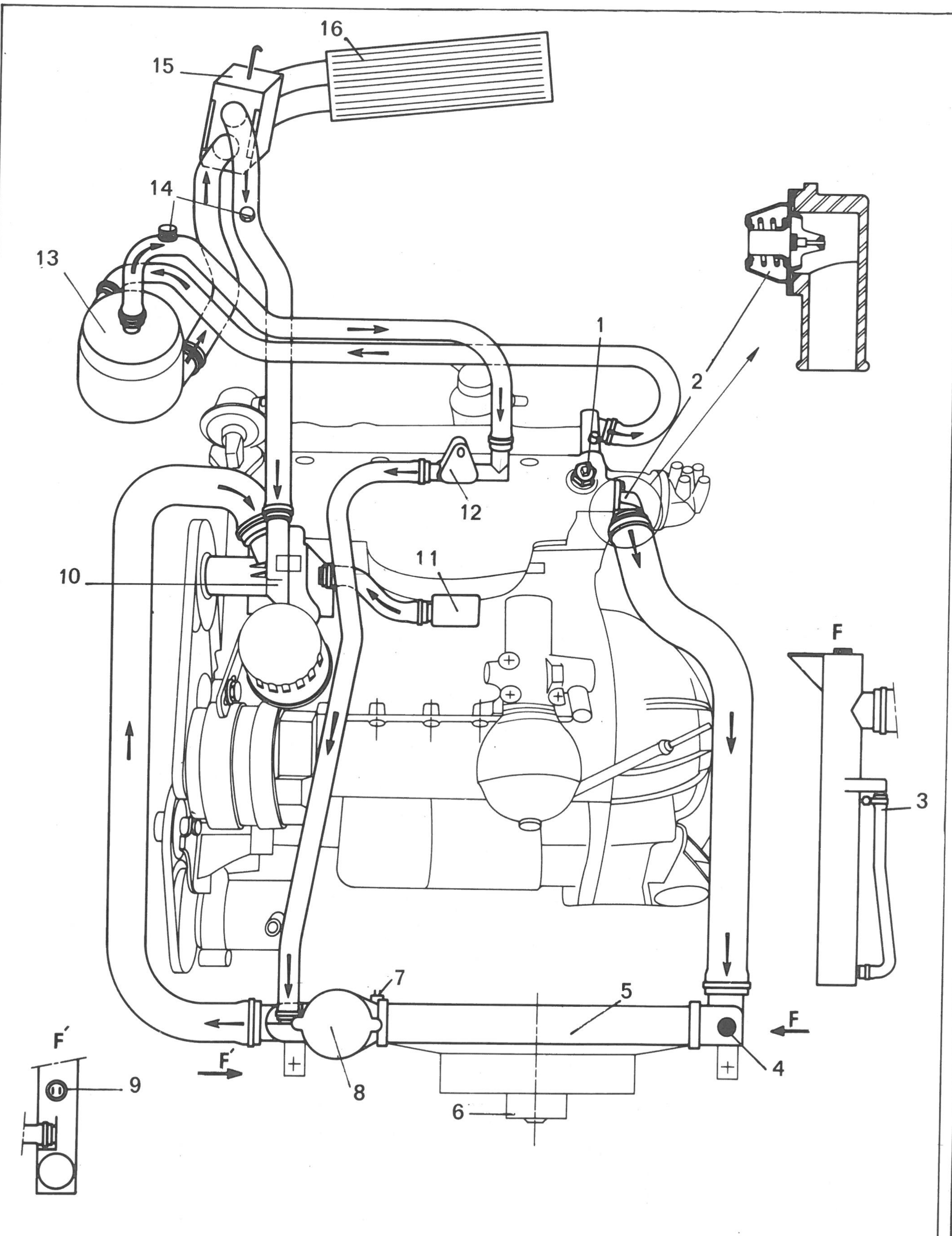
Capacity of circuit (approx.) .... 6.5 litres

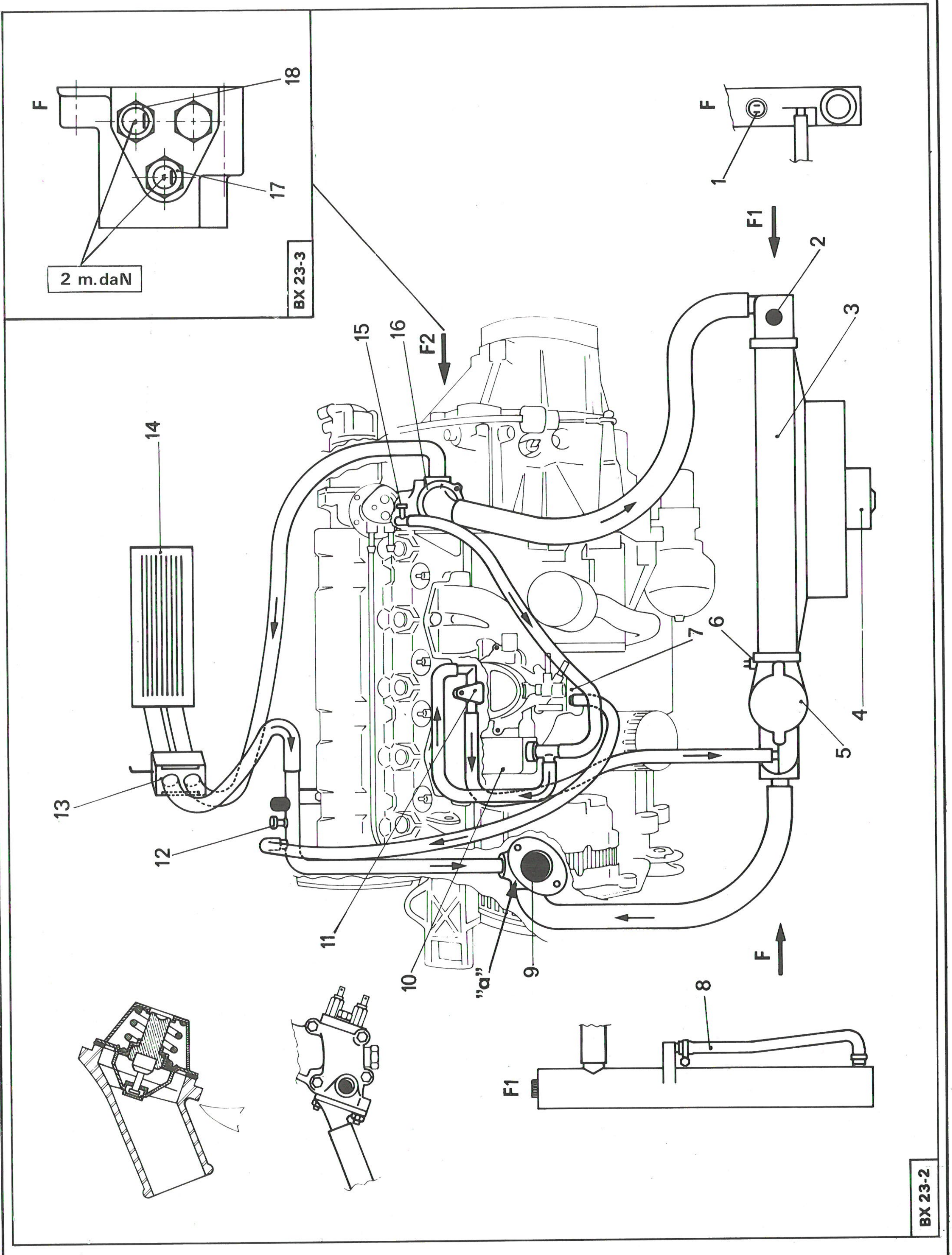
Antifreeze proportion (all the year round)
- for protection at - 15° C 28%
- for protection at - 30° C 50%

Thermostatic regulator (thermostat) : reference No. .... V. 5348
Begins to open at .... 82° C
Fully open .... 93° C
Travel .... 7.5 mm

Radiator cap (calibration) .... 1 bar

Engine coolant temperature switch (1) .... 110 to 113° C
Fan thermal switch (7), cutting in .... 84° C to 89° C


16
15
14
13
1
2
12
11
10
F
3
7
5
F
4
F´
F´
9
8
6


F
18
17
2 m.daN
BX 23-3
F
1
F1
2
3
4
5
6
7
F2
15
16
14
13
12
11
10
"a"
9
F
8
F1
BX 23-2

BX 16

COOLING SYSTEM

1 - Switch for water minimum level
2 - Radiator bleed screw
3 - Radiator
4 - Electric fan
5 - Filler cap with calibration valve (1 bar)
6 - Thermal switch for fan (2-speed) cutting-in
7 - Inlet manifold
8 - Drain pipe
9 - Water pump
10 - Choke
11 - Carburettor
12 - Bleed screw
13 - « Aerotherme » control unit
14 - « Aerotherme » (heater radiator)
15 - Bleed screw
16 - Thermostatic regulator (Calorstat)
17 - Engine coolant temperature switch (112° C) *(warning lamp lights up),* lead with **Yellow Connector**
18- Engine coolant temperature switch (105° C) *(warning lamp blinks),* lead with **Blue Connector**
"a" Crankcase drain plug on inlet manifold

Surface of radiator .... 16 dm^2

Capacity of circuit (approx.) .... 7 litres

Antifreeze proportion *(all the year round)*
- for protection at - 15° C 28%
- for protection at - 30° C 50%

Thermostatic regulator (thermostat) : reference No. .... V. 5348
Begins to open at .... 82° C
Fully open .... 93° C
Travel .... 7.5 mm

Radiator cap (calibration) .... 1 bar

Engine coolant temperature switch (17) .... 110° C to 114° C
Yellow Connector

Engine coolant temperature switch (18) .... 103 to 107° C
Blue Connector

Fan thermal switch (6) for cutting in :
1st speed .... 86° C to 90° C
2nd speed .... 90° C to 94° C

FILLING AND BLEEDING THE WATER SYSTEM

Open the heater control to fullest extent.
Remove the three bleed screws (➡) : **Fig. I, II and III.**
Fill the circuit slowly and close the bleed screws as soon as the liquid flows out. Top up until overflowing the radiator.
Start the engine, watch the liquid level : fit the radiator cap, wait for the fan cutting-in and then for its stopping.
With engine stopped, top up the level until flowing over the brim.

NOTE : In case the bleed screws are located at a higher level than the radiator filling height, charging can be obtained by using a 40 mm dia. hose (max.) placed on the radiator filler.

Ckecking the level :

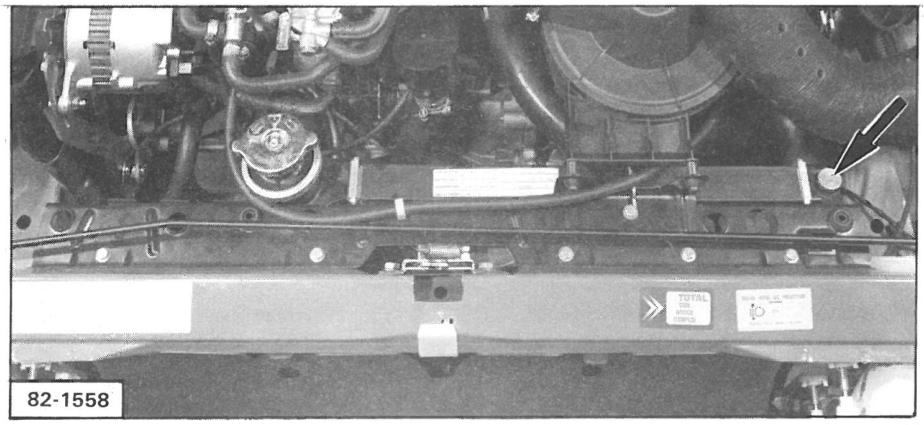
After the engine operation, the liquid level can no longer be seen in the radiator header tank : the liquid level should be checked, without waiting for the warning lamp to come on.
Use the engine oil dipstick, dip it down into the radiator header tank : the coolant height should be between **250 mm (min) and 300 mm (max) with THE ENGINE COLD.**

Low level switch :

In normal operation, the switch is upright : **Fig. IV.**
The warning lamp on dashboard comes on and shows the minimum level when the switch is in the horizontal position : **Fig. V.**

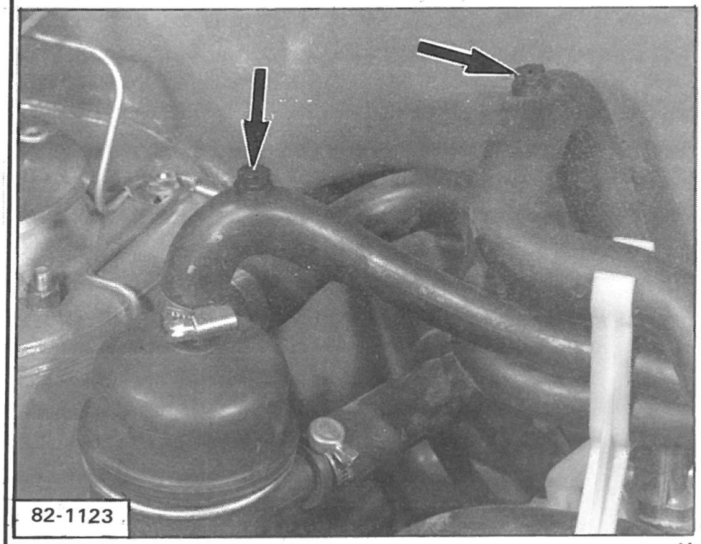
FITTING THE LEVEL SWITCH

- Mark at **« a »** the high position of counterweight (1) **Fig. IV.**
- Offer up the level switch so that, when in **''locked''** position on the radiator, counterweight (1) faces upwards.



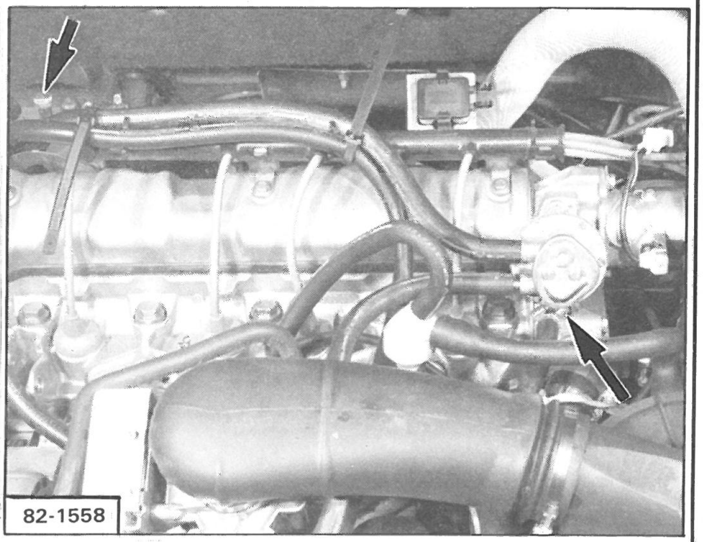
I

BX 14

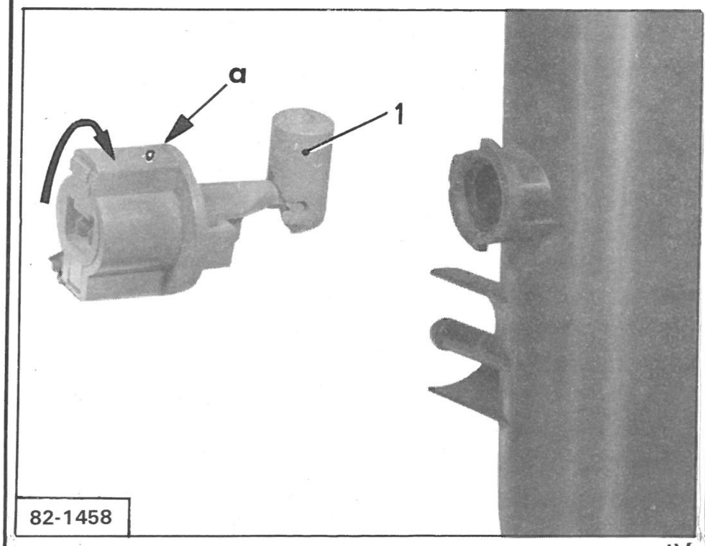


II

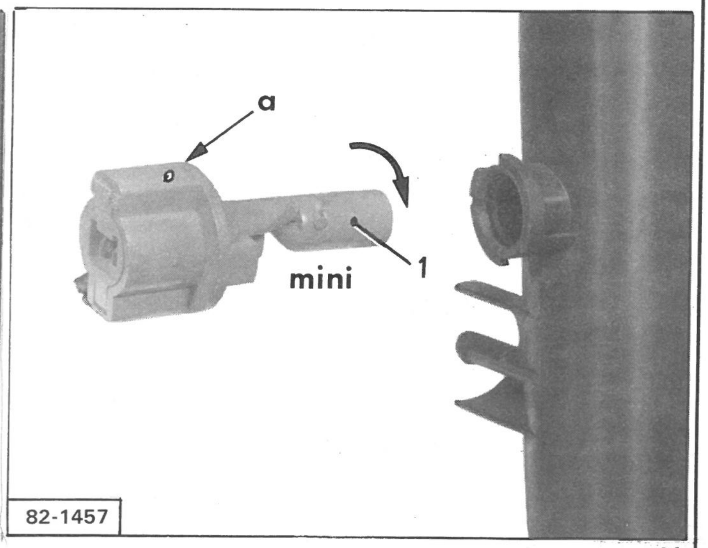
BX 16



III



IV



V

CHARACTERISTICS AND SPECIAL FEATURES OF THE ENGINE

I. GENERAL CHARACTERISTICS

ENGINE	BX	BX 14
Type (on engine plate)	150 A	150 C
Cubic capacity	1360 cc	1360 cc
Number of cylinders	4	4
Bore	75 mm	75 mm
Stroke	77 mm	77 mm
Compression ratio	9.3 to 1	9.3 to 1
Effective power **(ISO)**	44.6 kW at 5500 rpm	51.8 kW at 5750 rpm
(DIN)	62 CV at 5500 rpm	72 CV at 5750 rpm
Maximum torque **(ISO)**	10.8 m.daN at 2500 rpm	10.8 m.daN at 3300 rpm
(DIN)	11 m.kg at 2500 rpm	11 m.kg at 3300 rpm
Firing order	1 - 3 - 4 - 2 (cylinder No. 1 located at flywheel end)	
Direction of rotation	Clockwise, as seen from timing end (R.H. side)	

Cooling system : Water-cooled, plus anti-freeze all the year round.

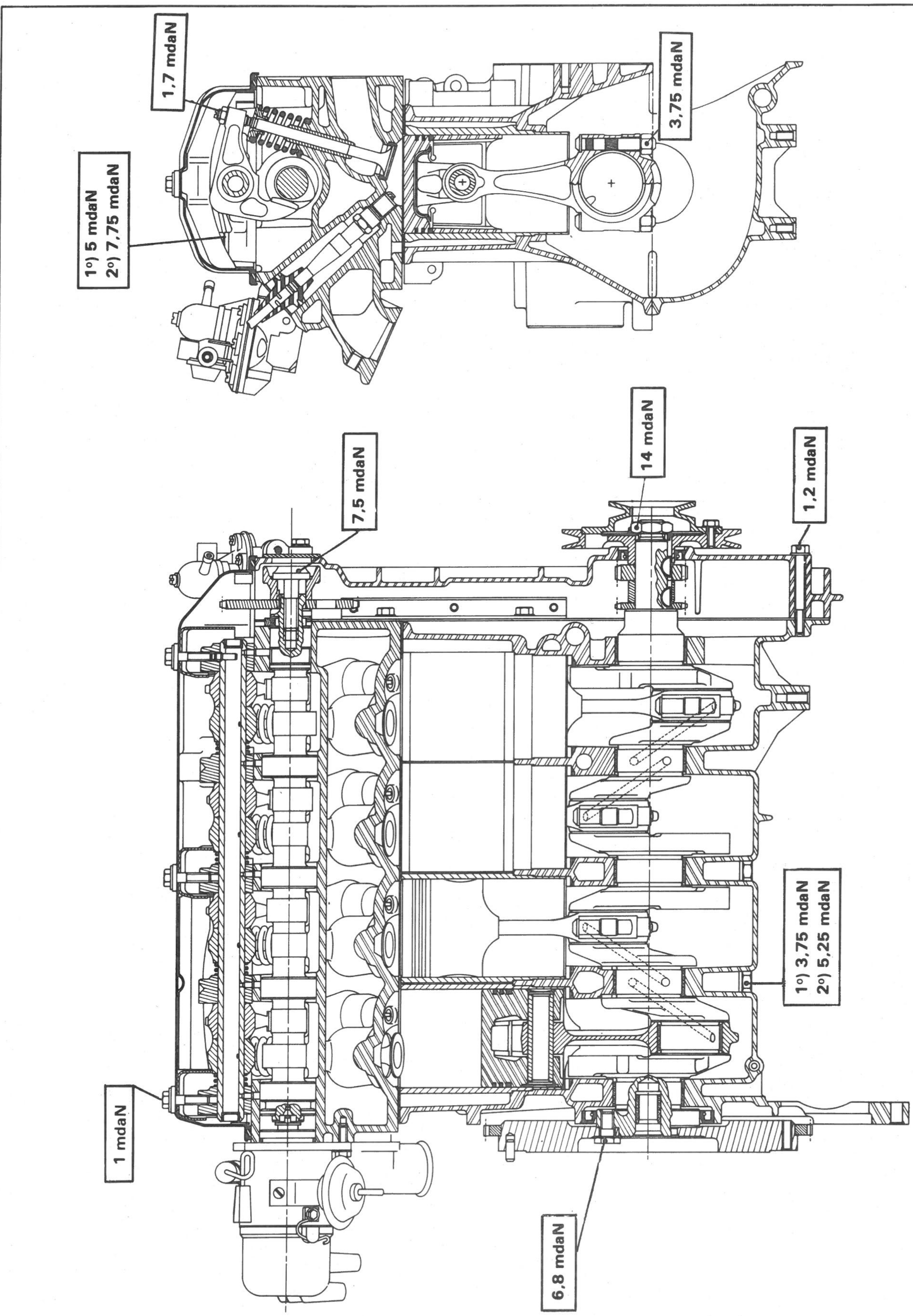
Lubrication : The oil circuit is the same for the engine, the gearbox and the differential : under pressure, supplied by a gear-type oil pump.
Outer oil cartridge with by-pass valve.

Fuel supply : Twin-choke carburettor and mechanical fuel pump driven by an eccentric at camshaft end.

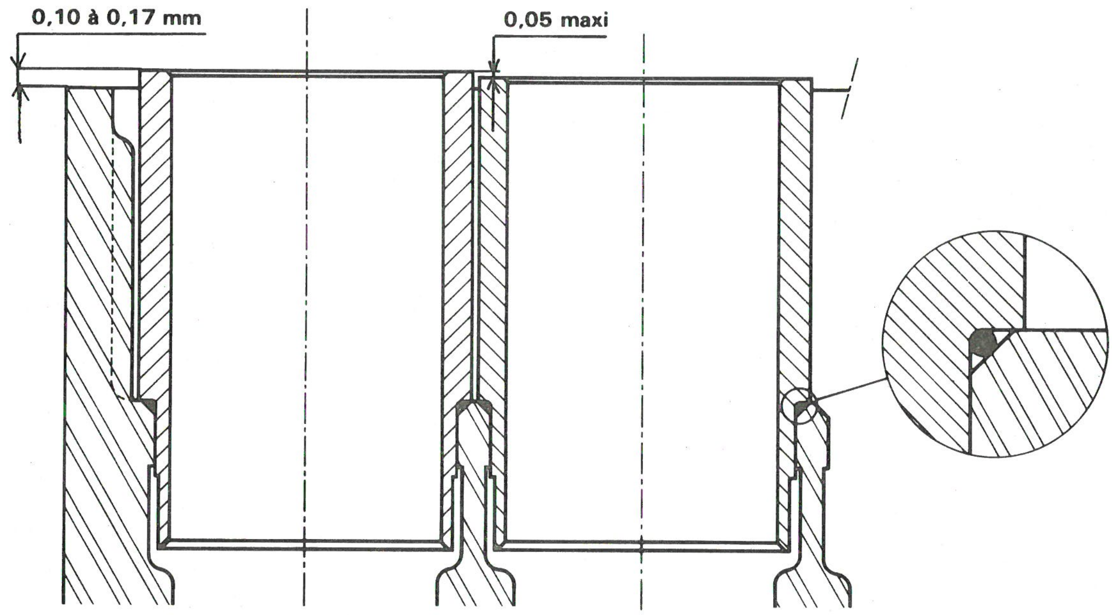
Grade of petrol to be used : R 99 Octane rating (FRANCE : Super grade) (U.K. : 4-star).

Ignition : Distributor at camshaft end, horizontally fitted. Spark plugs of the conical seating type (without seal). Tightening torque : **1.5 to 2 m.daN.**

Timing : Overhead camshaft located inside the cylinder-head driven by a chain.

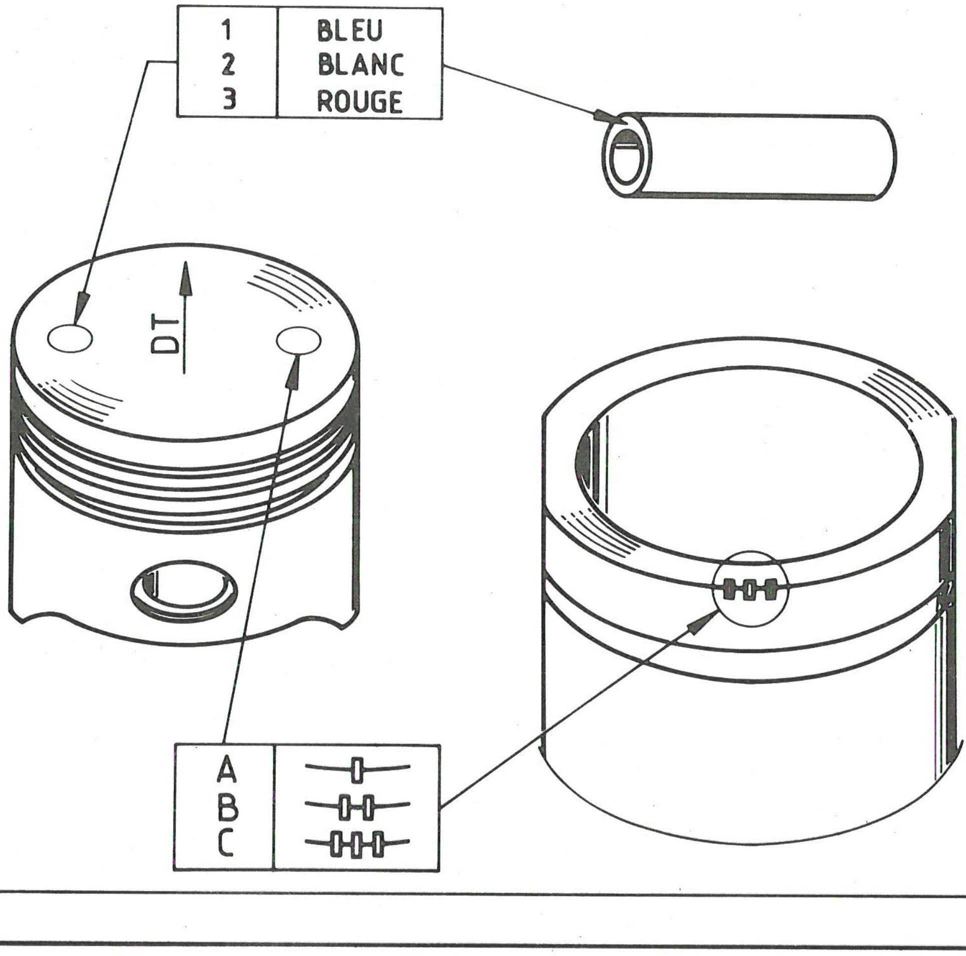

1,7 mdaN
1°) 5 mdaN
2°) 7,75 mdaN
3,75 mdaN
7,5 mdaN
14 mdaN
1,2 mdaN
1°) 3,75 mdaN
2°) 5,25 mdaN
1 mdaN
6,8 mdaN

BX-10-4



BX-11-2

I



BX-12-4

II

II. SPECIAL FEATURES

Crankcase
Sealing of joint surfaces with LOCTITE FORMETANCH.

Crankshaft : (5 bearings)
Crankshaft end float . . . . 0.07 to 0.27 mm
Thickness of the adjustment half-flange . . . . 2.40 - 2.50 - 2.55 - 2.60 mm
Maximum out of round of crankpins and journals . . . . 0.007 mm

	Journals	Crankpins
Standard dimensions	$49.981\ ^{0}_{-0.016}$ mm	$45\ ^{-0.009}_{-0.029}$ mm
Dimensions after regrinding	$49.681\ ^{0}_{-0.016}$ mm	$45\ ^{-0.009}_{-0.025}$ mm

Connecting rods :
Bore of small-end bushes . . . . $19.463\ ^{+0.013}_{0}$ mm

Tightening between connecting rod small-end and gudgeon pin . . . . 0.021 to 0.043 mm

Bore of the big ends . . . . $48.655\ ^{+0.016}_{0}$ mm

Linings - Pistons :
- The sealing of the lining base is ensured by an O-ring seal.
- Lining protrusion, **Fig. I** *(without O-ring seal)* not adjustable . . . . 0.10 to 0.17 mm
- Difference between the height of two linings . . . . 0.05 mm max.
- Piston offset . . . . 1 mm

- Lining-piston pairing : three classes, identification marks are engraved on the piston and on the lining, **Fig. II.**

- The gudgeon pins are loose fitted in the pistons and tight fitted in the connecting rods, the three classes of gudgeon pins are identified by marks engraved on the pistons and by paint marks on the gudgeon pins.
- When fitting the piston, the arrow engraved on the piston head should face timing gear (DT).

Flywheel :
Before fitting the screws, smear the threads with LOCTITE FRENETANCH.
Number of teeth on the starter ring 17

Cylinder head :
- It is forbidden to rectify the cylinder head.
- Maximum run-out permissible .... 0.05 mm max.
- Tightening sequence : pre-tightening .... **5 m.daN**
  final tightening .... **7.75 m.daN**

After fitting the cylinder-head or reconditioning the engine : rotate the engine until the electric fan cuts in, let it cool down for 2 hours min.

Loosen the screw, then re-tighten screw by screw .... **7.75 m.daN**

Valves	**Angle (degrees)**	**Head dia. (mm)**	**Stem dia. (mm)**	**Length (mm)**
Inlet	120°	36.8	$8^{-0.010}_{-0.035}$	113.41 ± 0.22
Exhaust	90°	29.3	$8^{-0.023}_{-0.038}$	113.56 ± 0.45

Valve spring :
Same type of spring for exhaust and inlet valves, wire dia. : 4.3 mm

Length under load	**Load in kg**
41 mm	26
30 mm	77

Guides :
Bore of valve guides :
- Inlet and exhaust .... dia. = $8^{+0.022}_{0}$ mm

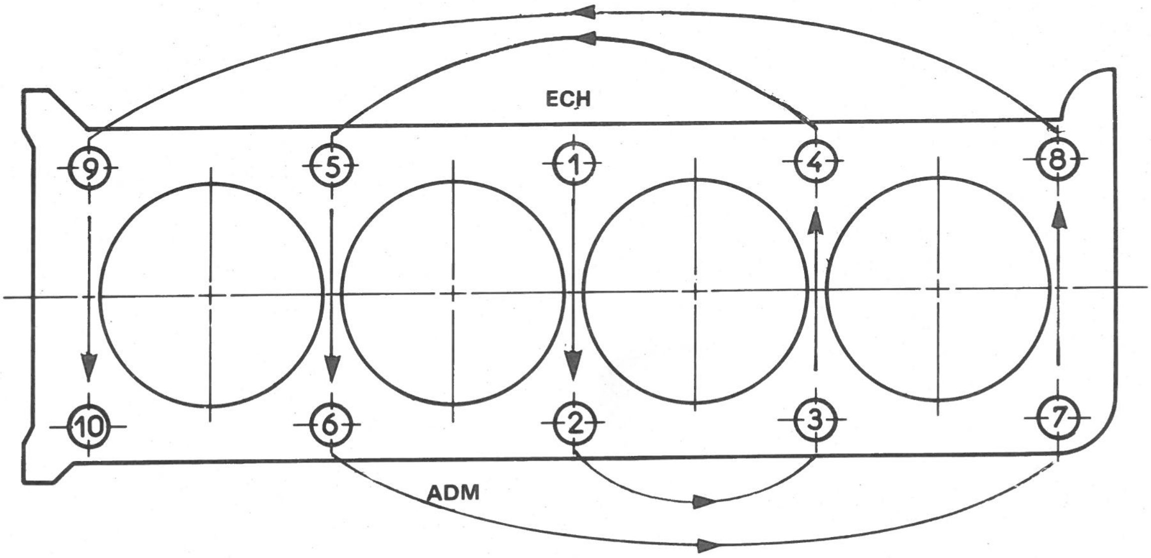
Seats :
Width of contact surface :
- Inlet .... 1.45 mm max.
- Exhaust .... 1.80 mm max.

Timing :
Camshaft :
- End-float *(not adjustable)* .... 0.07 to 0.17 mm

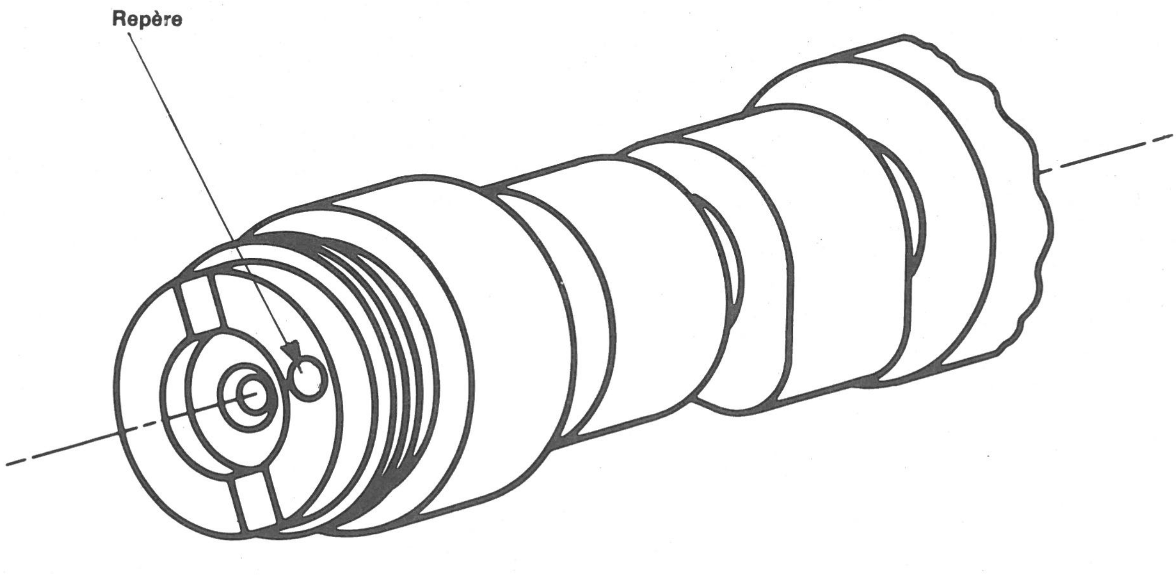
Engine type	Valve lift	Camshaft ident. mark	Inlet valve opens ATDC	Inlet valve closes ABDC	Exhaust valve opens BBDC	Exhaust valve closes BTDC
150 A	7.25 mm	A	4°	29°	30°	5°
150 C	8.25 mm	S	0°	42°	43°	1°

Theoretical setting of the timing diagram with à 0.7 mm valve clearance.

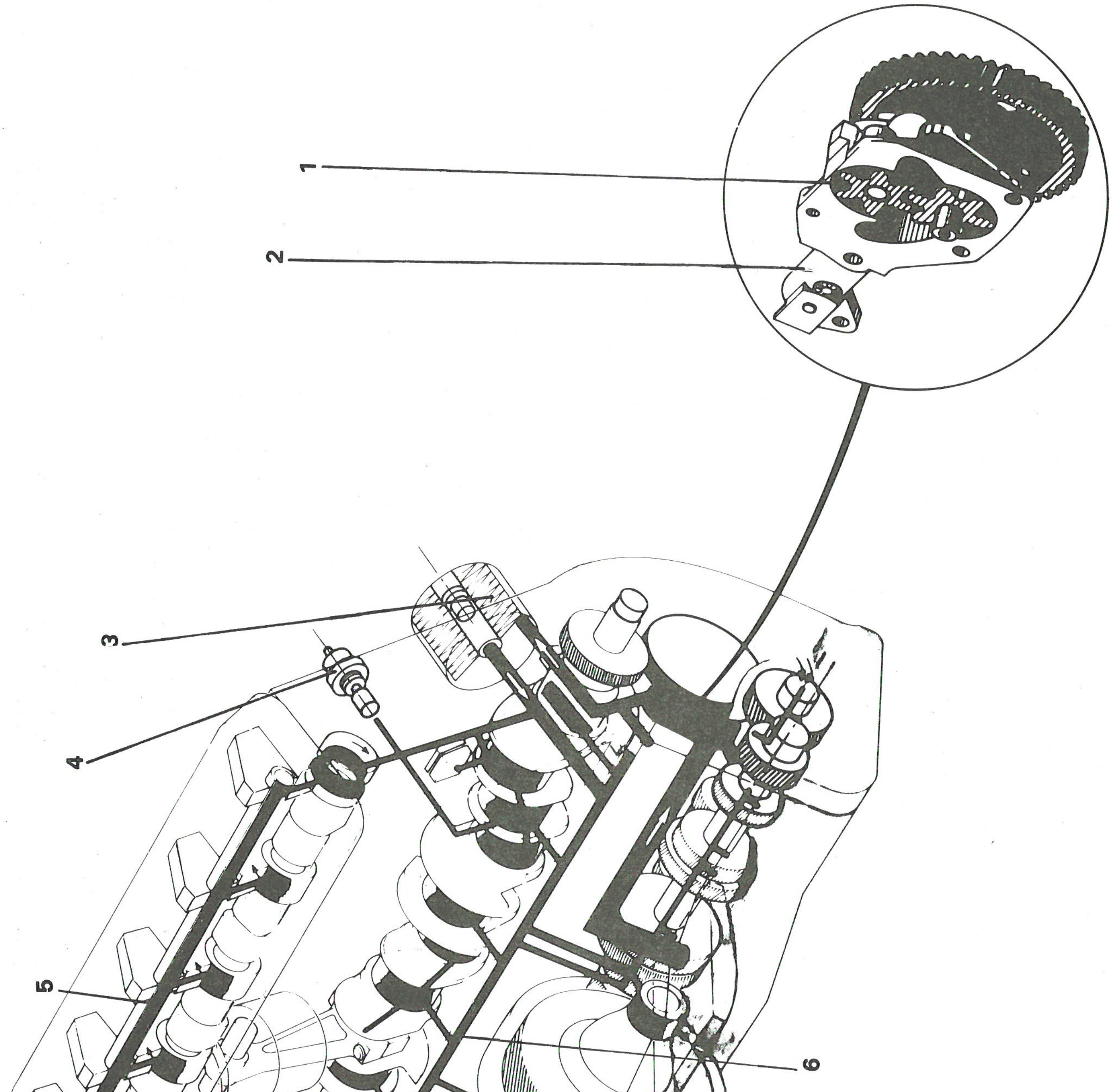
Rocker clearance *(with a cold engine)*
- Inlet .... 0.10 mm to 0.15 mm **- Exhaust .... 0.20 mm to 0.30 mm**



V-11-1



V-12-3



BX. 22 2

Lubrication circuit :

Symbol key :
1. Oil pump
2. Relief valve (return to oil pump suction)
3. Filter cartridge with by-pass valve
4. Oil pressure switch
5. Rocker assembly (bearing and cam lubrication)
6. Supply for crankshaft bearing and gearbox lubrication

Min. oil pressure	**3 bars at 4000 rpm**
Pressure switch calibration	**0.6 bars**

Oil cartridge reference (with by-pass)
- PURFLUX LS 498 B
- SIF-VH 163

Oil recommended :
TOTAL GOLD 15 W 40 (U.K.)
TOTAL GTS 15 W 40 or TOTAL GTi ville route 10 W 30 (FRANCE)
Below - 10° C :
- TOTAL GOLD 10 W 40
- TOTAL GTi ville route 10 W 30 (FRANCE)

Engine type		**150 A**	**150 C**
Capacity (in litres)	new engine	5	5.5
	after draining	4.5	5
	between min. and max.	1	1

Cooling circuit :

1. Engine coolant temperature switch
2. Thermostat (calorstat)
3. Radiator outlet pipe
4. Radiator bleed screw
5. Radiator
6. Electric fan
7. Thermal switch for electric fan cutting-in
8. Filler plug with calibration valve (1 bar)
9. Switch for min. water level
10. Water pump
11. Inlet chamber
12. Carburettor
13. Deaerating housing
14. Water circuit bleed screw
15. « Aerotherme » control box
16. « Aerotherme »
Crankcase drain plug (19 mm across flats); at liner base, under exhaust manifold at timing end.

Radiator surface .... 14 dm^2

Circuit capacity (approx.) .... 6.5 litres

Proportion of anti-freeze *(all the year round)* for temperature below - 15° C 28%

Thermostat, reference .... V 5348

Starts opening at .... 82° C

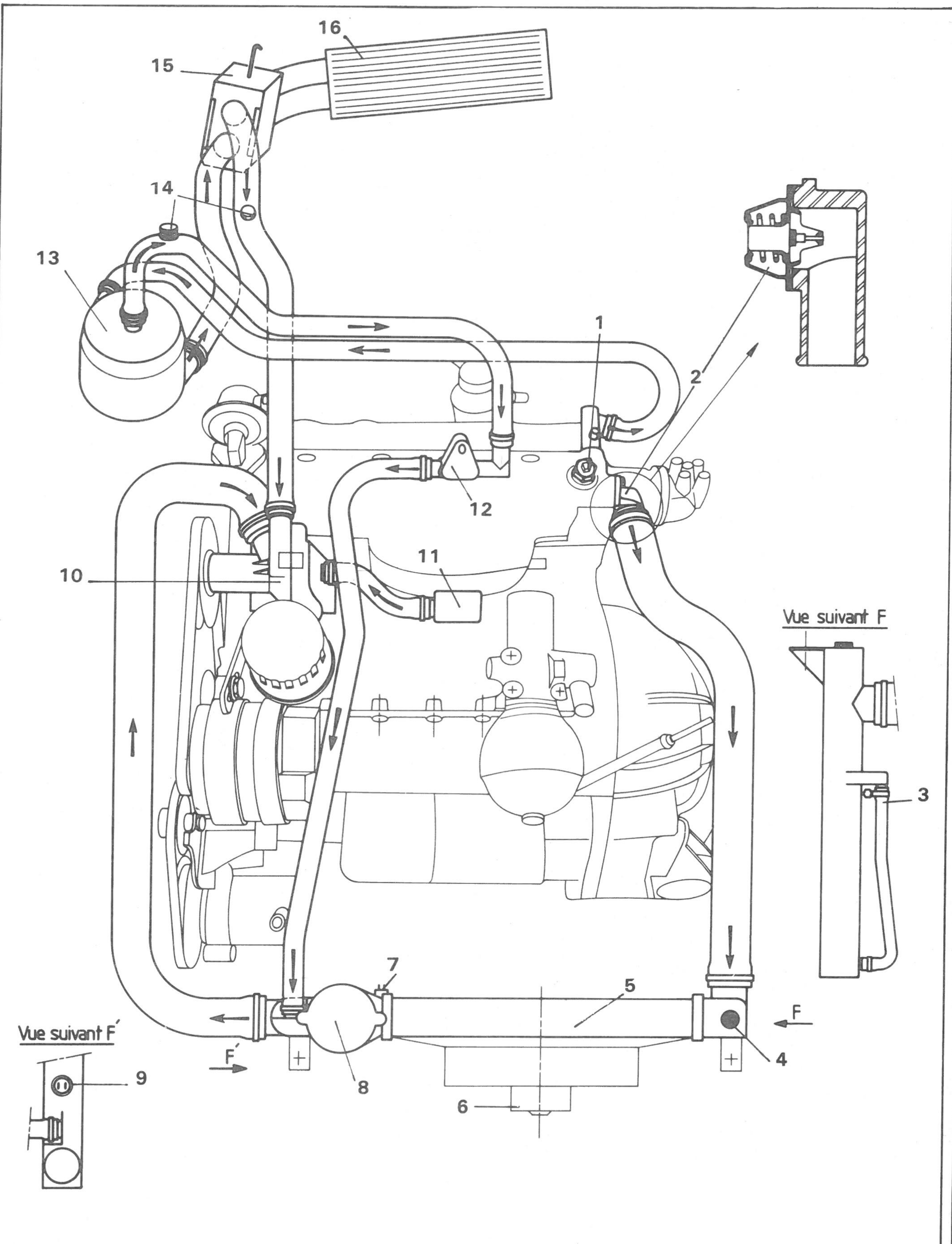
Fully open at .... 93° C

Stroke .... 7.5 mm

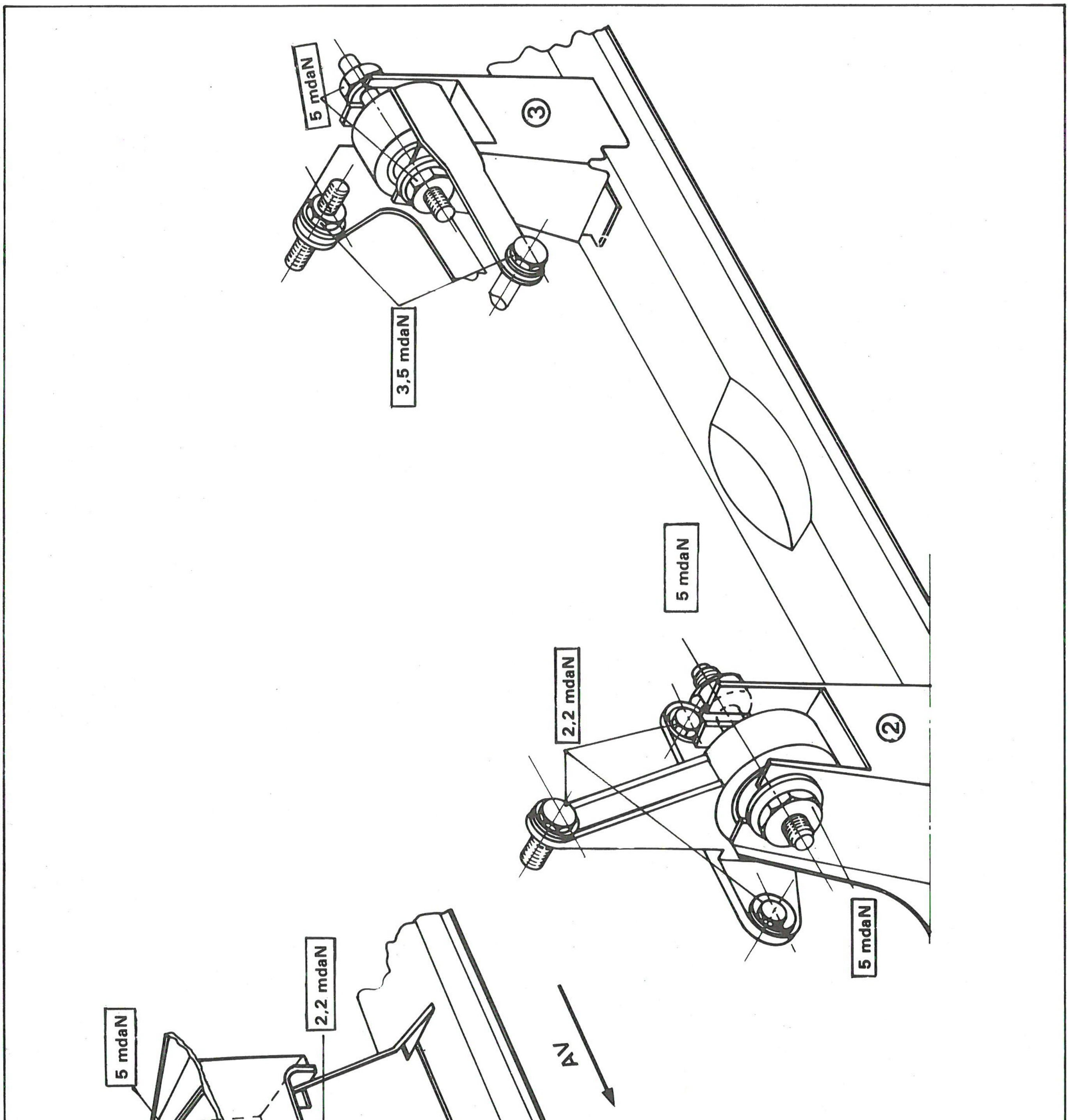
Radiator plug (calibration) .... 1 bar

Engine coolant temperature switch .... 110° C to 113° C

Thermal switch for electric fan cutting in .... 84° C to 89° C



BX-23-1



BX-13-1

Engine suspension : gearbox

The « silentbloc » bushes of the engine bearers are identified by a paint mark :

Engine bearer-gearbox	Paint mark
R.H. side (timing) 1	Green
Front, L.H. side 2	Yellow
Rear, L.H. side 3	Yellow

III - RECOMMENDED TOOLS

273-T R.P. Ref. : OUT 100273-T
Drain plug spanner

2 8301-T R.P. Ref. : OUT 128301-T
Release handle for plug spanner

2 8303-T R.P. Ref. : OUT 128303-T
Plug spanner (Length = 135 mm).

8 1403-T R.P. Ref. : OUT 181403-T
Oil filter spanner

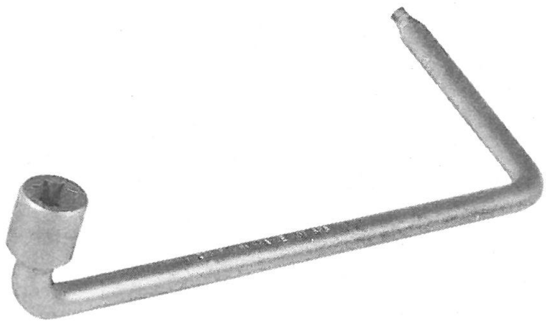
Op. XB 14 - 112-0 : Checking and adjusting the rockers
8 0130-T from kit 8 0132-T
Spanner for rocker adjustment

Op. XB 14 - 220-0 : Checking oil pressure
2279-T bis Manometer graduated from 0 to 10 bars
4043-T R.P. Ref. : OUT 104043-T
Union for oil pressure inlet

Op. XB 14 - 100-1 : Removing and fitting an engine-gearbox unit
2517-T Sling for lifting the engine-gearbox unit

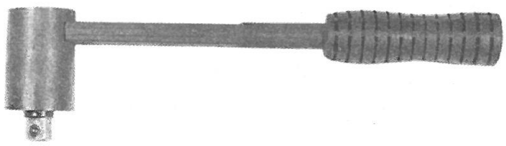
273 - T

79-257



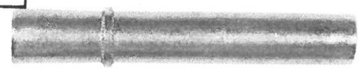
2 8301 - T

78-752



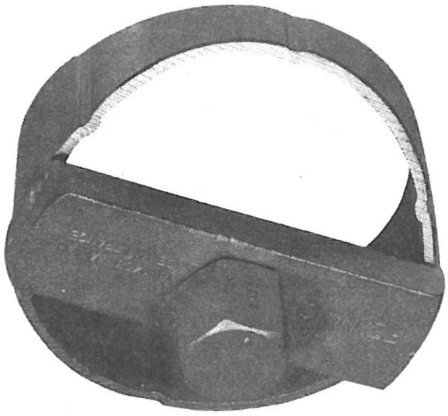
2 8303 - T

78-752



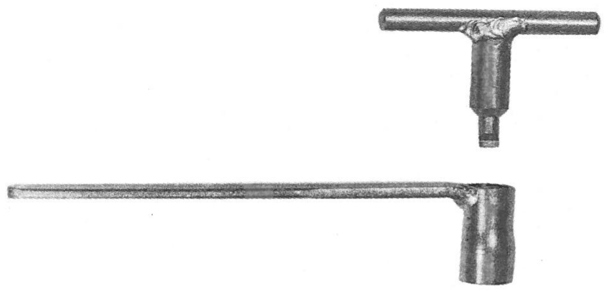
8 1403 - T

78-325



8 0130 - T

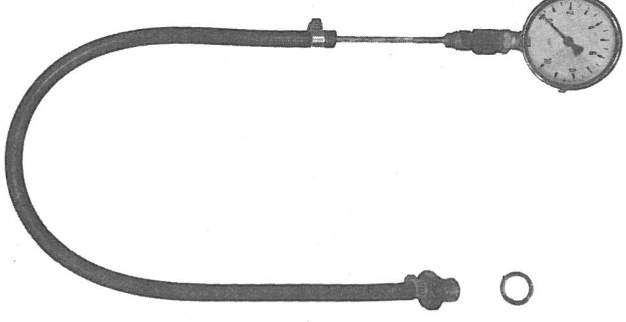
78-754



2279 - T

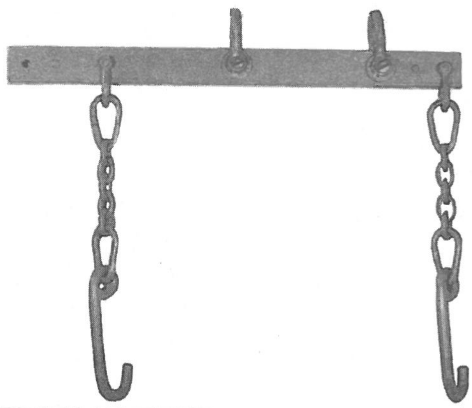
4043 - T

82-2015



2517 - T

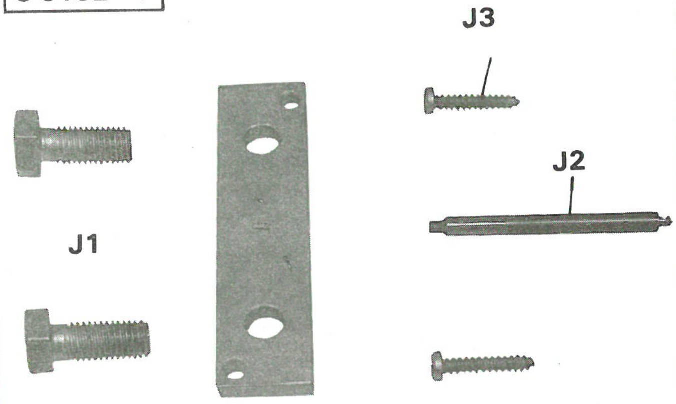
13-555



6012 - T

79-252

8 0132 - T



78-331

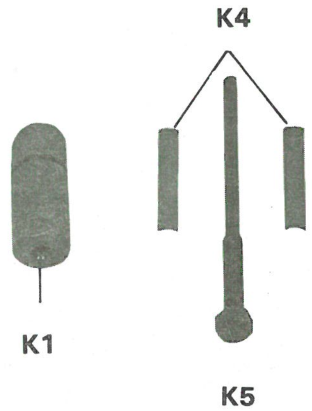
8 0132 - T

78-326

8 0132 - T

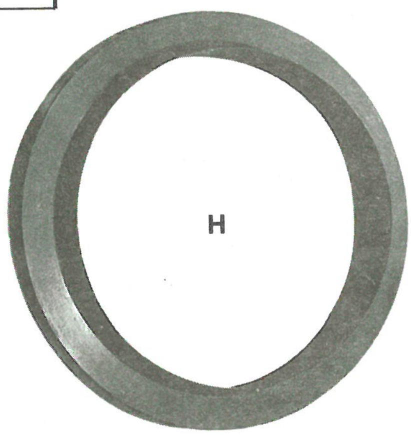
78-333

8 0132 - T



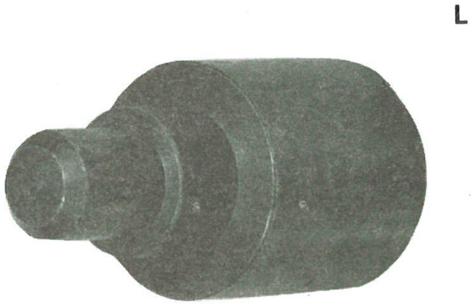
78-323

8 0132 - T



78-330

8 0132 - T



78-321

Op. XB 14 101-2 : Separating the engine from the gearbox and from the transfer gear assembly.
Working on the clutch mechanism

6012-T : R.P. Ref. : OUT 306 012-T
Toothed sector for clamping the engine flywheel

8 0132-T from kit : R.P. Ref. : OUT 38 0132-T :
Use the following tools

F : Centering bush for timing cover

G : Mandrel for fitting the crankshaft oil seal at timing end

H : Bush for fitting the crankshaft oil seal at engine flywheel end

I : Puller for crankshaft oil seal, at engine flywheel end, comprising :

J1 : Plate with a two screw set
J2 : Special drill
J3 : Set of two self-tapping screws

K : Puller for crankshaft bush comprising :
K1 : Body
K4 : Claw for bush
K5 : Long screw for the extraction

L : Mandrel for fitting the crankshaft bush

8.0132-T : KIT (continued)

M : Support for the engine-gearbôx unit

8.0209-T (included in kit 8.0132-T)

A : Clutch centering mandrel
B : Two-guide set for fitting the clutch casing

8.0313-T from KIT R.P. Ref. : OUT 380 313-T
· Use the following tool

P : Gearbox support

Op. XB.14 100-3 : Reconditioning the engine

8.0132-T : KIT : R.P. Ref. : OUT 380 132-T

M : Support for engine gearbox unit

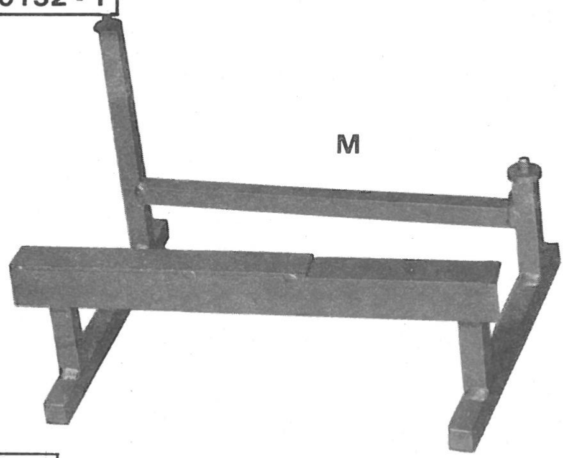
A1 : Liner holding clamps

A2 : Screws

B : Plate for checking the liner protrusion

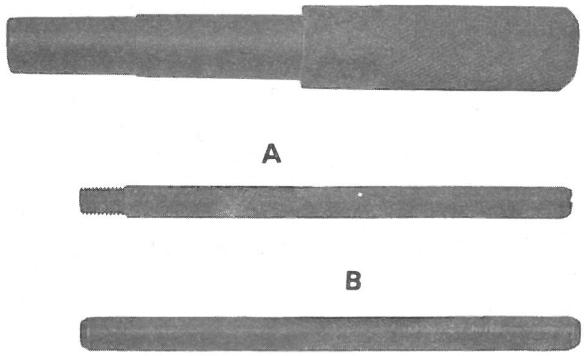
C : Dial-gauge support

8 0132 - T



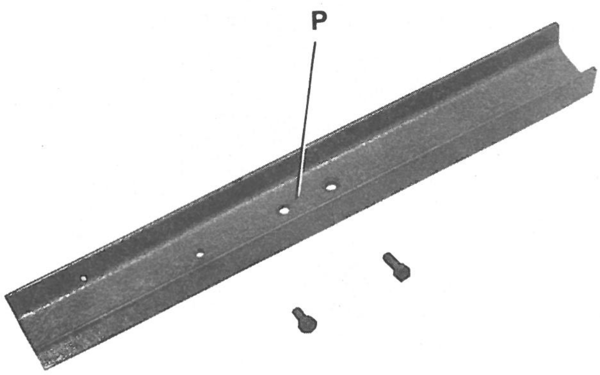
78-524

8 0209 - T



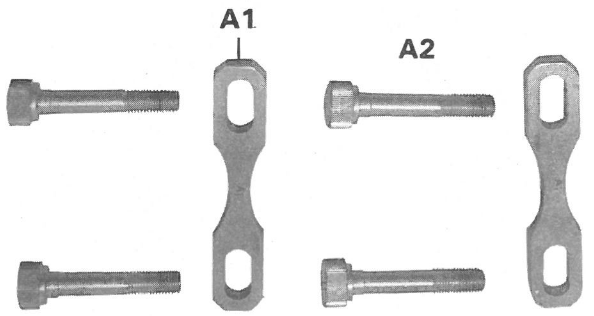
78-365

8 0313 - T



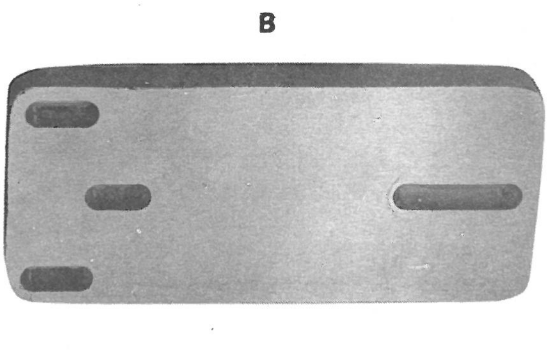
78-322

8 0132 - T



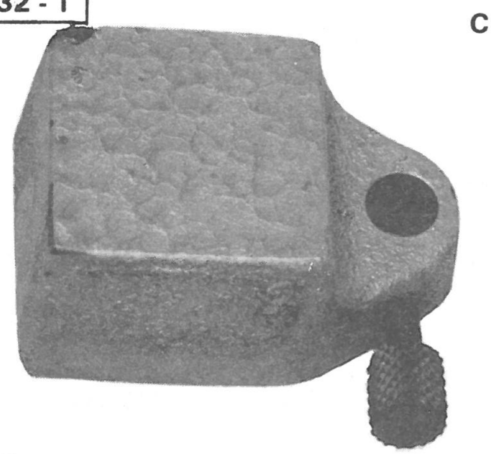
78-329

8 0132 - T



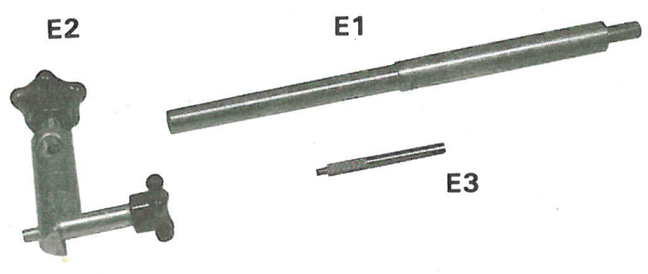
78-324

8 0132 - T



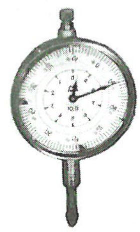
78-332

8 0132 - T



78-328

2437 - T

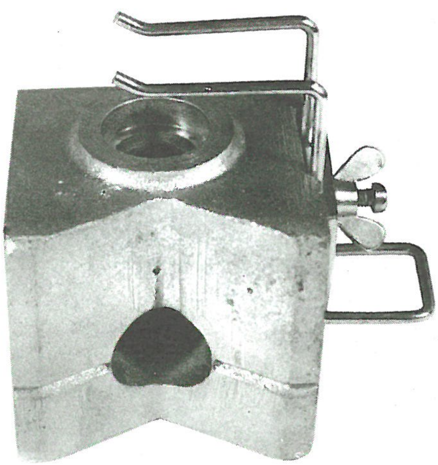


12-827

8 0132 - T

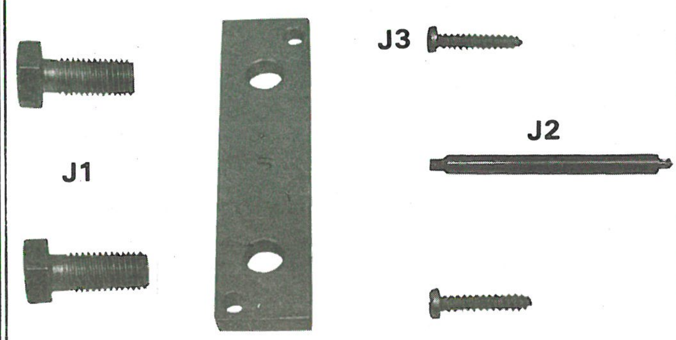
78-330

6021 - T



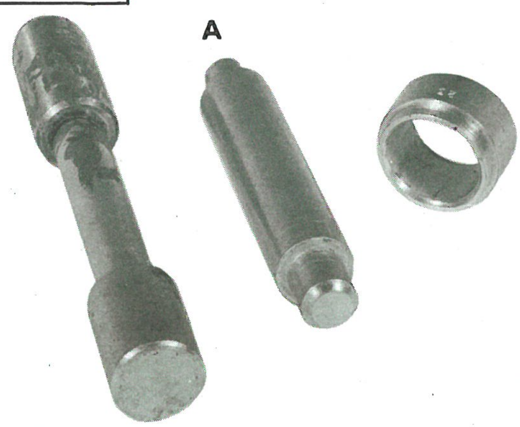
79-258

8 0132 - T



78-331

7003 - T.A



79-255

8.0132-T : KIT (continued)

E : Dial-gauge equipment for checking the crankshaft end float, comprising :
E1 : Support rod
E2 : Dial-gauge holder
E3 : Extension piece

H : Bush for mounting the crankshaft oil seal at engine flywheel end

J1 : Plate for mounting the crankshaft oil seal at engine flywheel end

2437-T : Dial-gauge

6021-T : R.P. Ref. : OUT 306 021-T
Support for removing and fitting gudgeon pins

7003-T : R.P. Ref. : OUT 307 003-T
A - Spindles for removing and fitting 19.5 mm dia. gudgeon pins

750-T R.P. Ref. : OUT 300 750-T
Clamp for fitting the rings

8.0133-T (included in kit 8.0132-T)
A Engine TDC pin. It is used for centering the oil pump
B Spanner for drain plug

6016-T R.P. Ref. : OUT 306 016-T
Tool for holding the timing pinions in position

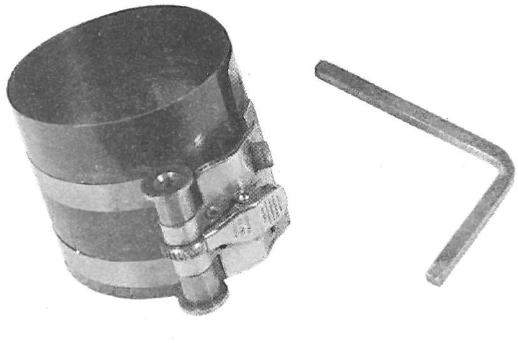
8. 0130-T from KIT 8.0132-T
Spanner for adjusting the rockers.

Op. XB 14 112-3 : Reconditioning a cylinder-head

4024-T
Spring universal compressor

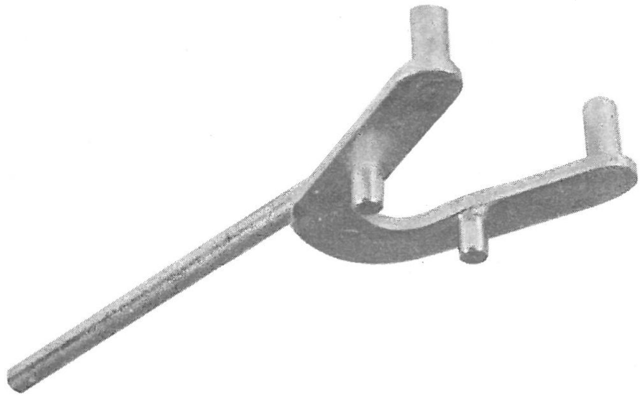
V.S.I.T.
Tool for removing and fitting valve stem seals

750 - T



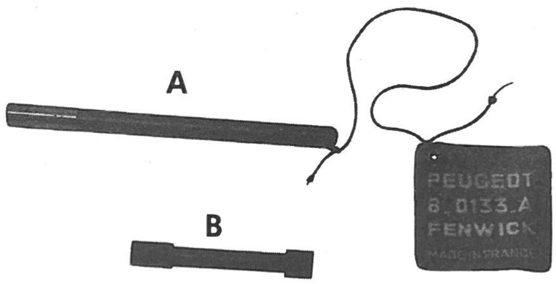
81-1371

6016 - T



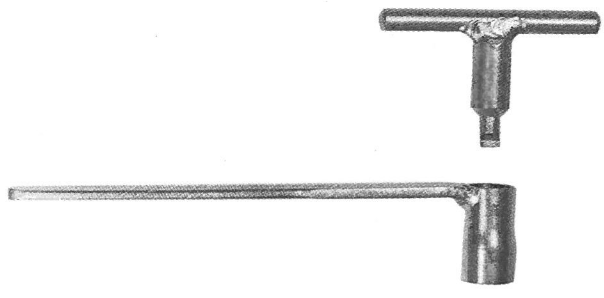
79-256

8 0133 - T



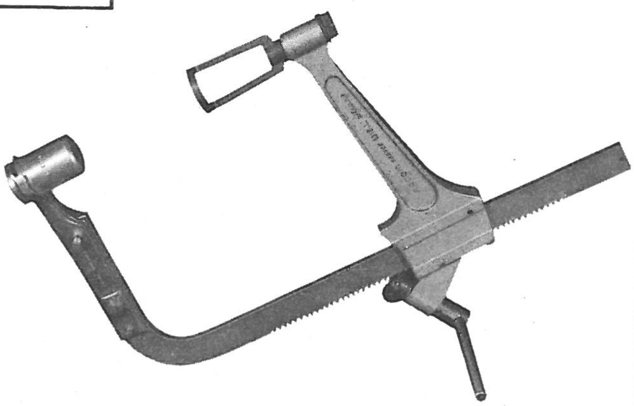
78-367

8 0130 - T



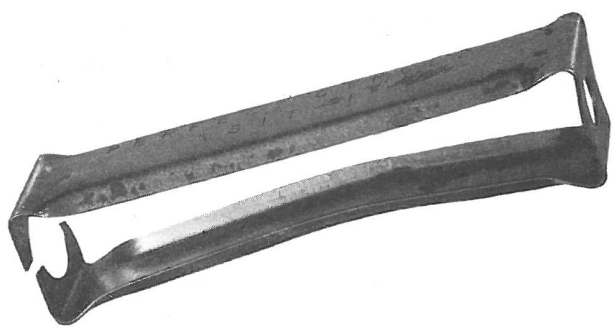
78-754

4024 - T



14-029

V.S.I.T.



80-652

REMOVING AND FITTING THE ENGINE-GEARBOX UNIT

REMOVAL.

Chock the front of the vehicle (wheels hanging free), remove the wheels.

Disconnect, Fig. I :

The negative and positive leads from the battery, the earthing wire from cylinder-head (1).

Remove, Fig. I :

Battery (2) with its plastic tray, air filter (3).

Disconnect, Fig. II :

On coil, outlet wire (4) and positive and negative wires of diagnostic plug (5), connector of distributor (6), wiring harness of econoscope (7).

Disconnect, Fig. II :

The vacuum intake tube of econoscope (8).

Uncouple, Fig. III :

Clutch cable (9), speedometer cable (10).
Remove the intake air heating box (11) from the wing.

Uncouple, Fig. IV :

Accelerator cable (18), choke cable (16).

Disconnect, Fig. IV :

The suction hose from the petrol pump.
The return hose from carburettor (15).

Drain radiator (24).

Disconnect, Fig. IV :

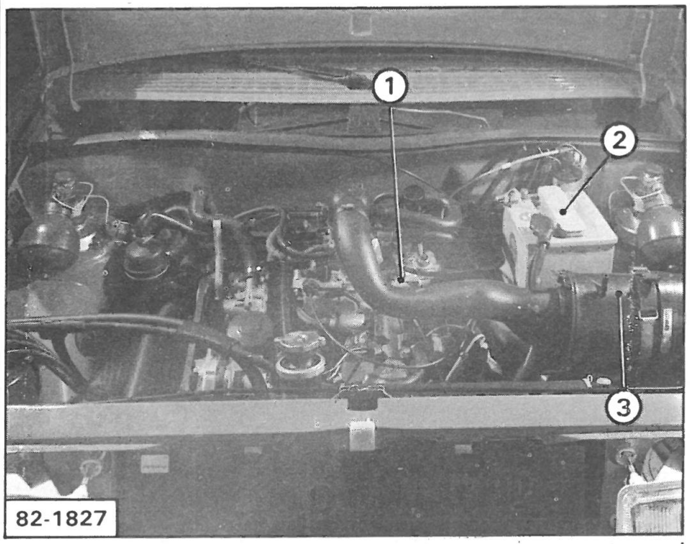
Heater hoses (13) and (19).
Pump radiator connecting hose (20).
Inlet chamber heating hose (14).
Cylinder-head-radiator connecting hose (17).
Remove de-aeration chamber (12) from its support.

Disconnect from the radiator, Fig. V :

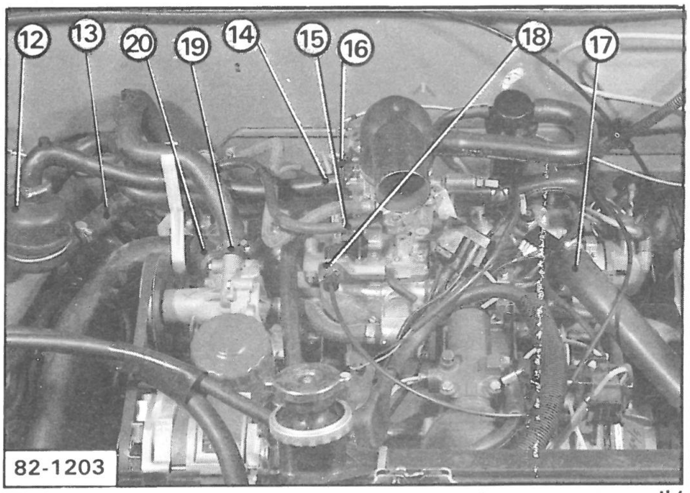
Leads (21) controlling the fan, socket (22) for checking the water level.

Removing the radiator, Fig. VI :

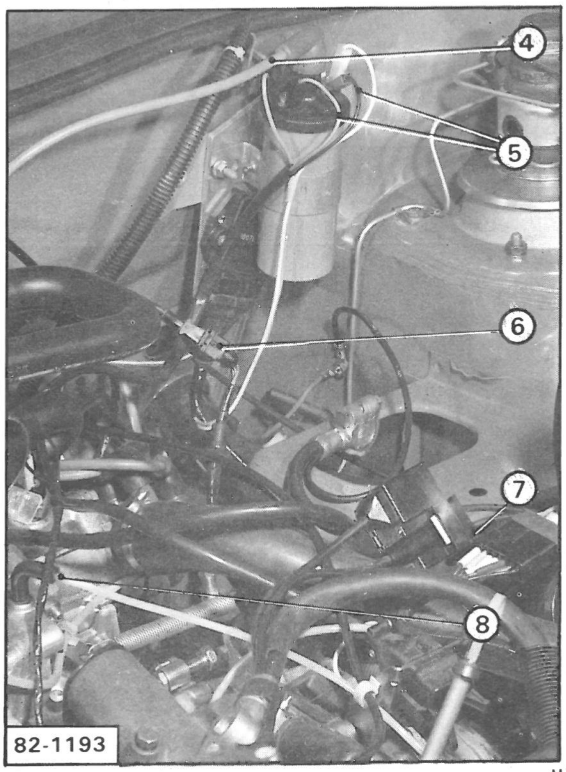
Remove the 5 screws and panel (23).
Withdraw radiator (24).



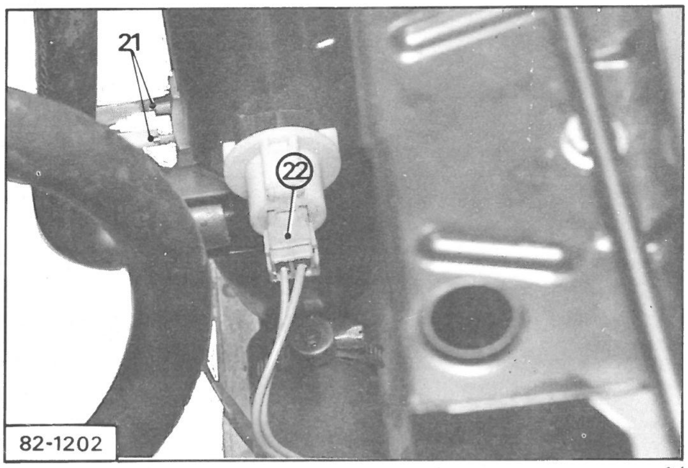
I



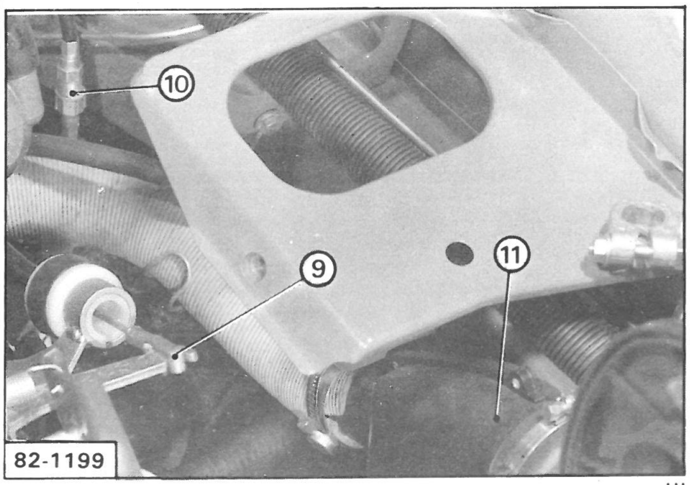
IV



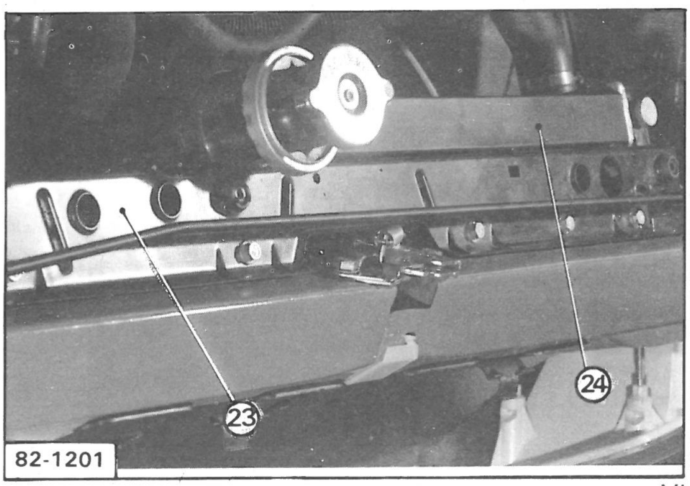
II



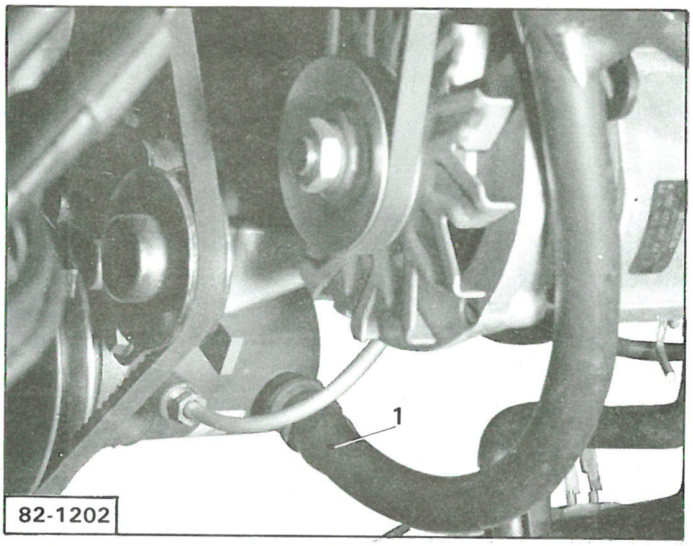
V



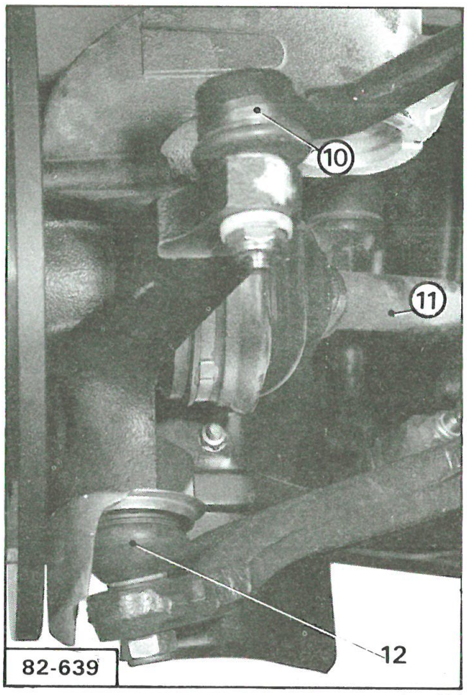
III



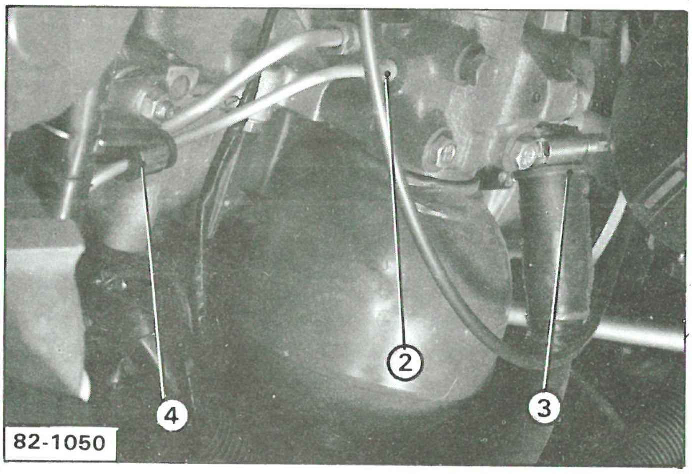
VI



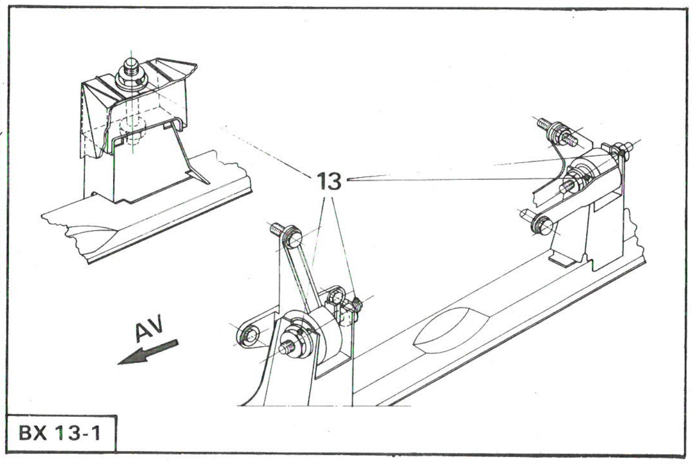
I



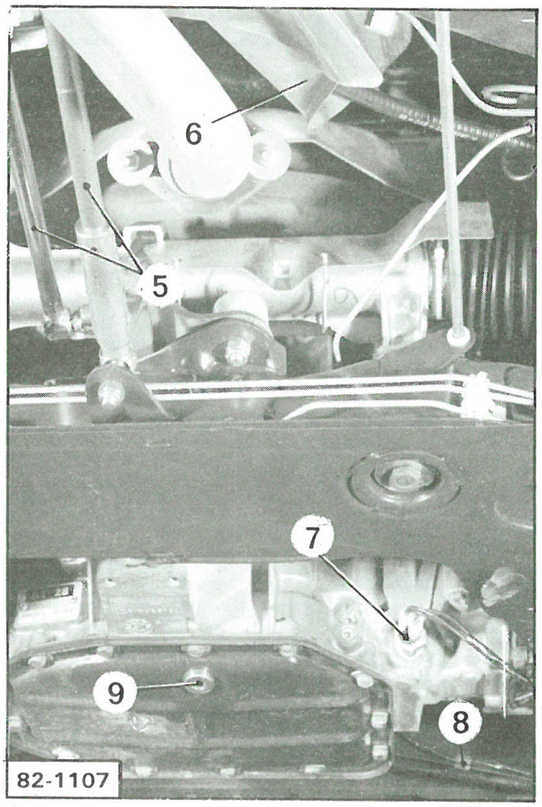
IV



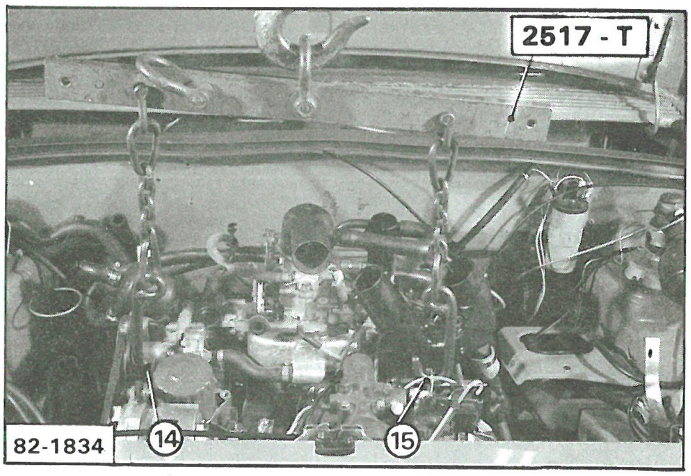
II



V



III



VI

Disconnect, Fig. I and II :

The oil suction pipe of H.P. pump (1).

The pressure regulator oil return pipe (3).

The pressure regulator outlet pipe (2) and securing lug (4).

Plug the openings of the pump and of the pressure regulator pipes.

Disconnect, Fig. III :

The leads of the reversing lamp switch (7) and uncouple the electric harness from the unit (two clips (8).

Remove :

The two lugs securing the pipe (engine front face).

Uncouple, Fig. III :

The two link rods controlling gearbox (5), exhaust (6).

Drain the engine, Fig. III :

Remove plug (9).

Uncouple, Fig. IV :

Steering link rods (10), lower wheelarm ball-joints (12), Puller **1892-T.**

Correctly position the puller so as not to damage the protective rubbers.

Release drive-shafts (11) by pulling them outwards.

Remove, Fig. V :

The nuts and washers (13) of engine bearers.

Offer up, Fig. VI :

Lifting sling **2517-T** and hook it on engine sling attachments (14) and (15).

Raise and withdraw the engine-gearbox unit.

FITTING.

Prepare the engine, **Fig. I :**

Replace gearbox drive outlet oil seals (1) *(see Op. XB 14 330-3, page 56)*.

Offer up, Fig. II :

Lifting sling **2517-T** and hook it on engine sling attachments (2) and (3).

Fit, Fig. III :

The engine-gearbox unit in the engine bearers.
The washers and new NYLSTOP nuts (4).
Tightening torque : 5 m.daN.
Remove the sling.

Fit the drive-shafts :

Guide the drive-shaft (6) until it is completely fitted.

Be careful not to deteriorate the oil seals.

Couple, Fig. IV and V :

Steering link rods (5).
New NYLSTOP nuts, **tightening torque : 3.8 m.daN.**
Lower wheelarm ball-joints (7).
New NYLSTOP nuts, **tightening torque : 3 m.daN.**
The two link rods controlling gearbox (8).
Exhaust (9).

Connect, Fig. V :

Reversing lamp (10) leads and fix the electric harness on the unit.

Fit :

The securing lugs of the pressure regulator outlet pipe (engine front face).
Drain plug (11), **Fig. V : tightening torque : 2.8 m.daN**
The radiator with its attachment.

Connect :

The hoses of the cooling circuit.
The hydraulic pipes.
The vacuum intake pipe.

Couple the cables of :

- the accelerator,
- the choke,
- the clutch,
- the speedometer.

Fit :

The capacity chamber in its support.
The intake air heating box.
The air filter.
The battery.

Connect :

The leads to the coil.
The distributor electric harness.
The econoscope electric harness.
The battery terminals.

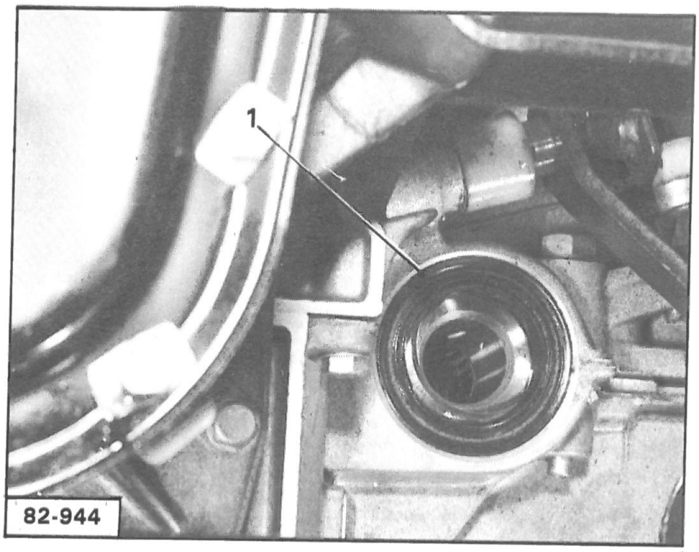
Fit the wheels :

Pressed-steel rims : **tightening torque : 7 m.daN.**
Aluminium rims : **tightening torque : 9 m.daN;**
Lower the vehicle to the ground.

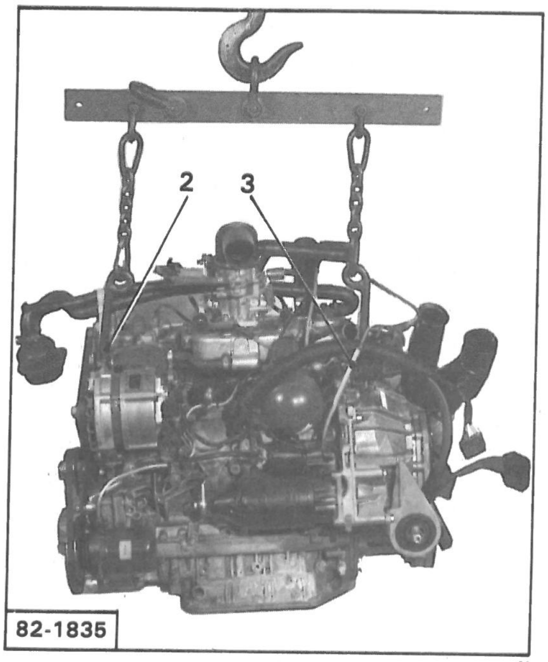
Top up :

- the engine gearbox oil level,
- the coolant level,
- drain the circuit.

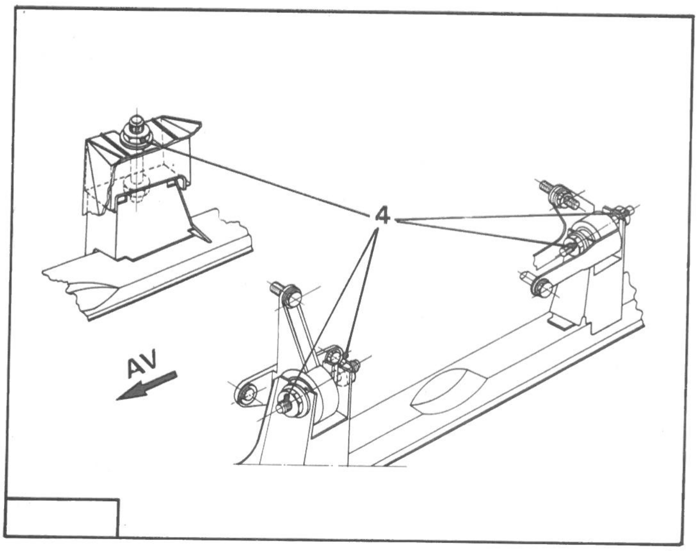
Check the hydraulic circuit fluid level.



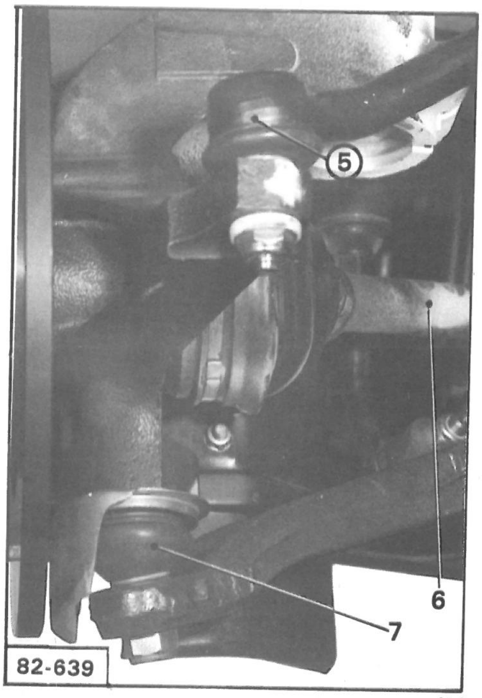
I



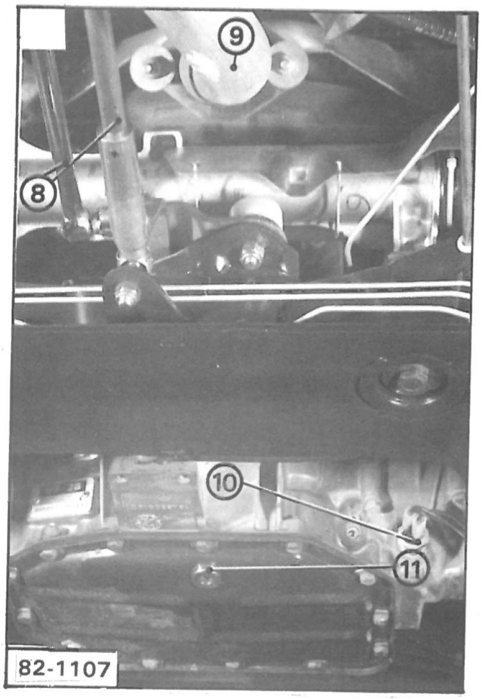
II



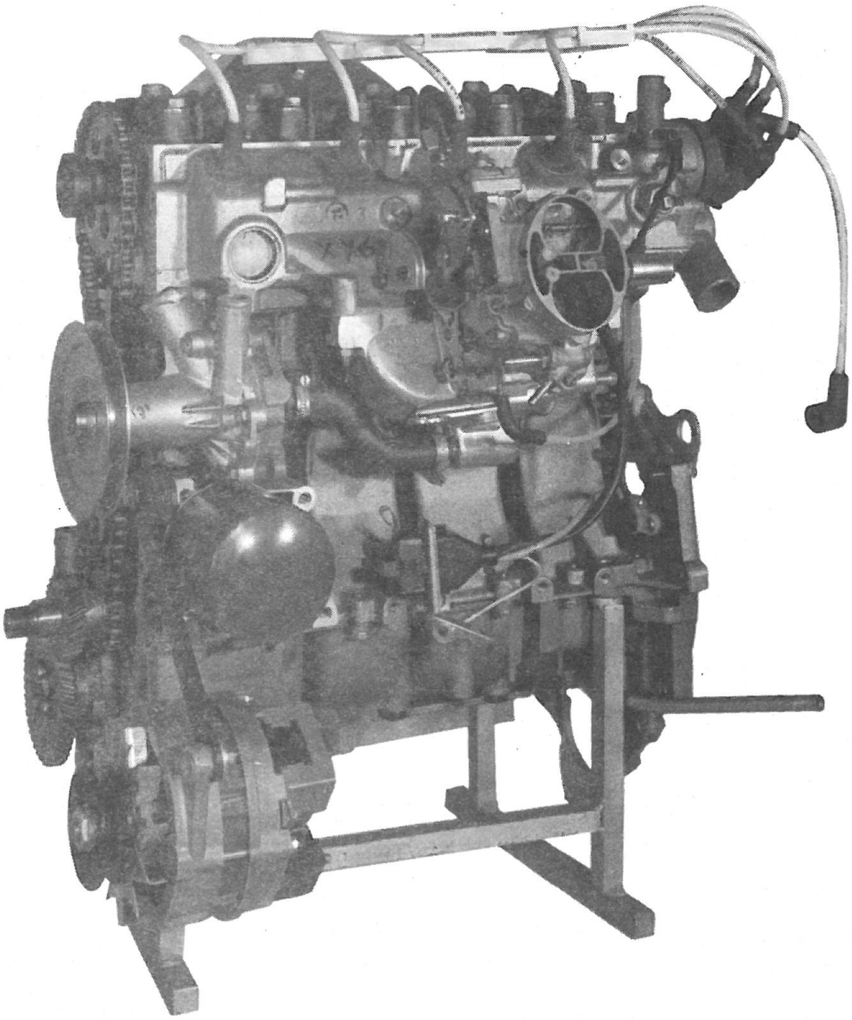
III



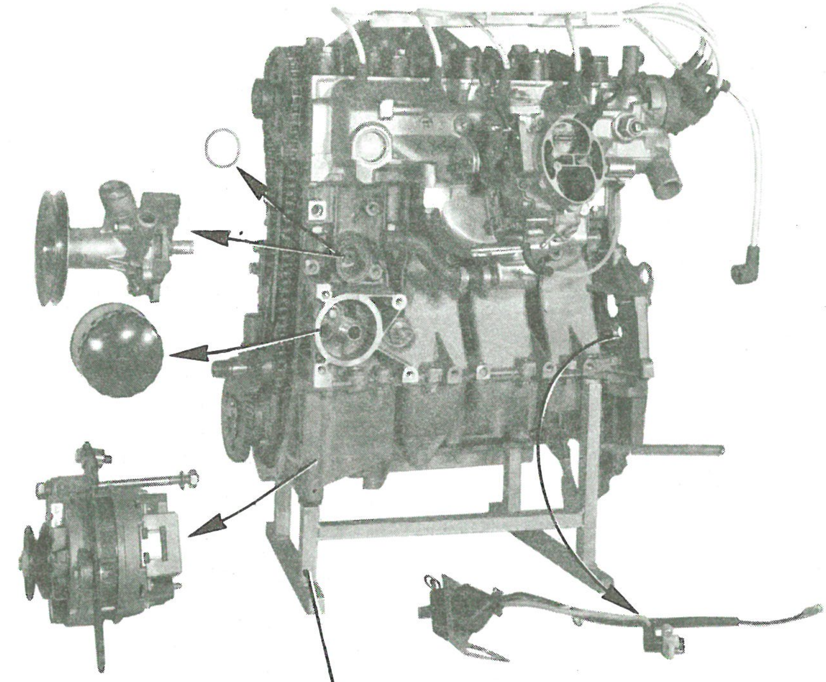
IV



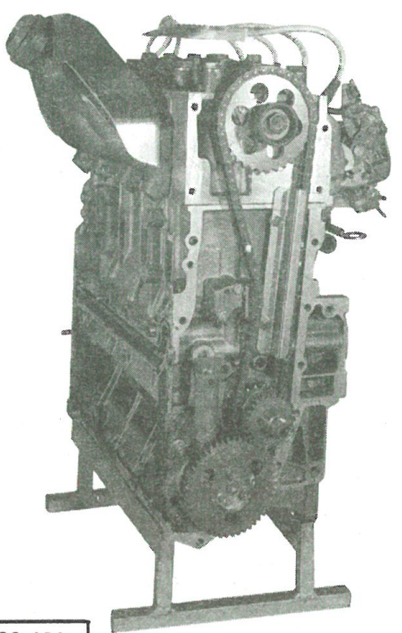
V



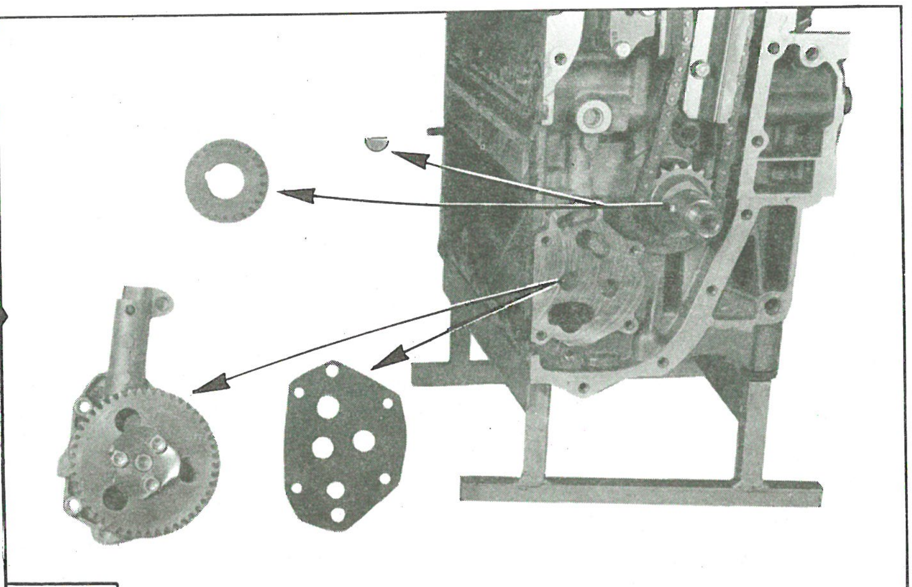
82-138



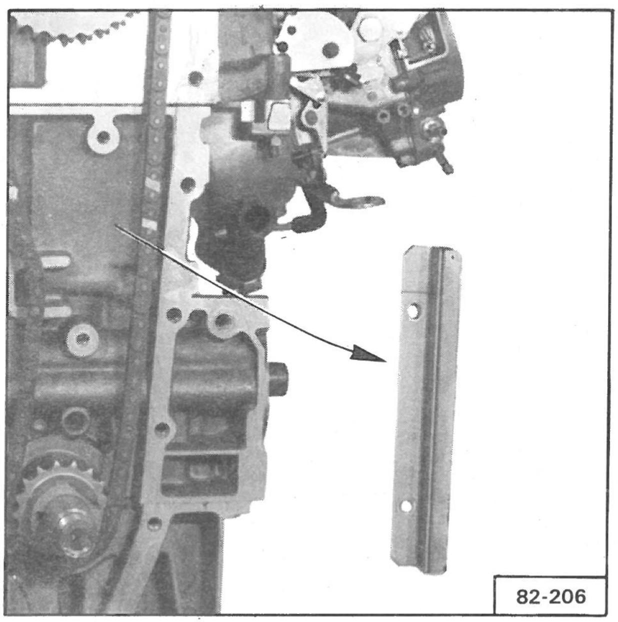
82-137



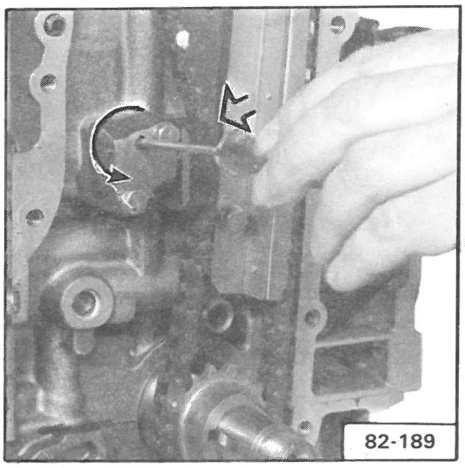
82-139



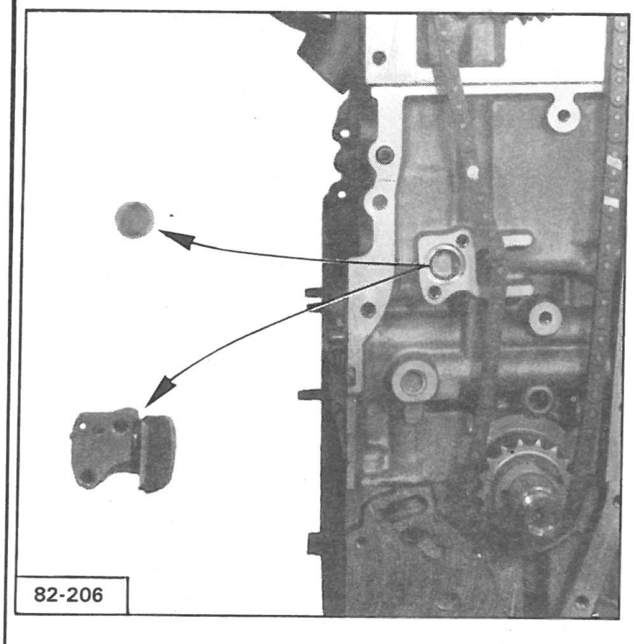
82-188



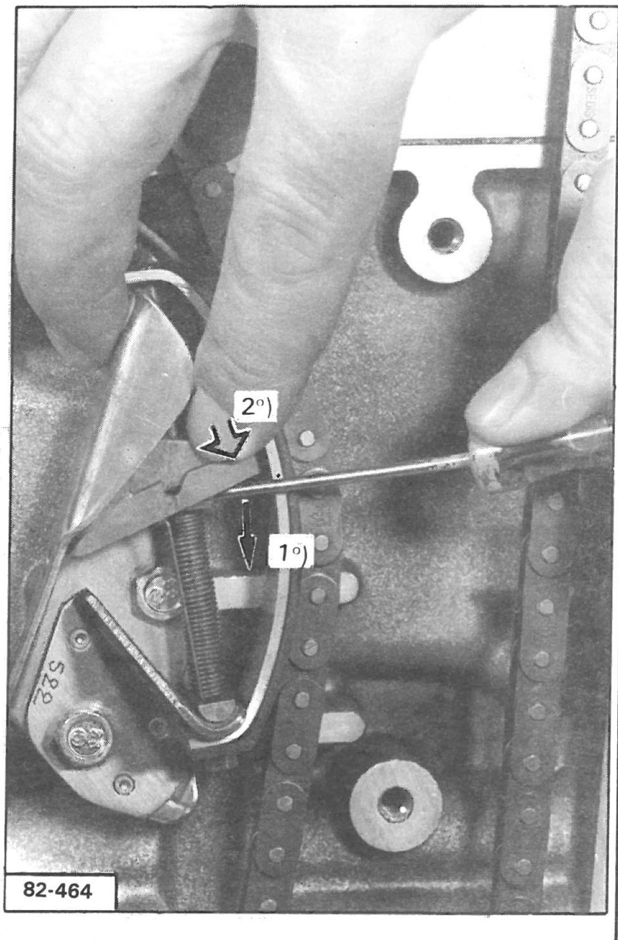
82-206



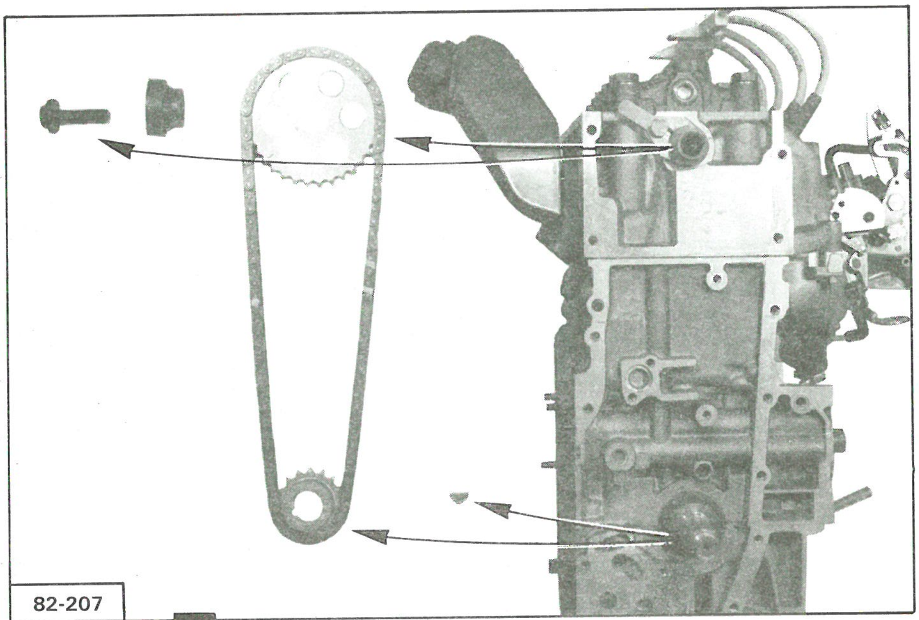
82-189



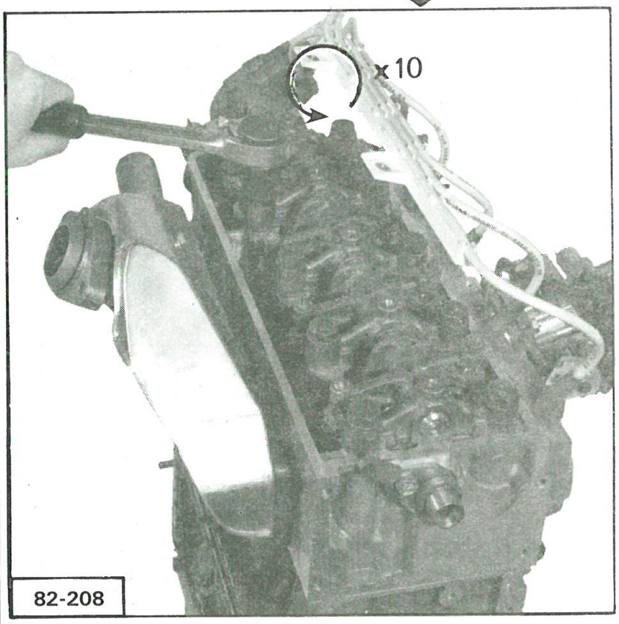
82-206



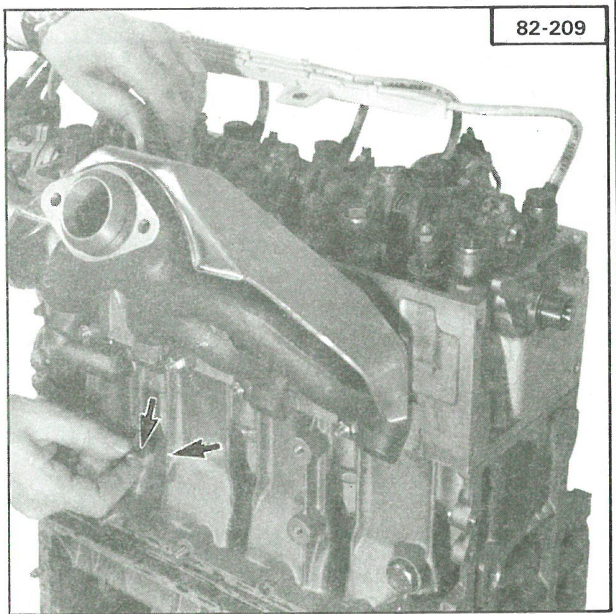
82-464



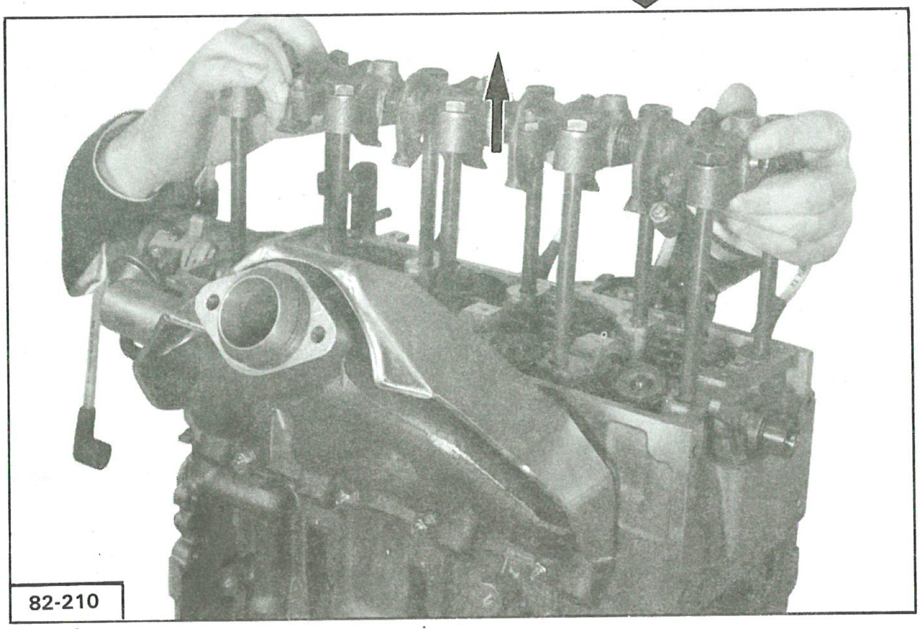
82-207



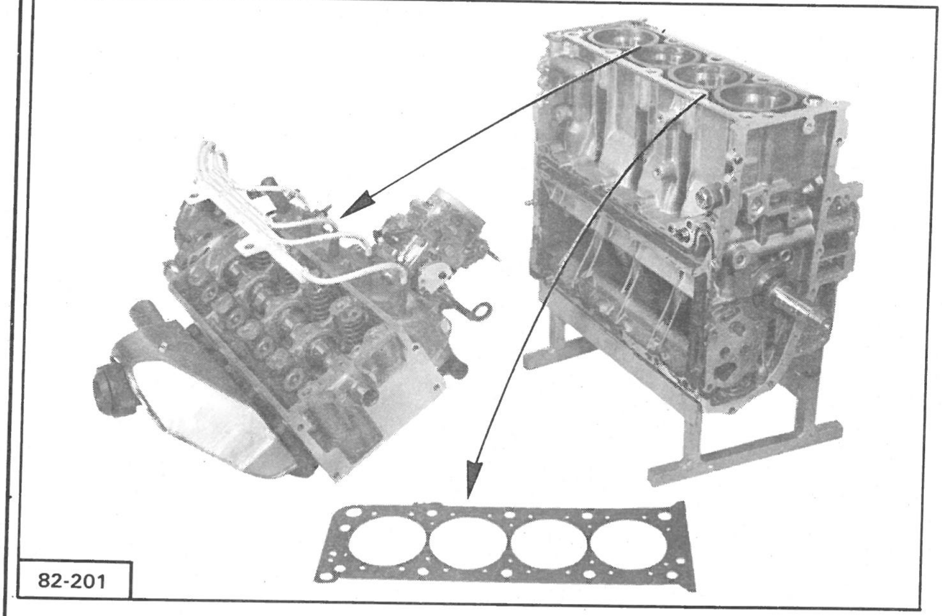
82-208



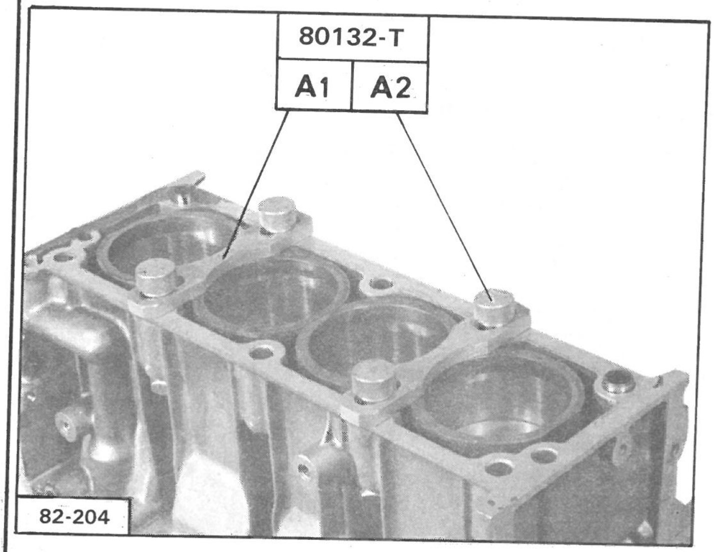
82-209



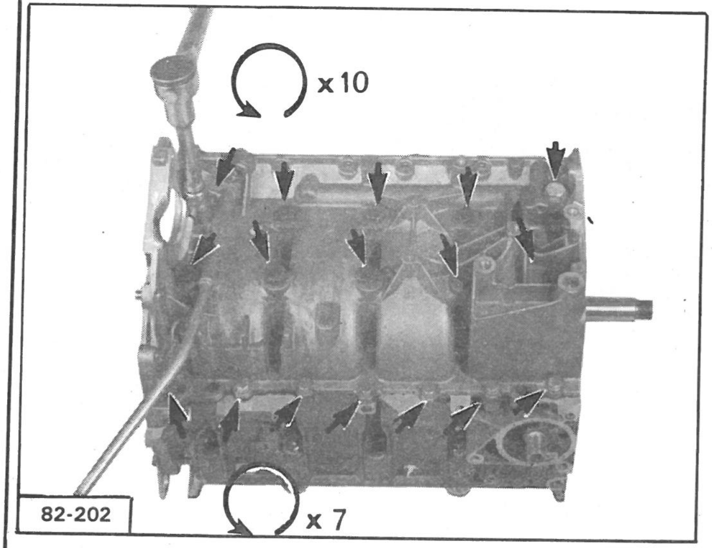
82-210



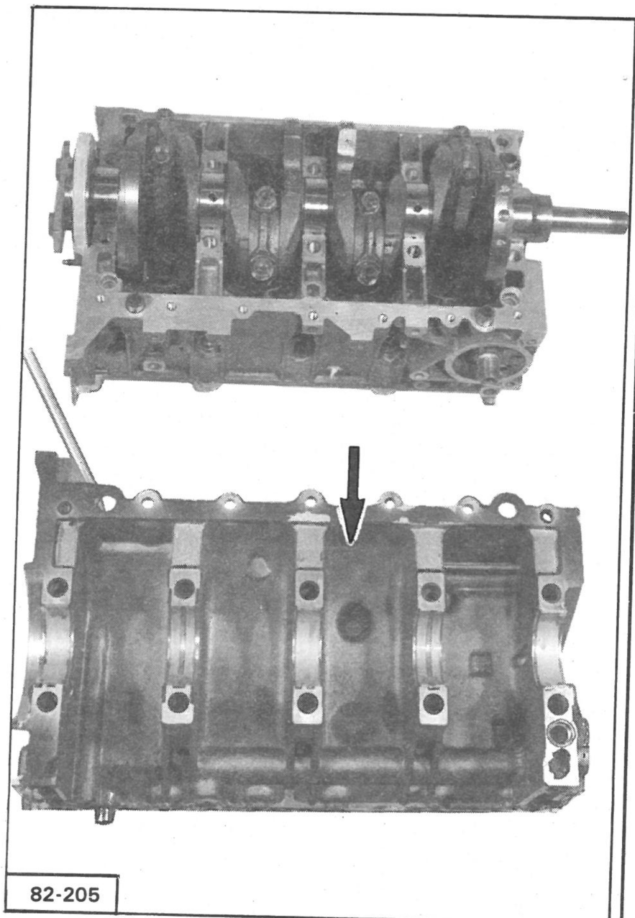
82-201



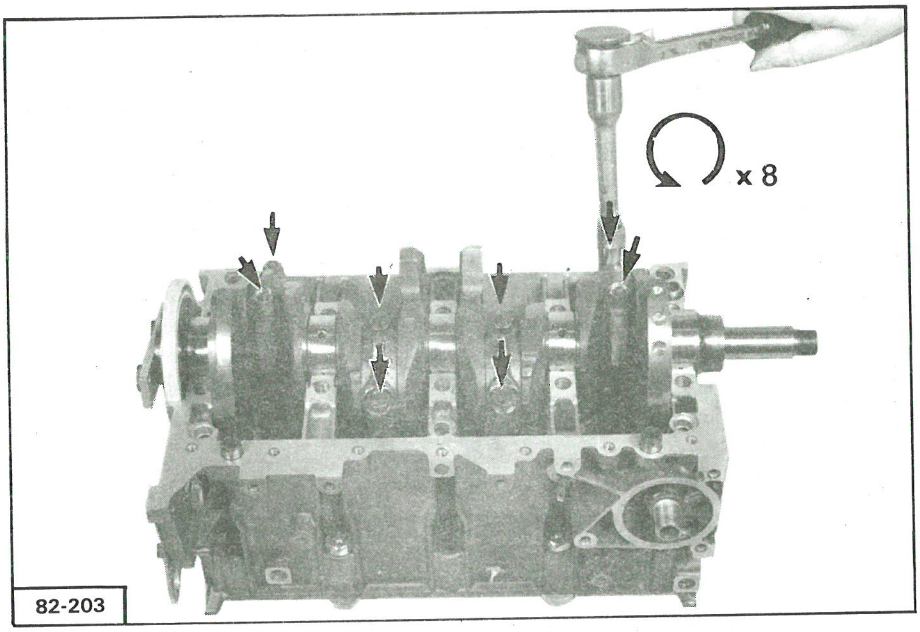
82-204

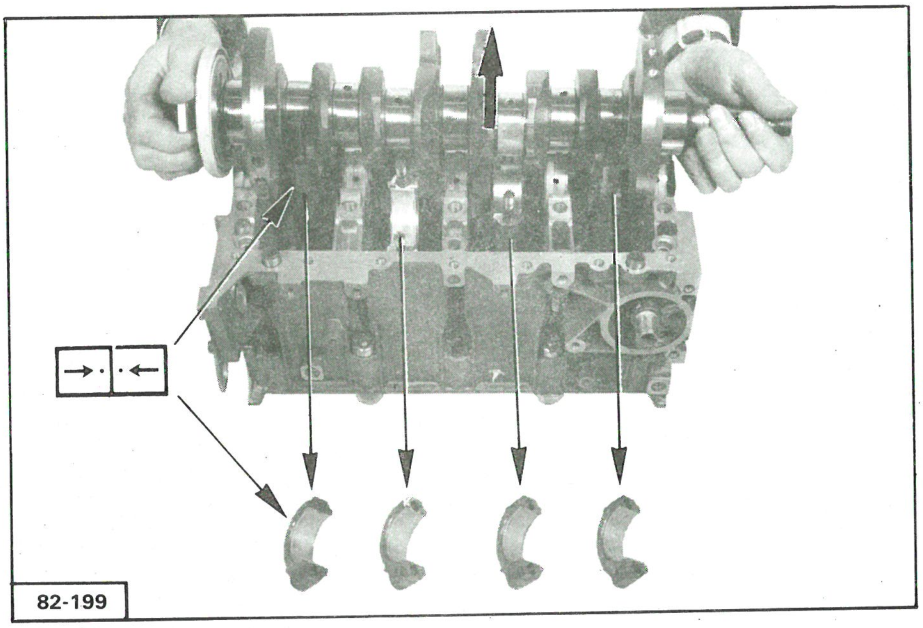


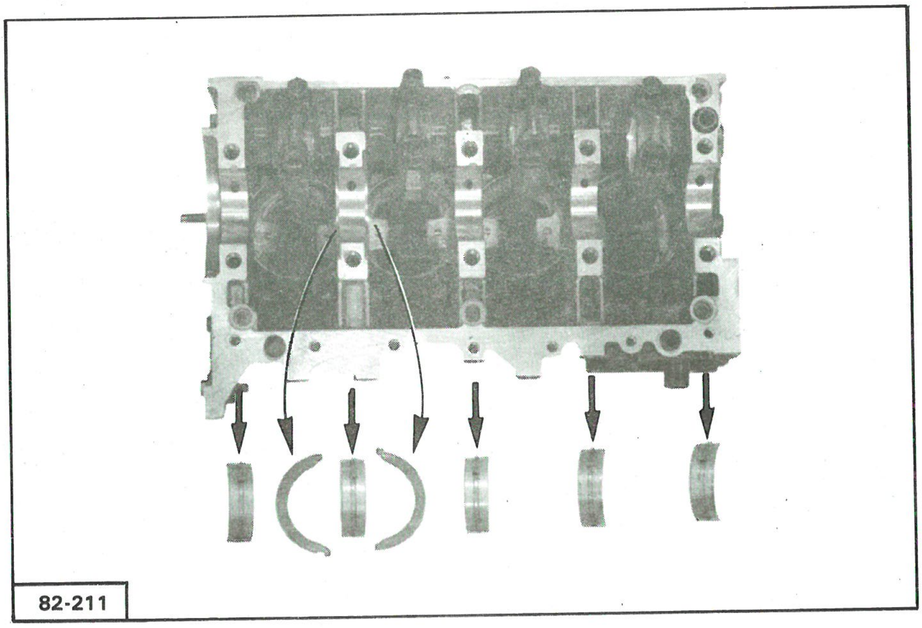
82-202

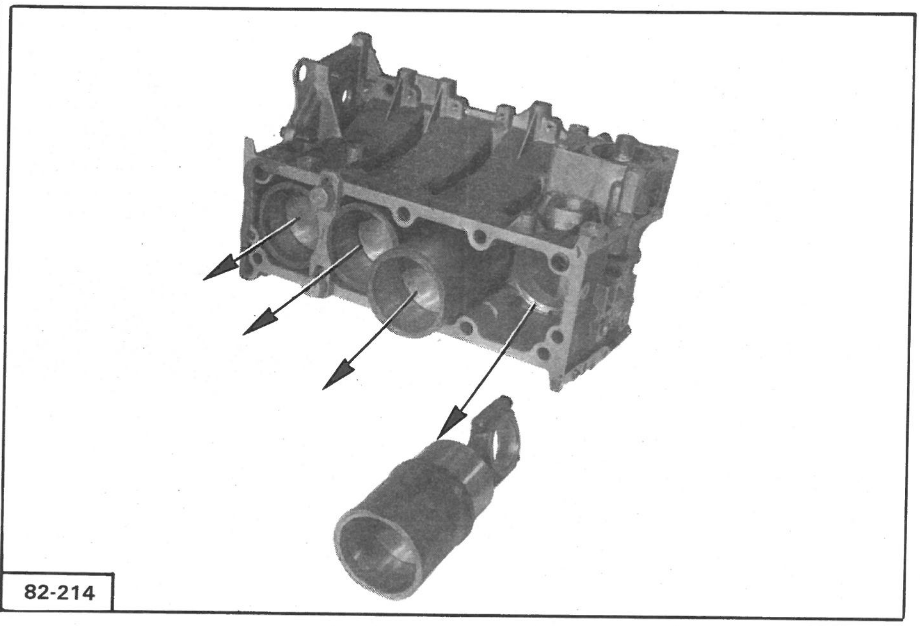


82-205

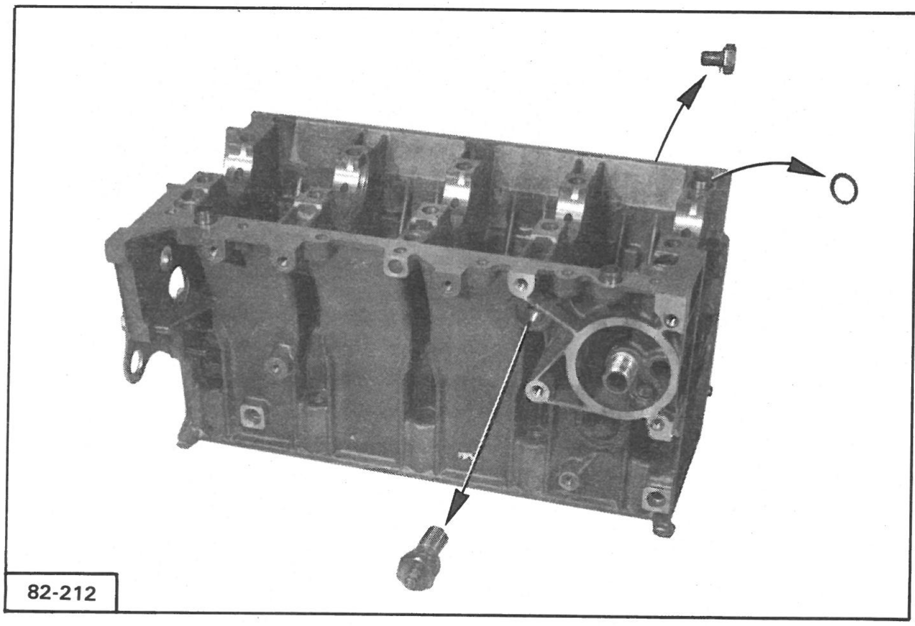

x 8
82-203


82-199

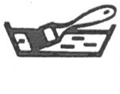

82-211

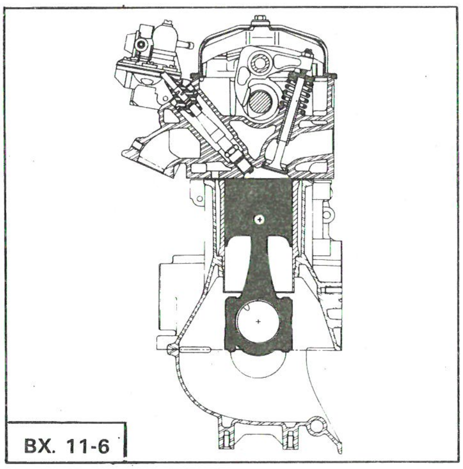


82-214

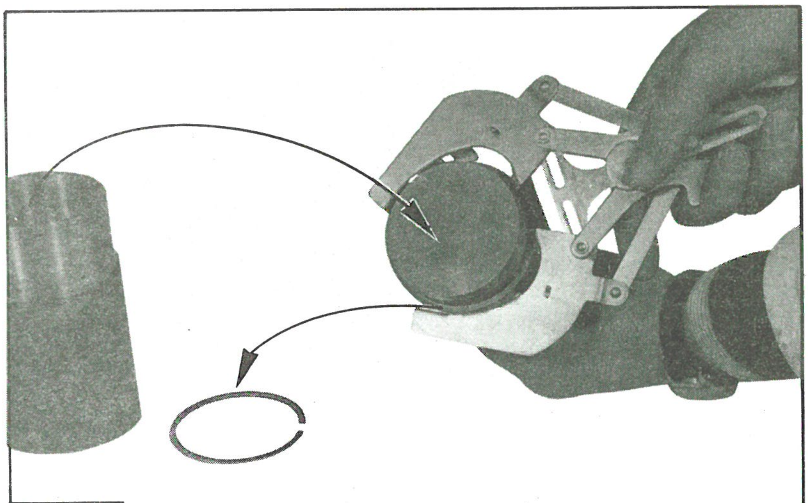


82-212

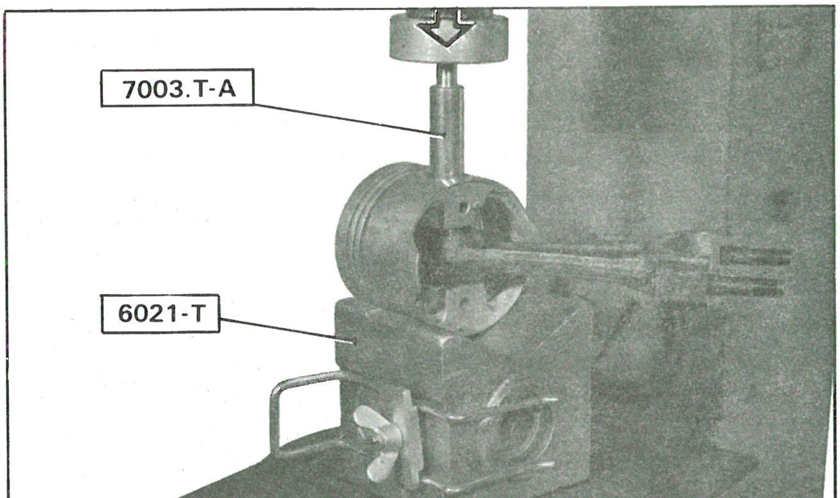




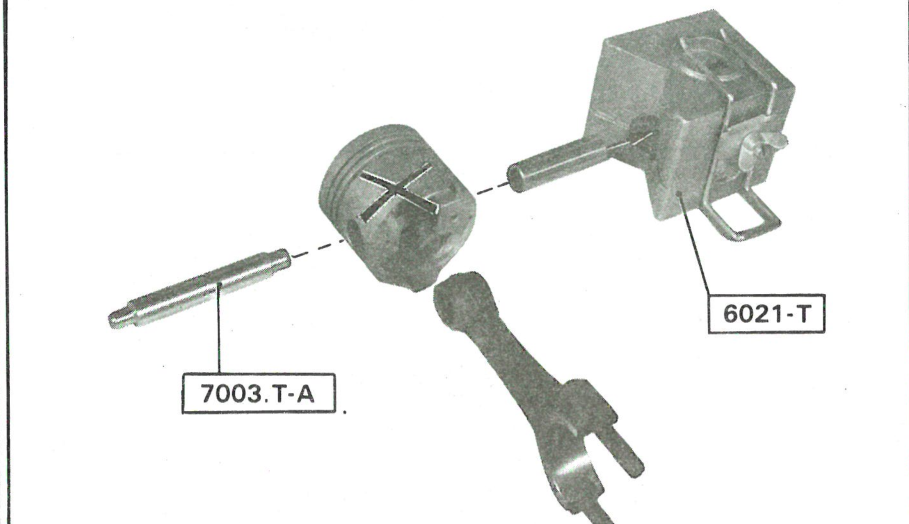
BX. 11-6



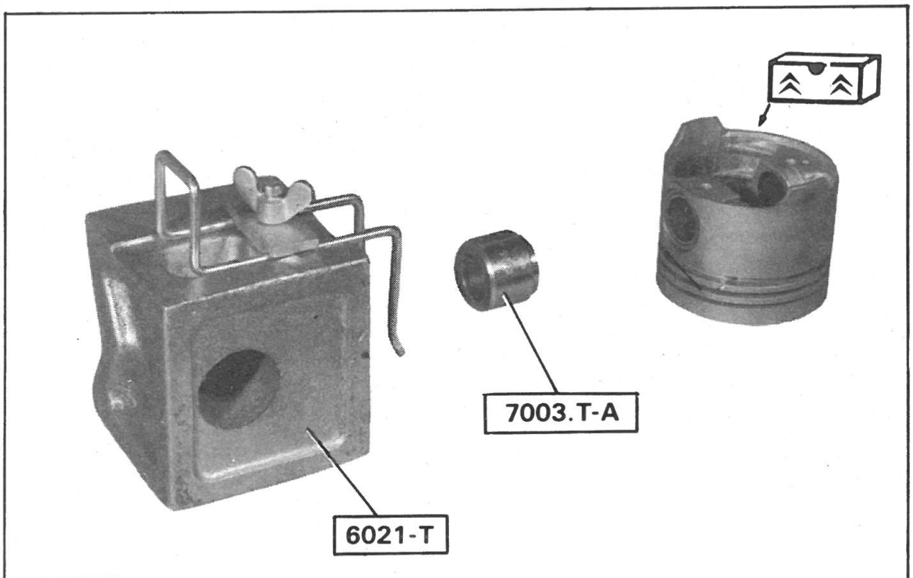
82-213



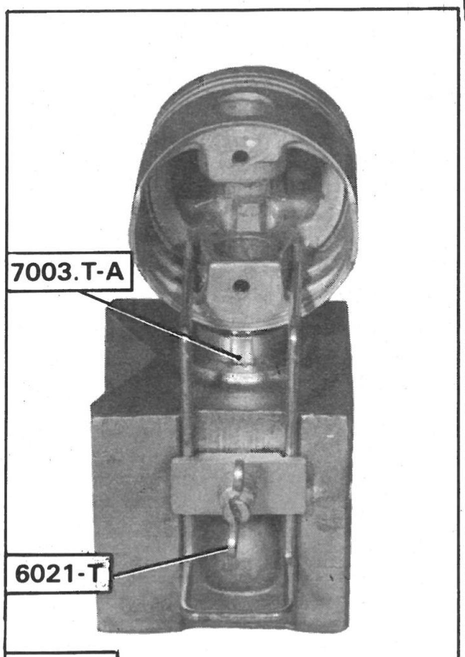
82-257



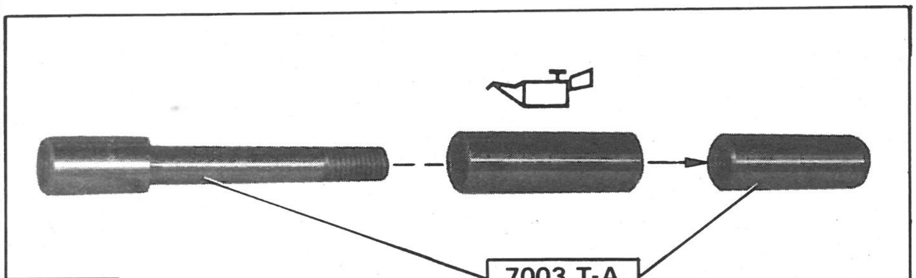
82-263



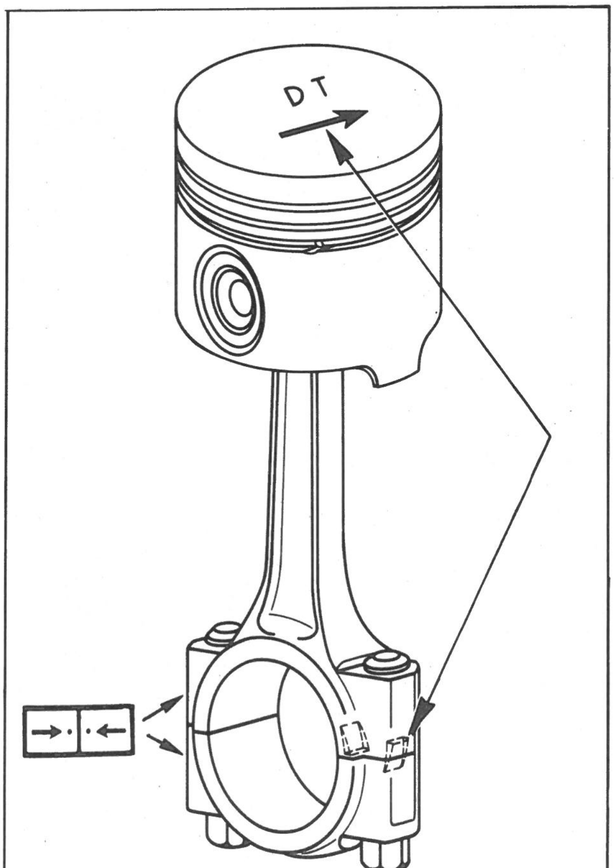
82-262



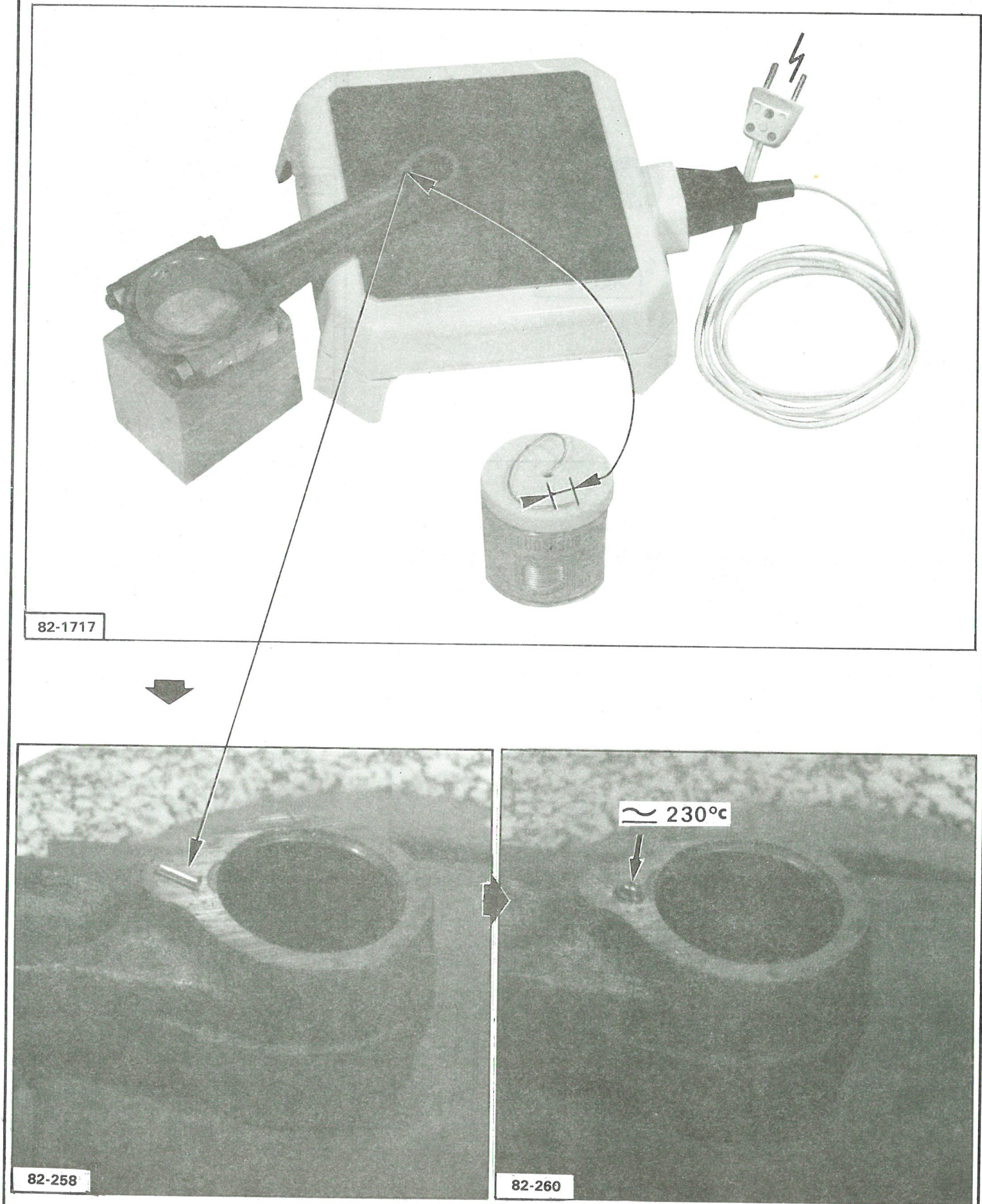
82-264



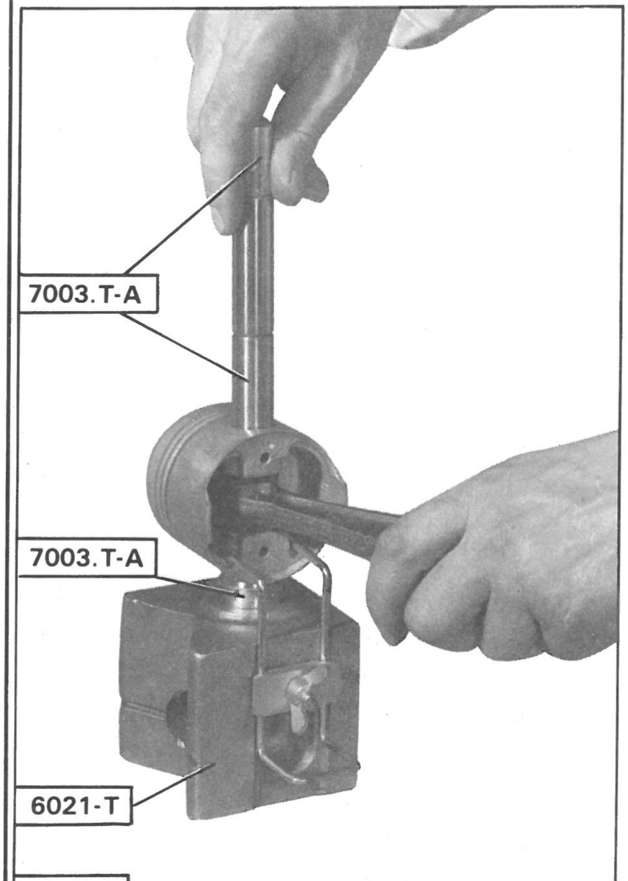
82-259



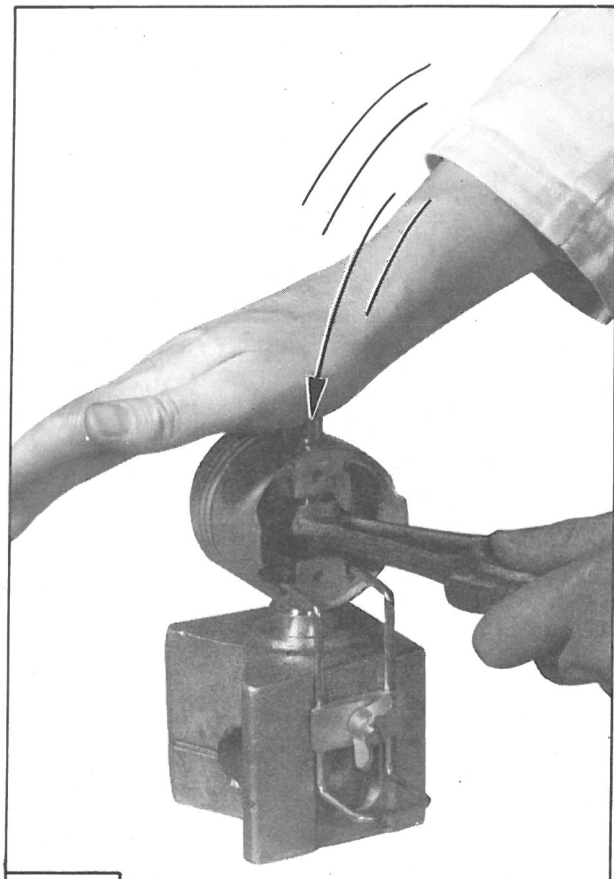
BX. 12-1



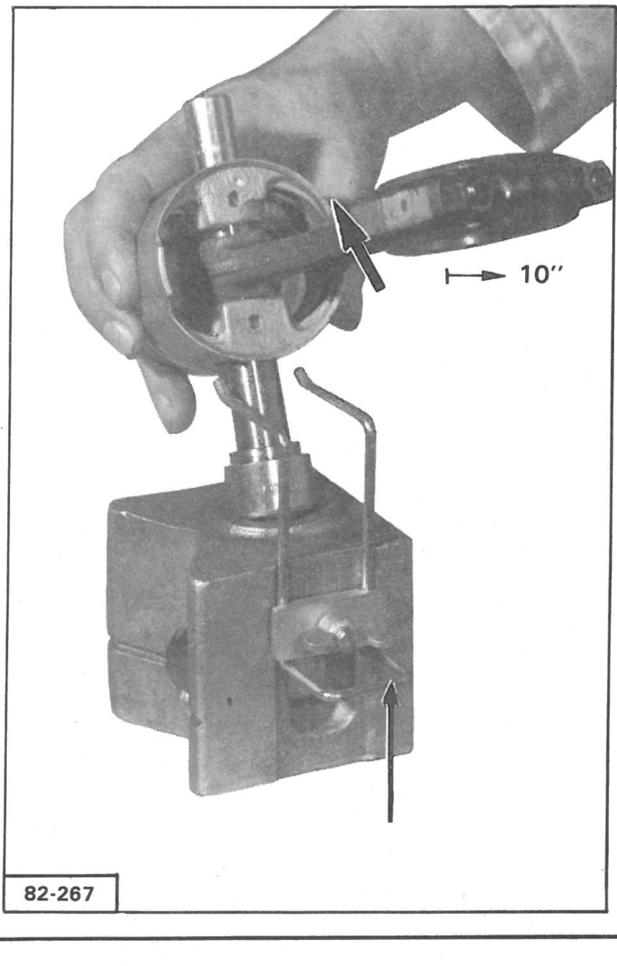
82-1717
≃ 230°c
82-258
82-260



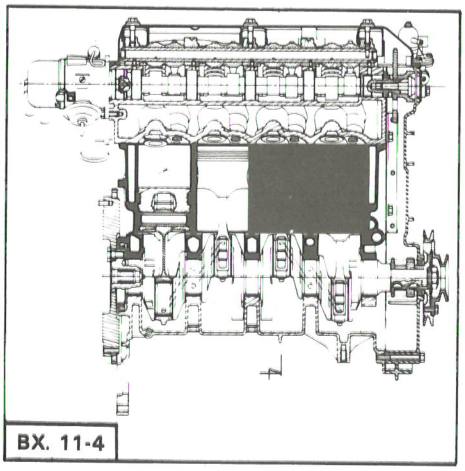
82-256



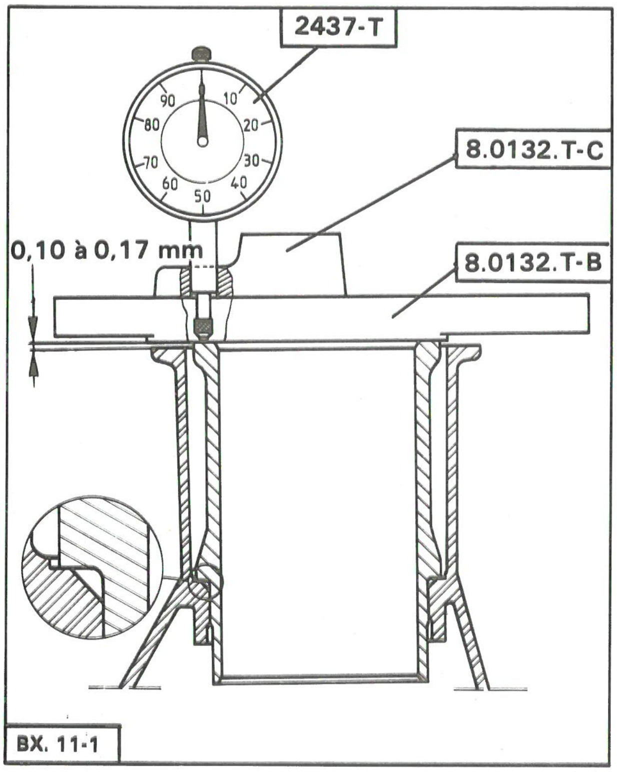
82-266



82-267



BX. 11-4



BX. 11-1

(D) Zylinderlaufbuchsen ohne Fussdichtungen einsetzen

(DK) Anbring foringerne uden parkninger.

(E) Colocar las camisas sin las juntas.

(GB) Place the barrels without their seals.

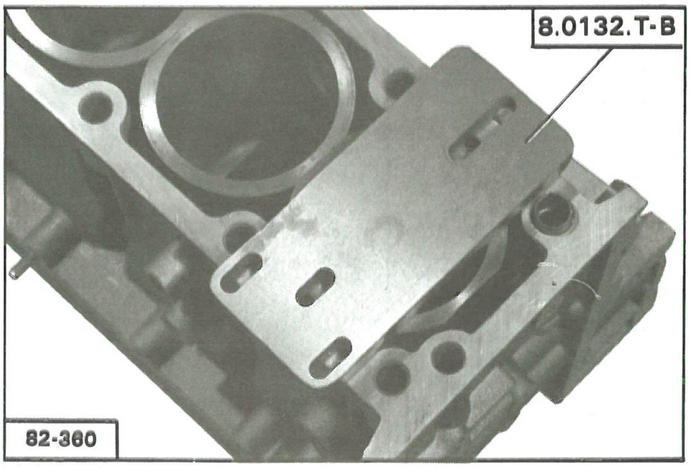
(I) Collocare le camicie senza le guarnizioni.

(NL) Breng de cilinderbussen zonder pakkingen op hun plaats.

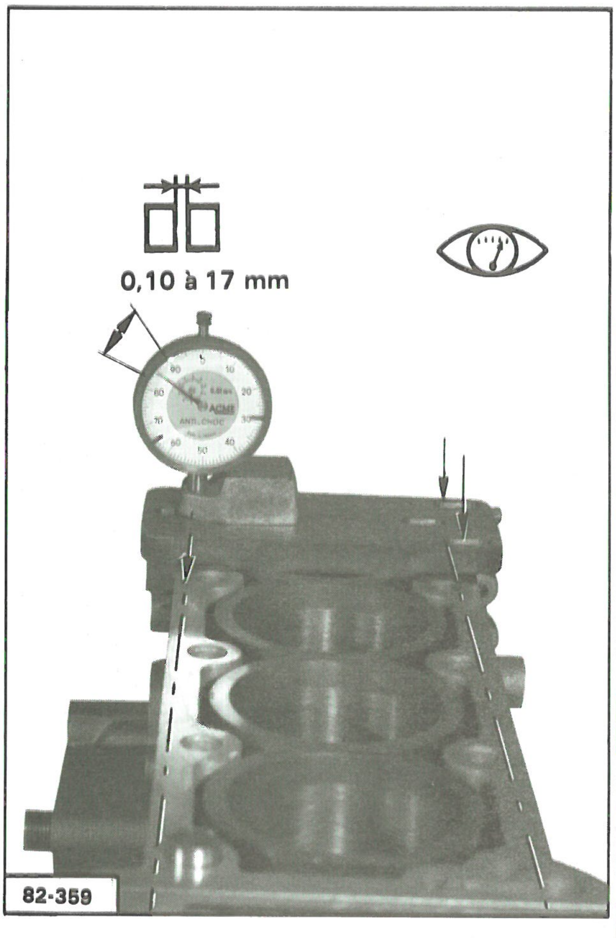
(P) Colocar as camisas sem as juntas.

(S) Sätt i fodren utan foderpackningar.

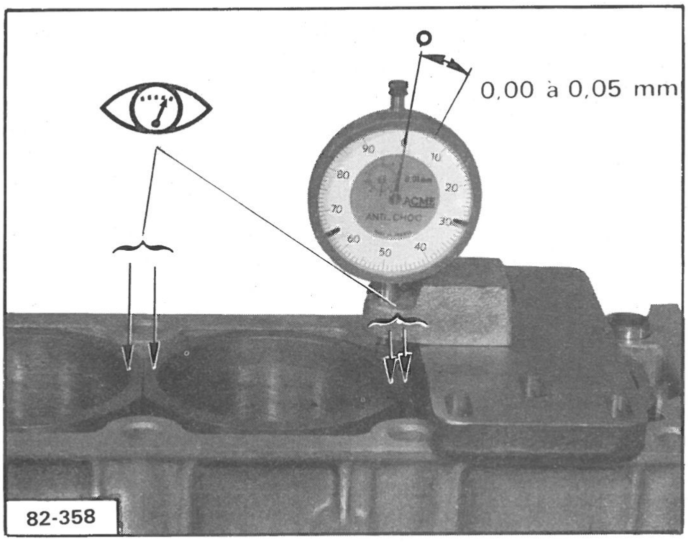
(F) Placer les chemises sans les joints.



82-360



82-359



82-358

(D) Differenz des uberstandsmasses zweier Laufbuchsen : max. 0,05 mm.

(DK) Niveauforskel mellem 2 foringer : 0,05 mm max.

(E) Diferencia de nivel entre 2 camisas : 0,05 mm. maximo.

(GB) Maximum permissible difference in barrel protrusion between 2 barrels : 0.05 mm.

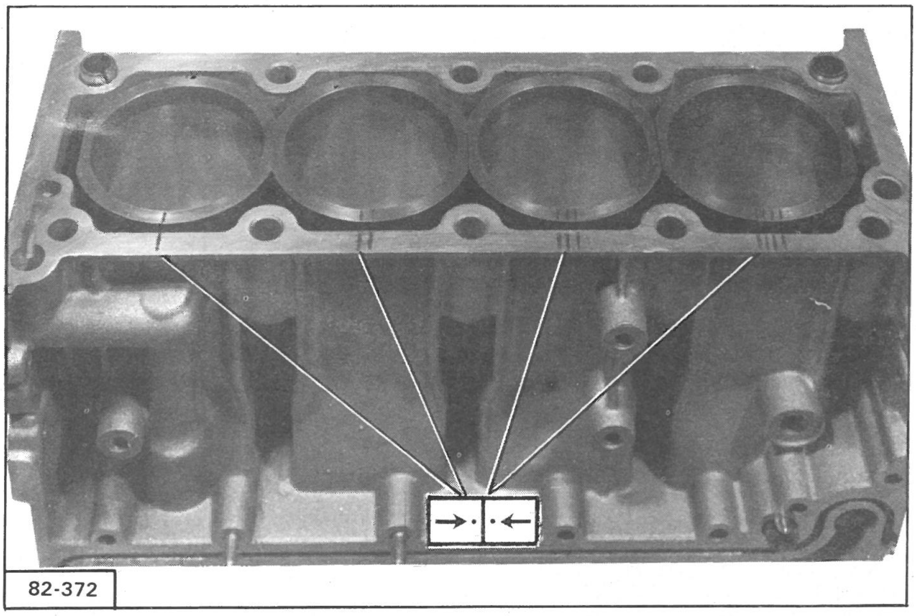
(I) Differenza di altezza tra 2 camicie : 0,05 mm massimo.

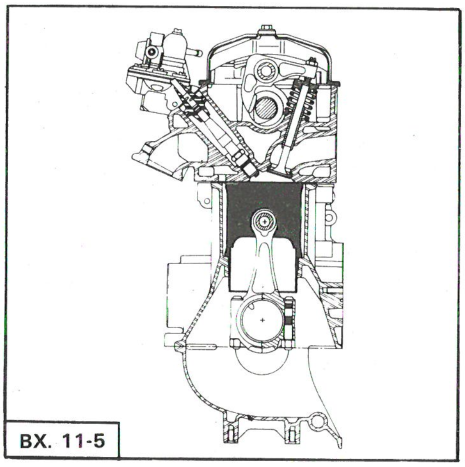
(NL) Hoogteverschil tussen 2 bussen : max. 0,05 mm.

(P) Diferença de nivel entre 2 camisas : 0,05 0,05 mm maxi.

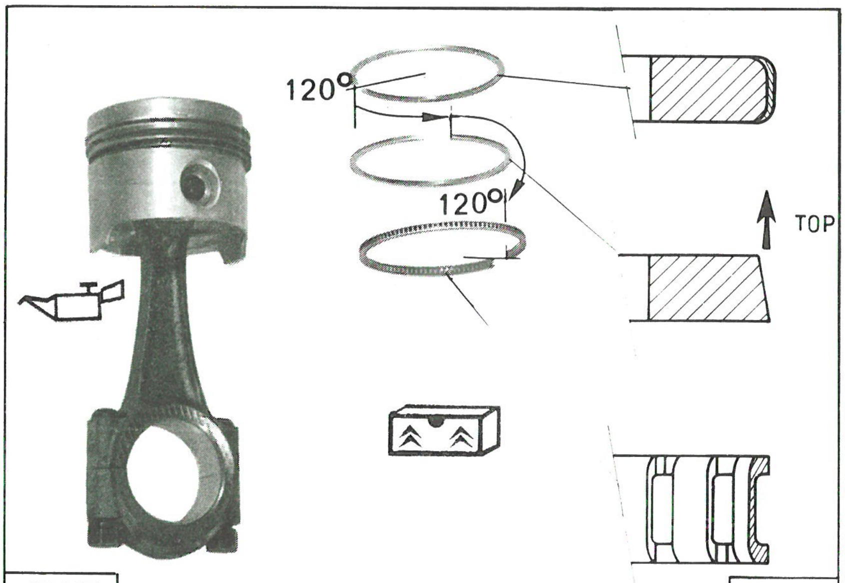
(S) Höjdskillnad mellan tuå foder : max. 0,05 mm.

(F) Différence de niveau entre 2 chemises : 0,05 mm maxi.


82-372

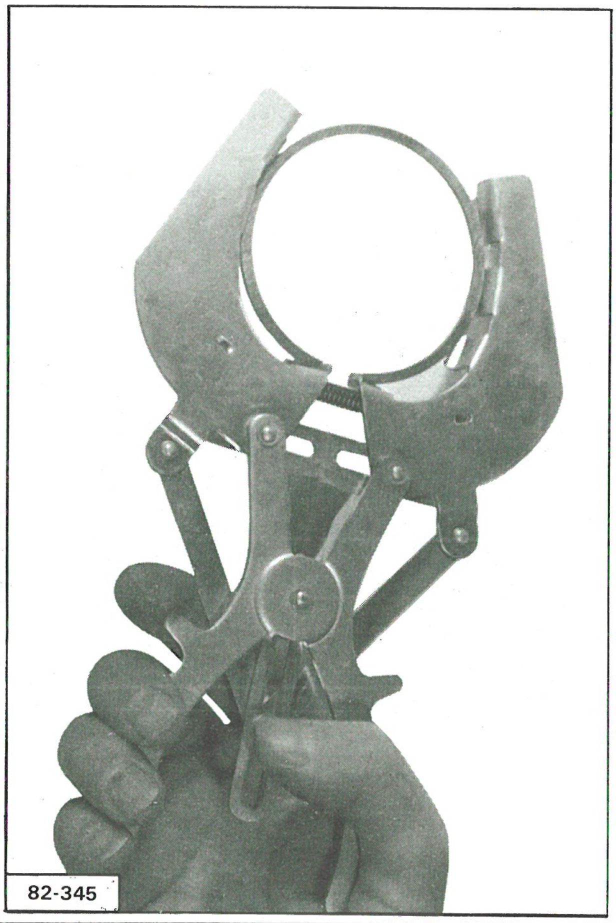


BX. 11-5

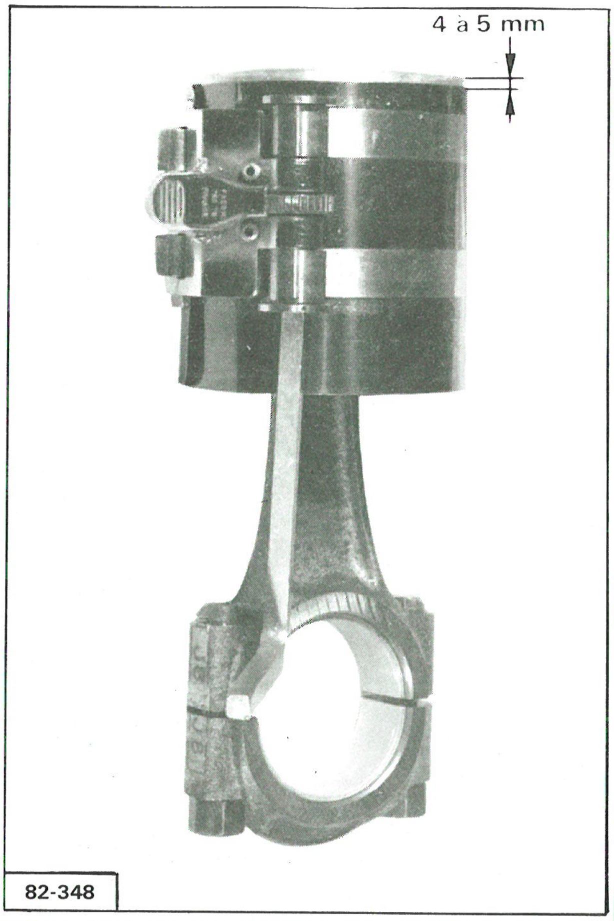


82-347

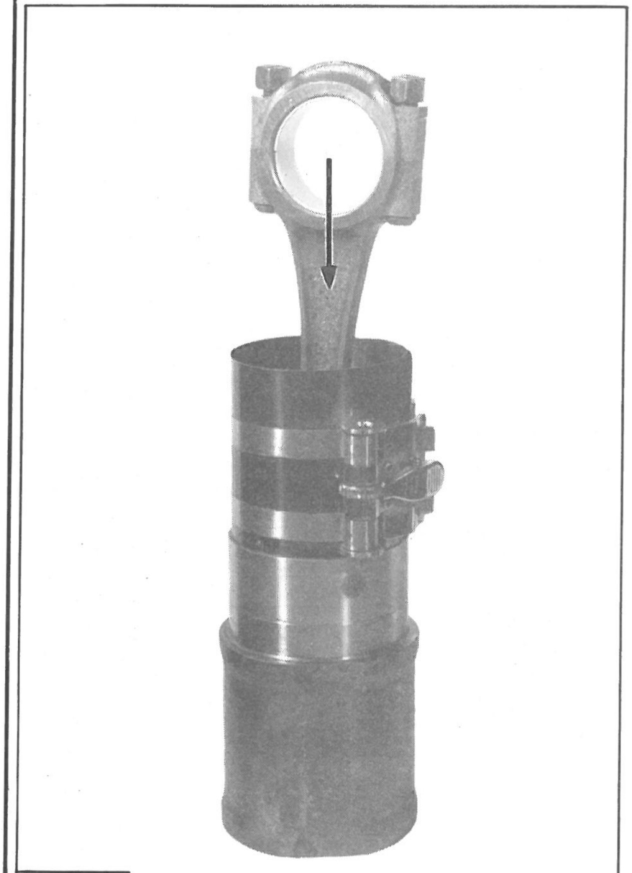
BX. 12-2



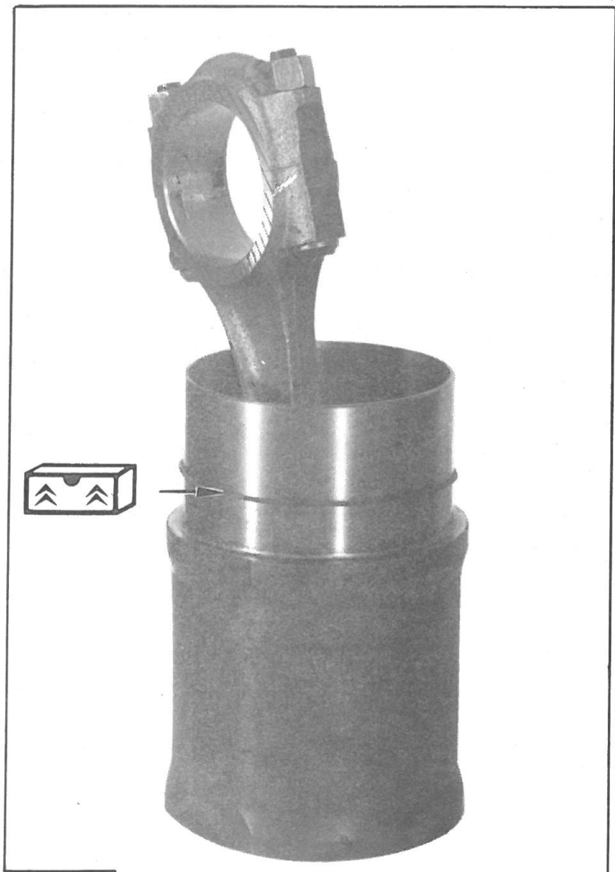
82-345



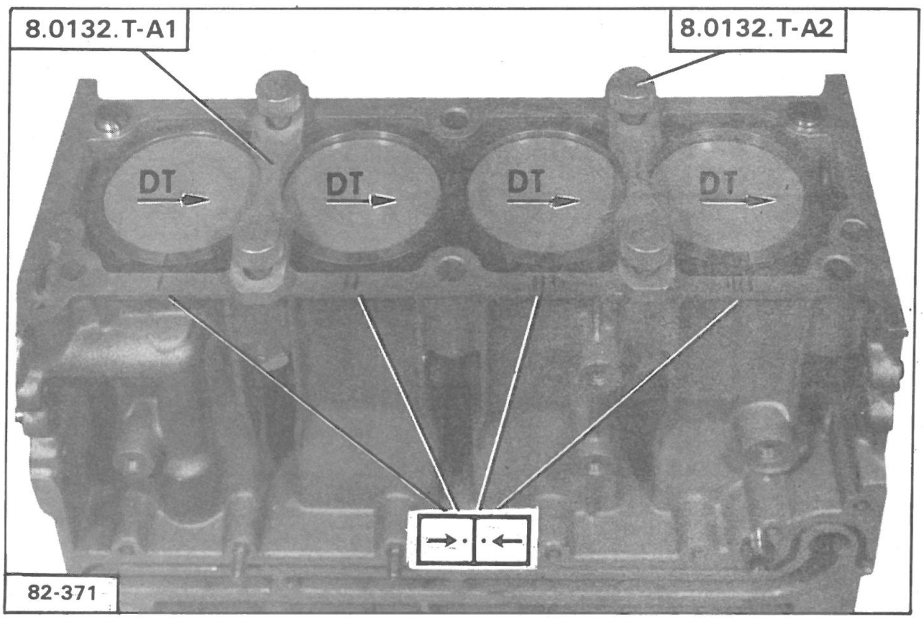
82-348



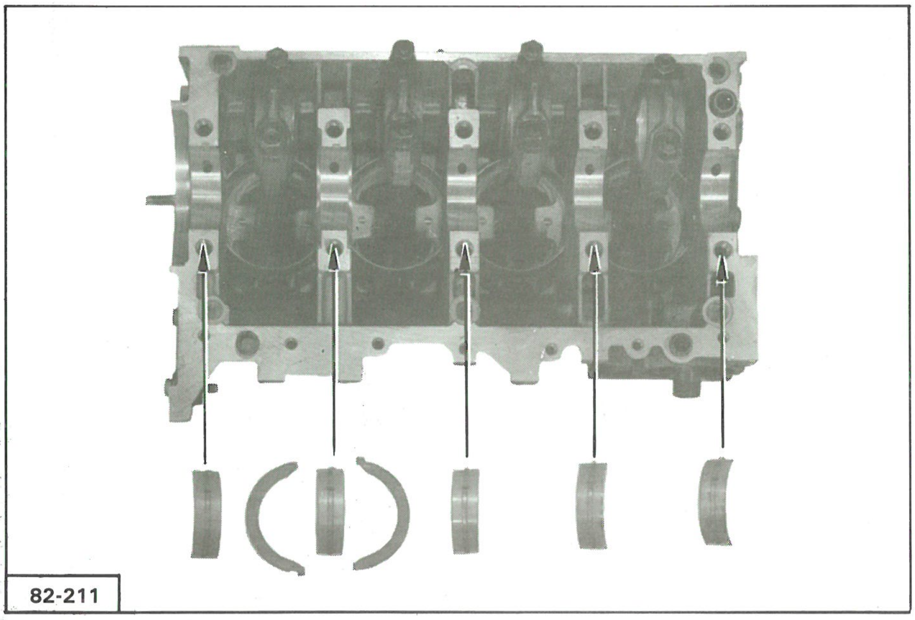
82-346



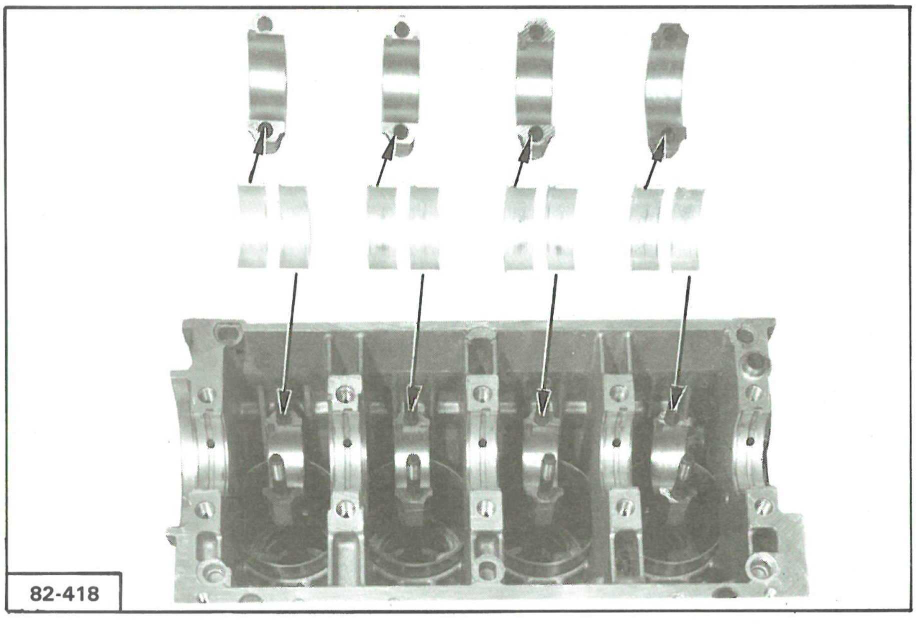
82-362



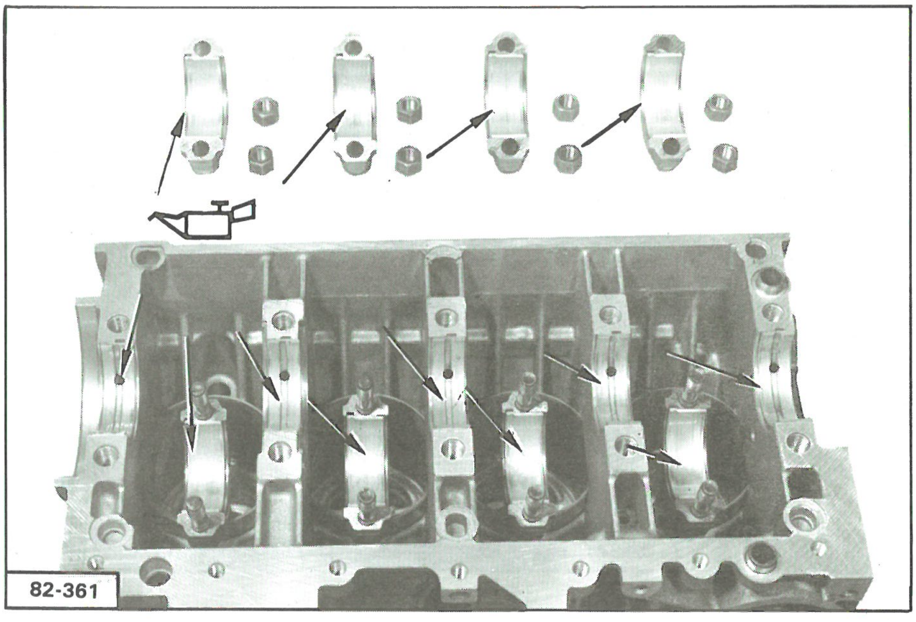
82-371



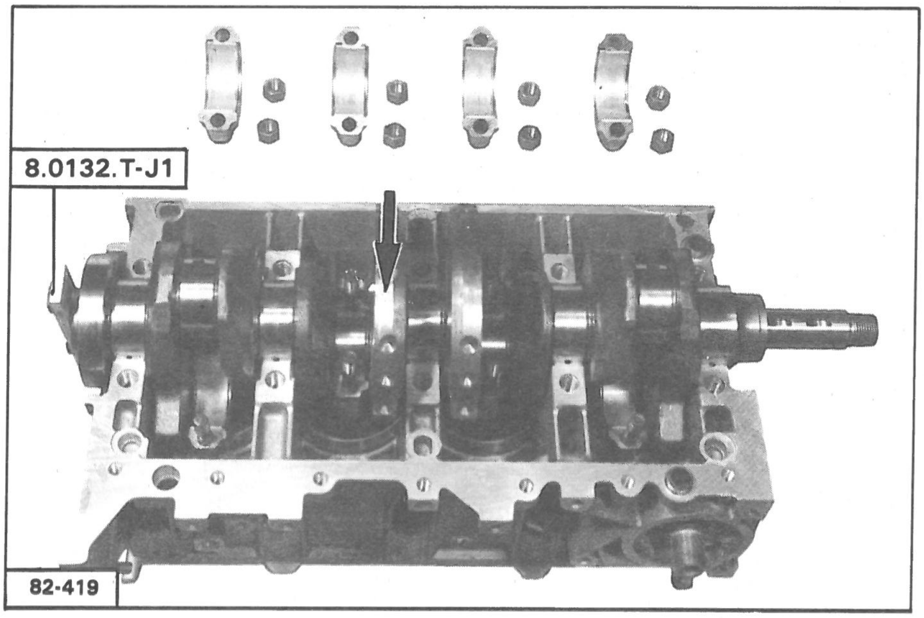
82-211



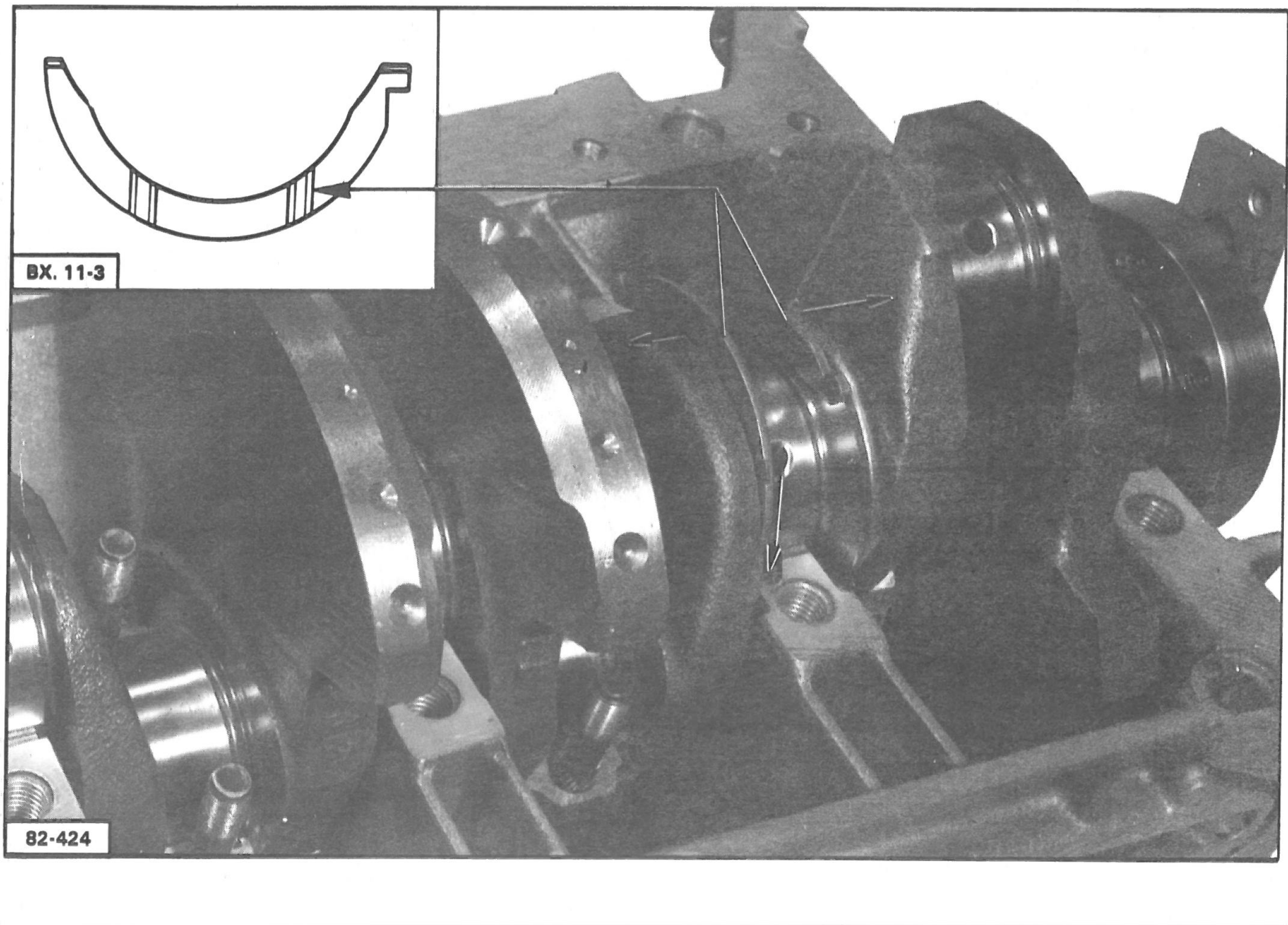
82-418



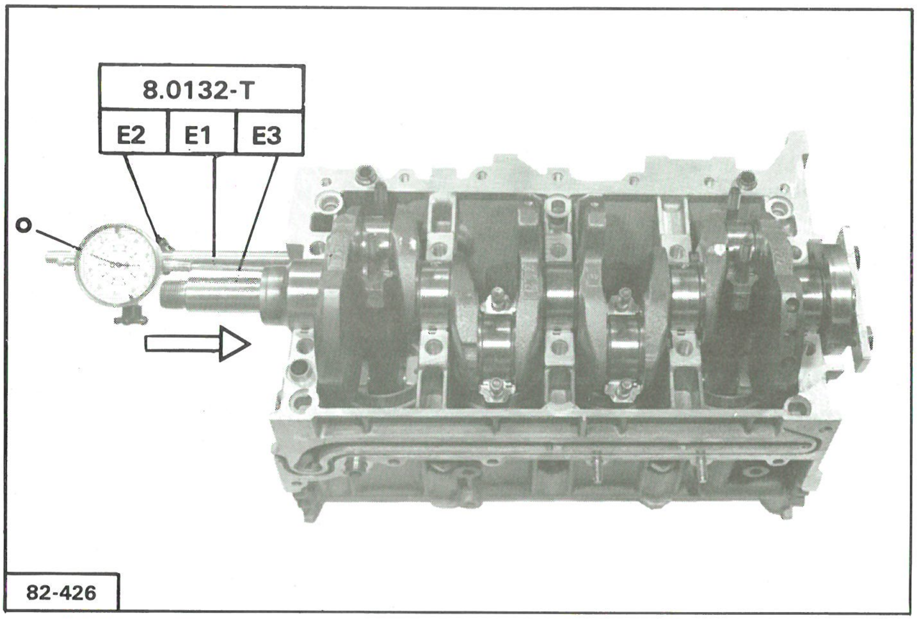
82-361



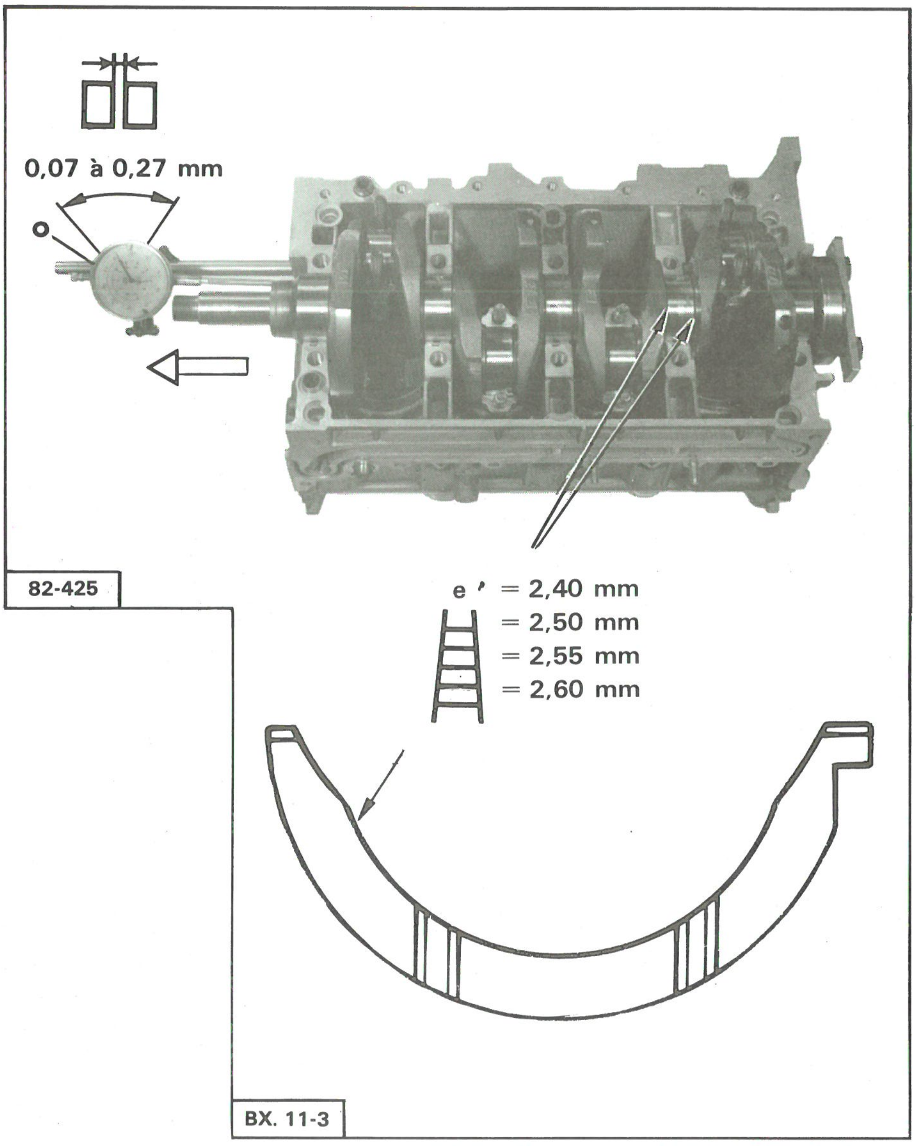
82-419



82-424

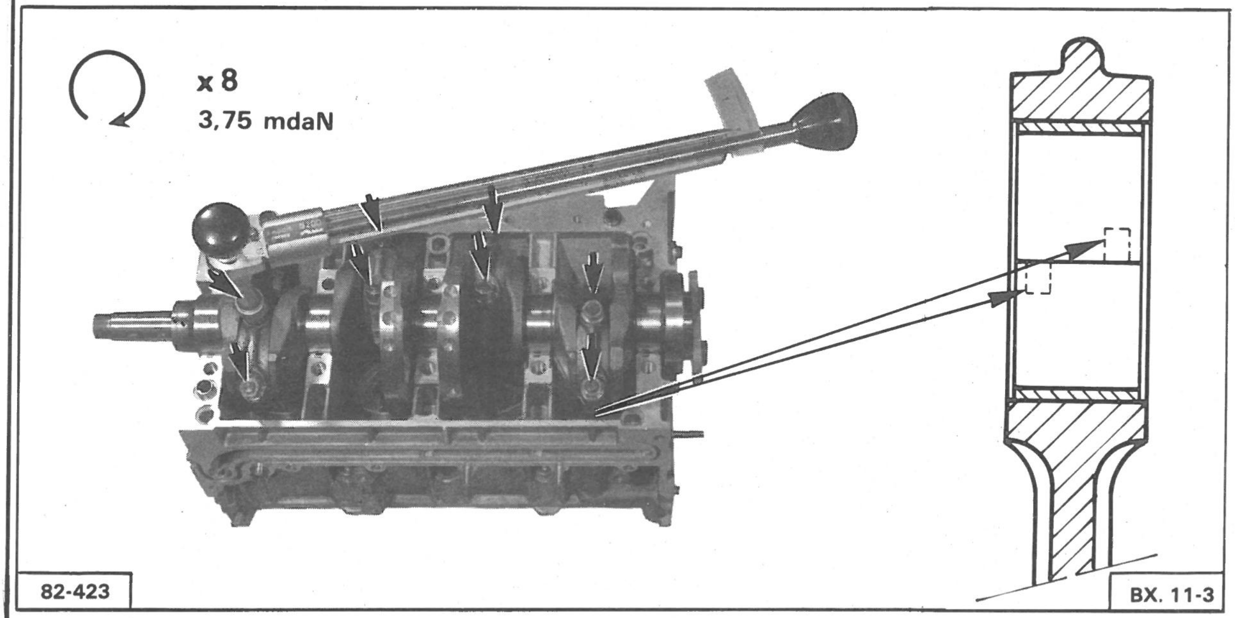


82-426

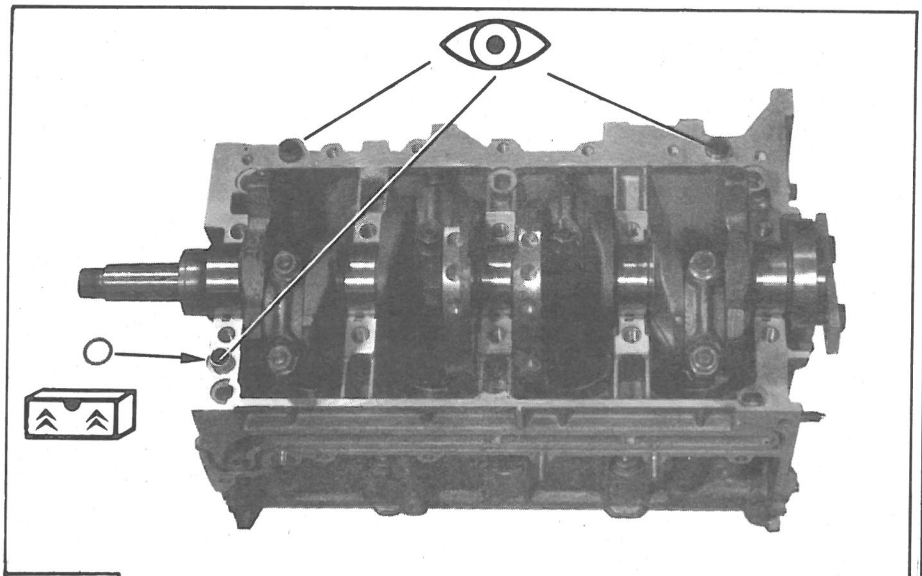


82-425

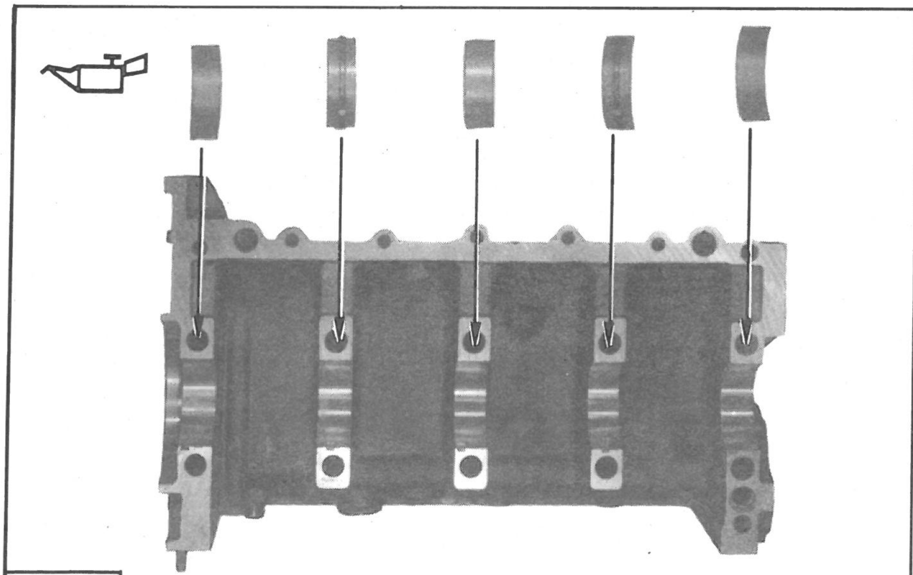
BX. 11-3



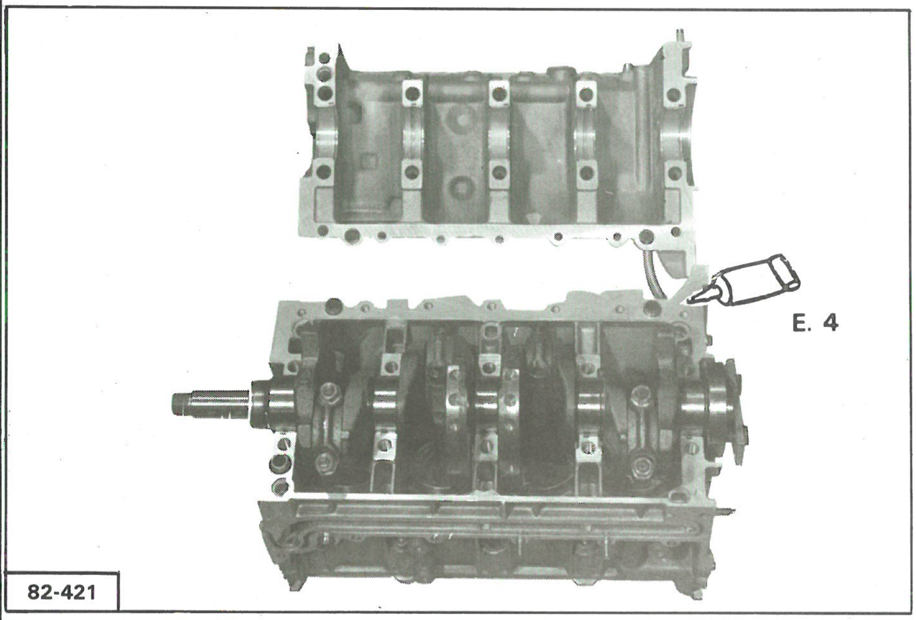
82-423 BX. 11-3



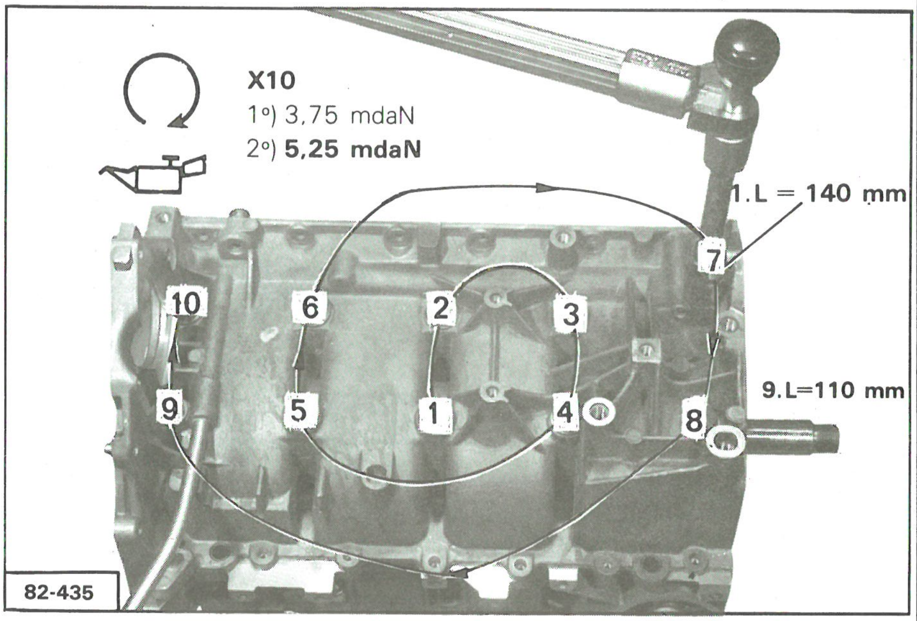
82-420



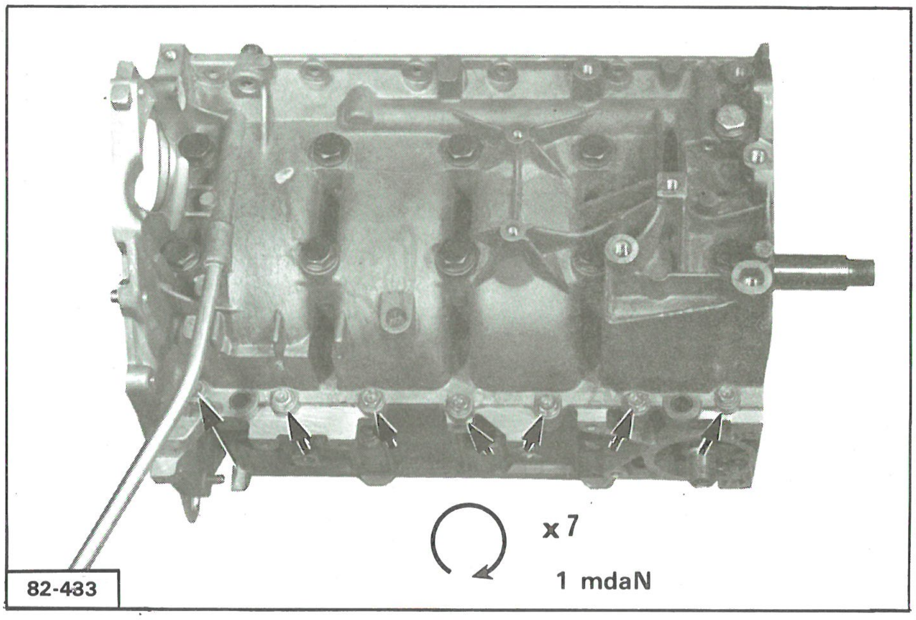
82-211



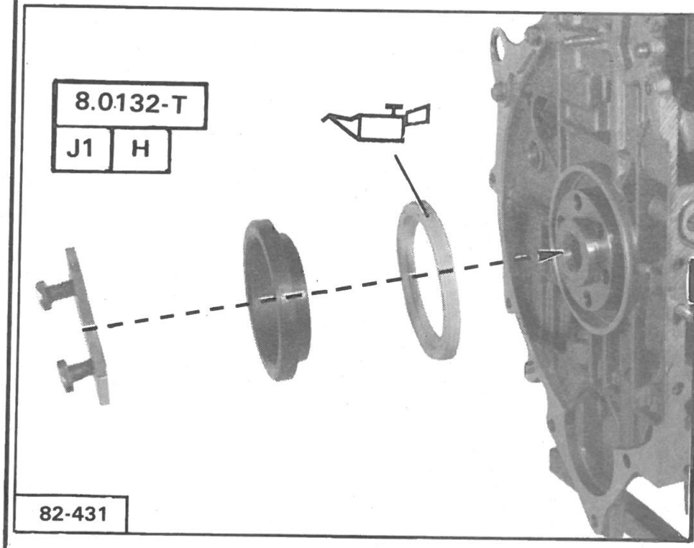
82-421



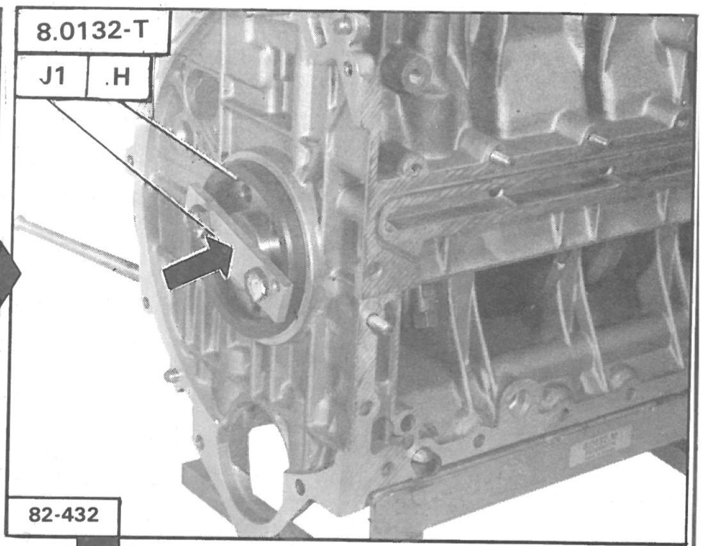
82-435



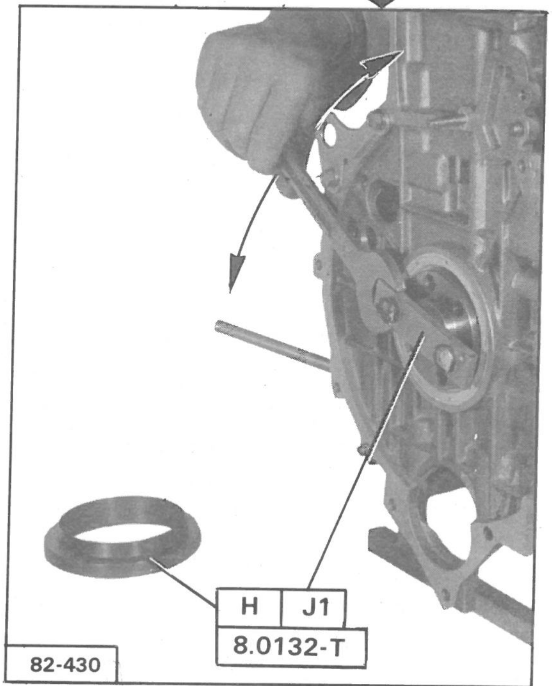
82-433



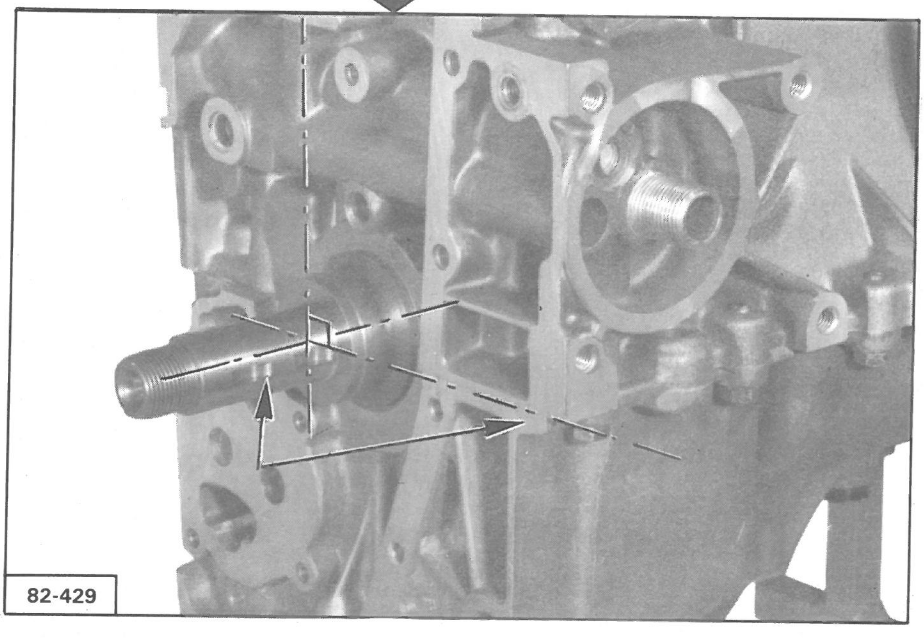
82-431

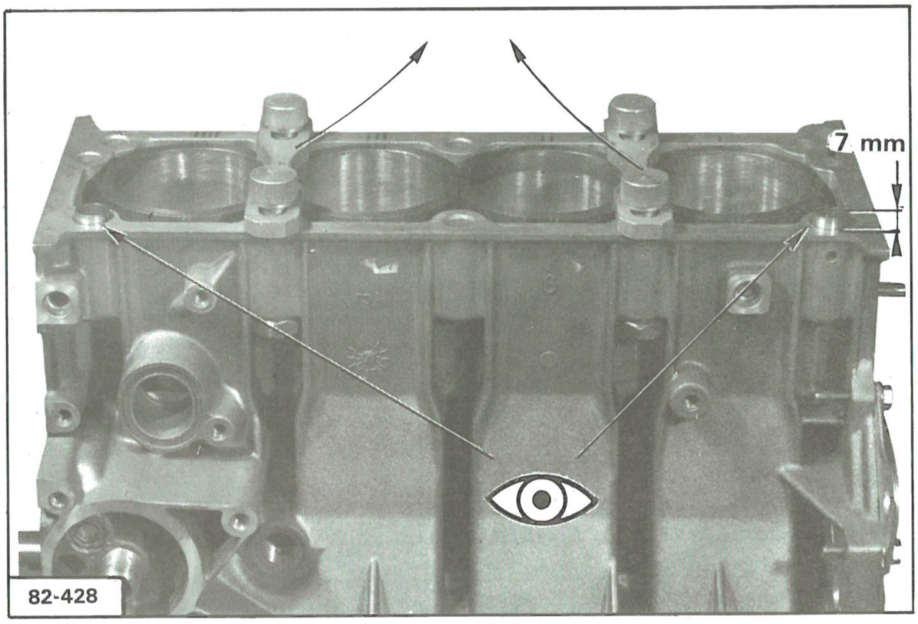


82-432

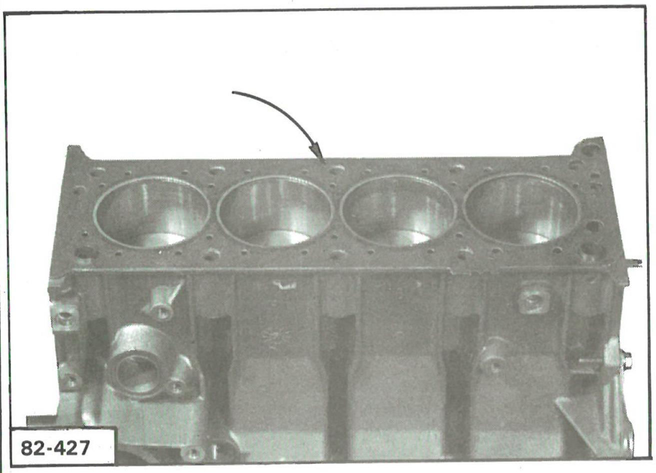


82-430

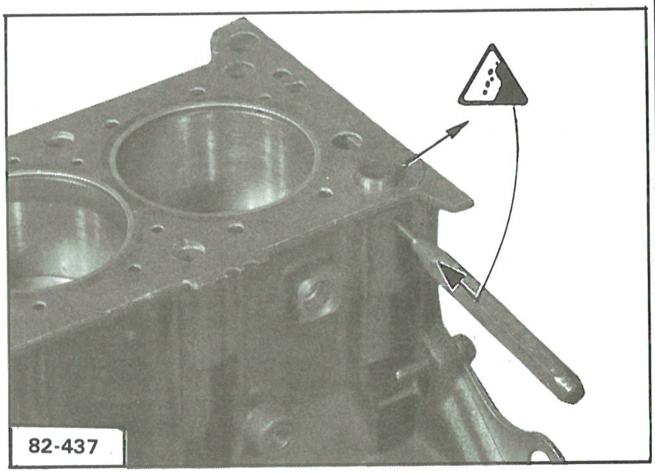

82-429



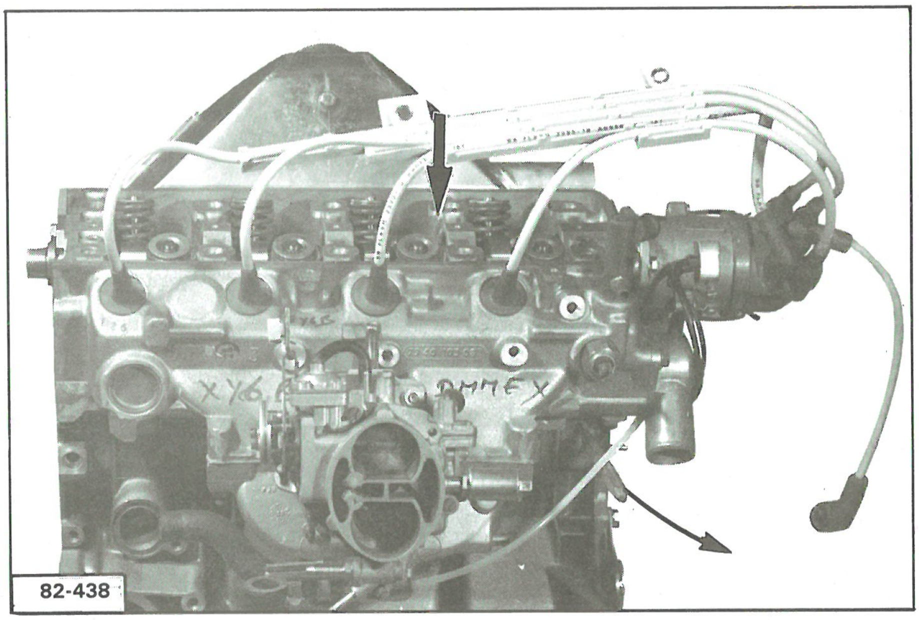
82-428



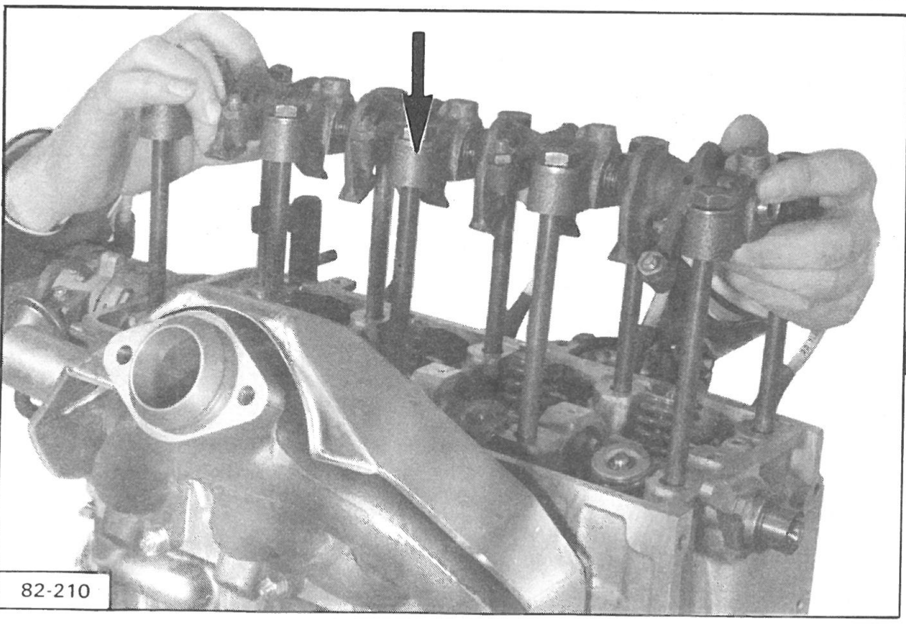
82-427

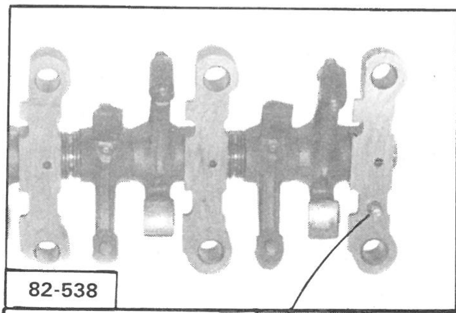


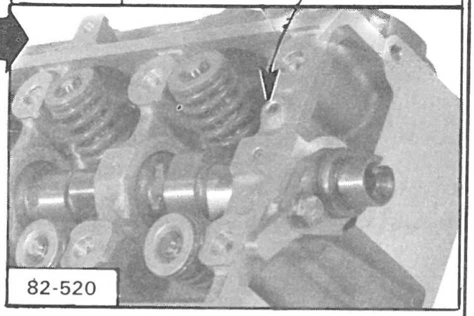
82-437

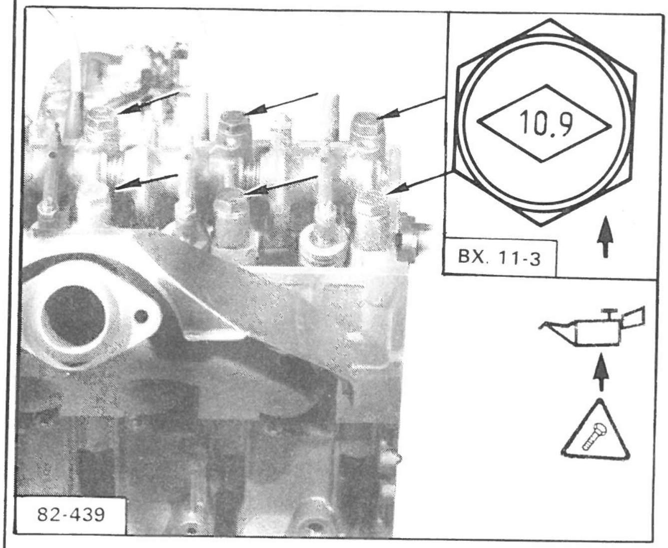


82-438

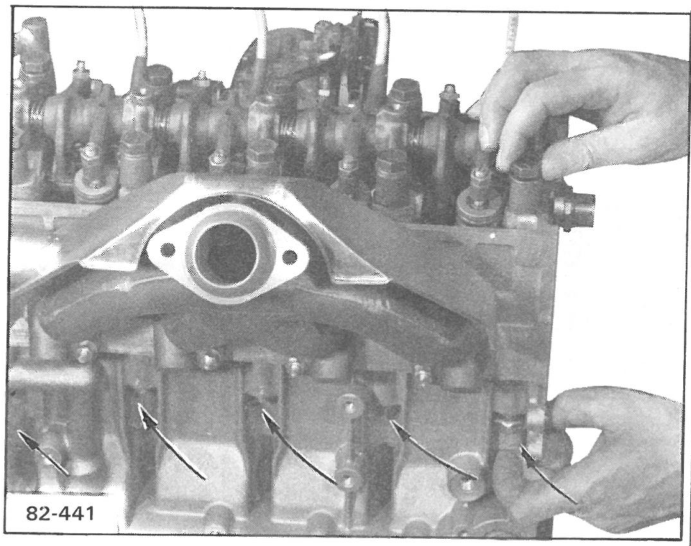

82-210

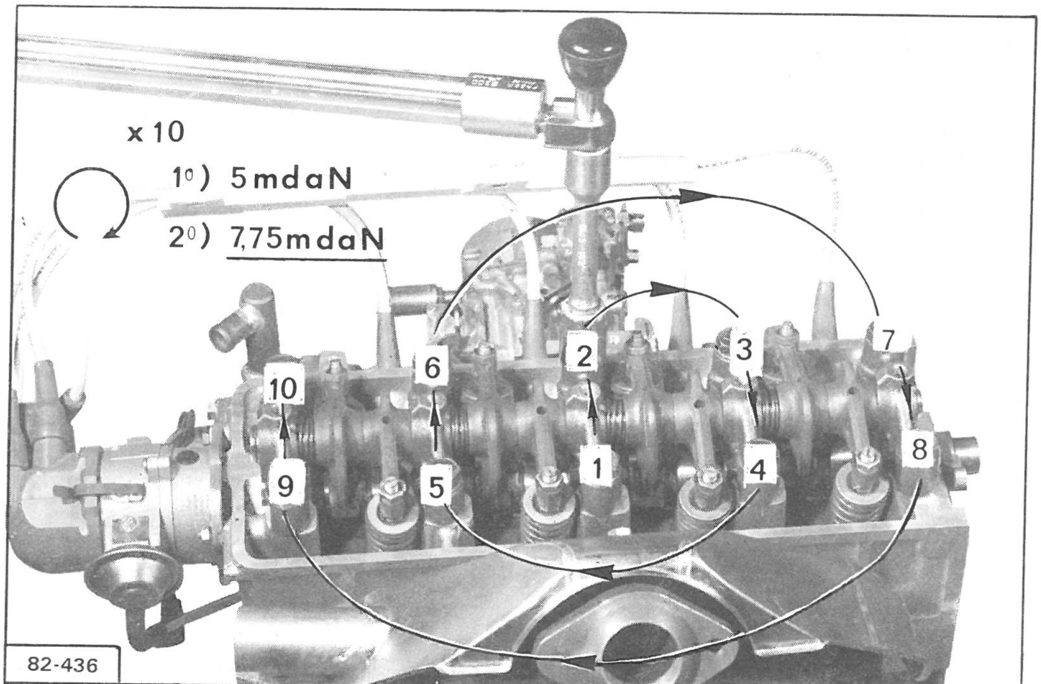

82-538


82-520

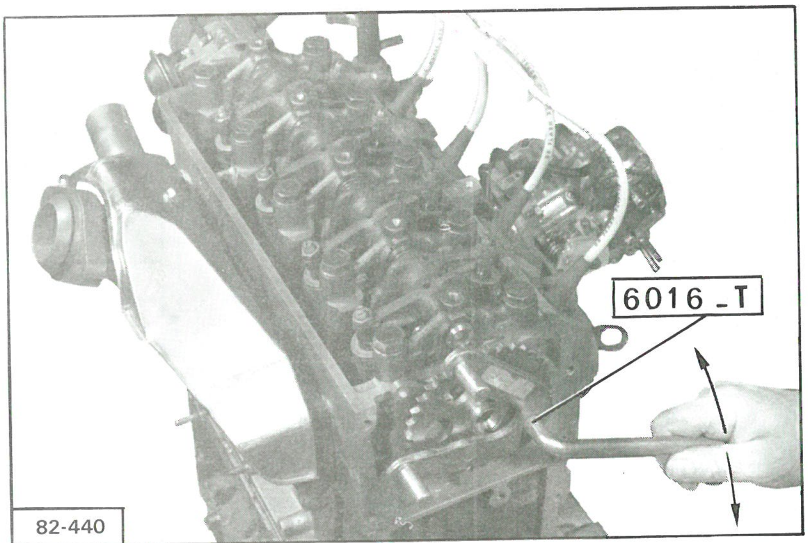


82-439
BX. 11-3

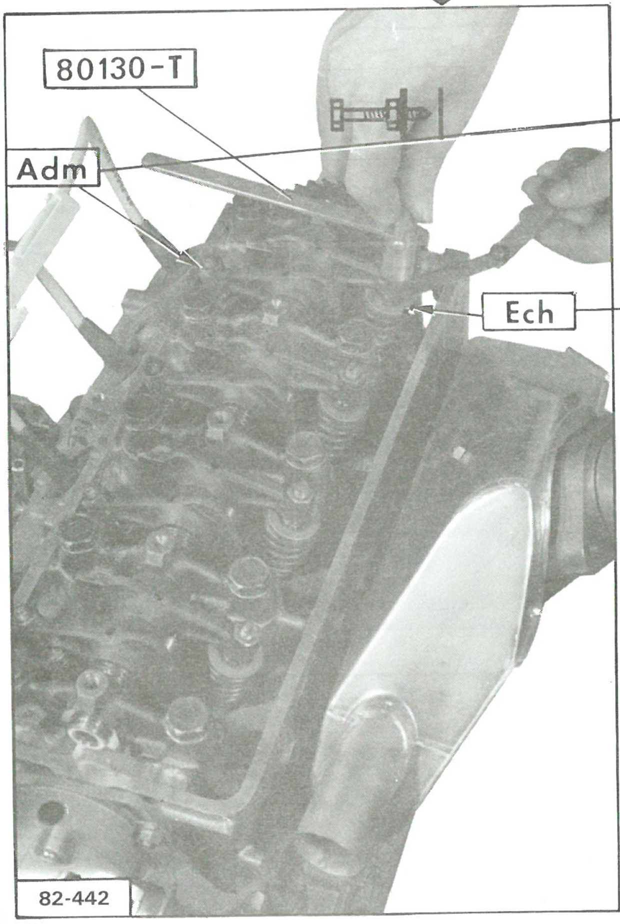

82-441



82-436



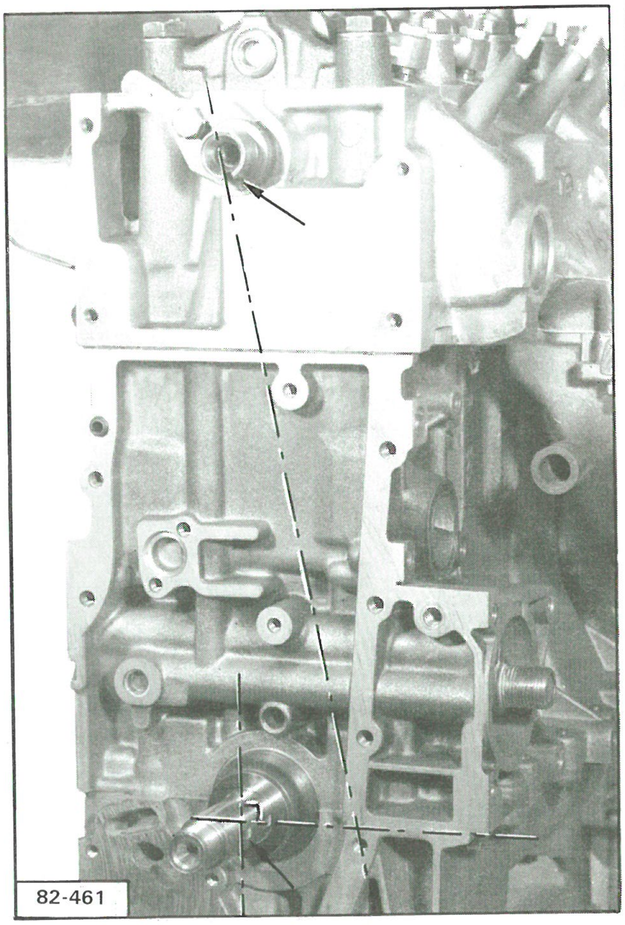
82-440



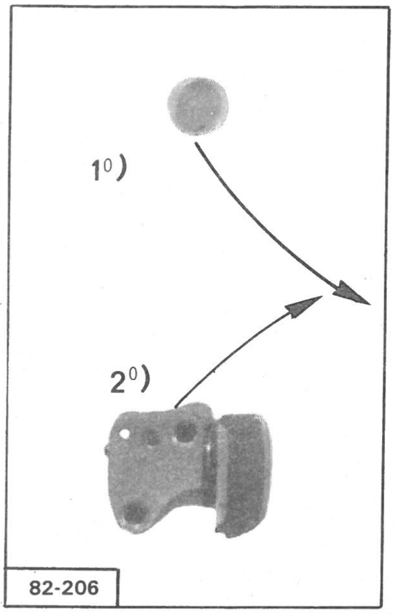
Adm = 0,10 mm → 0,15 mm

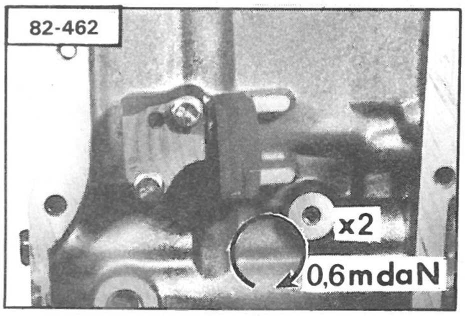
Ech = 0,20 mm → 0,30 mm

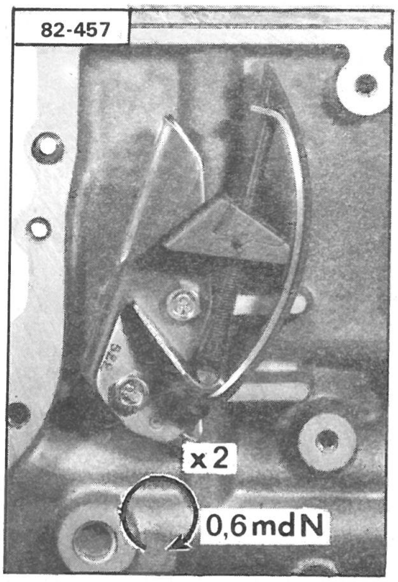
82-442

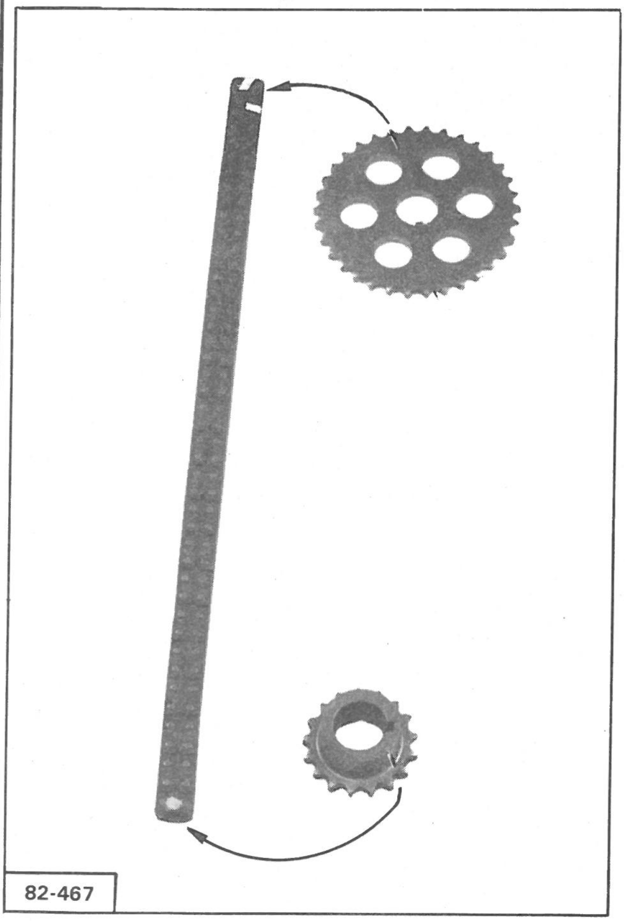


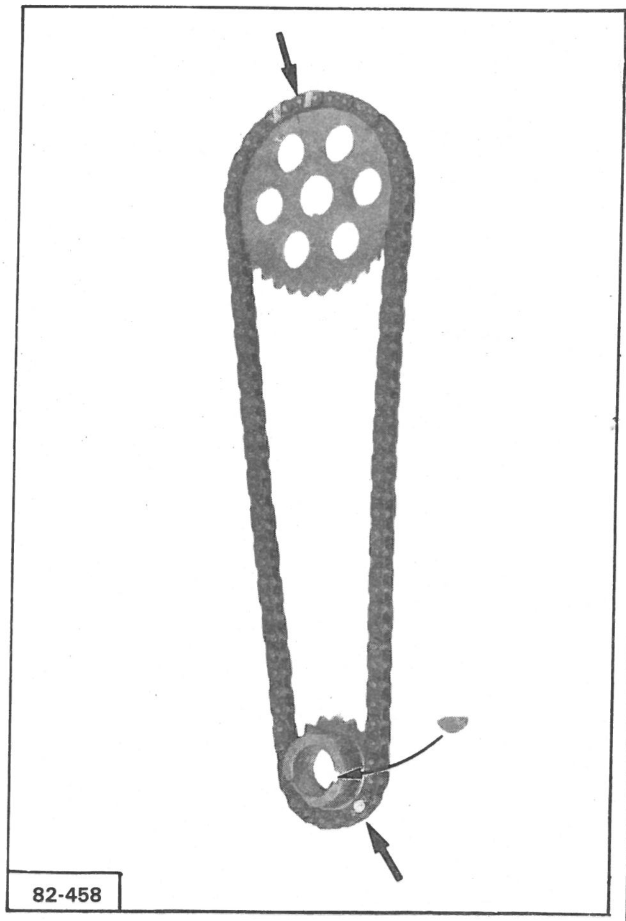
82-461

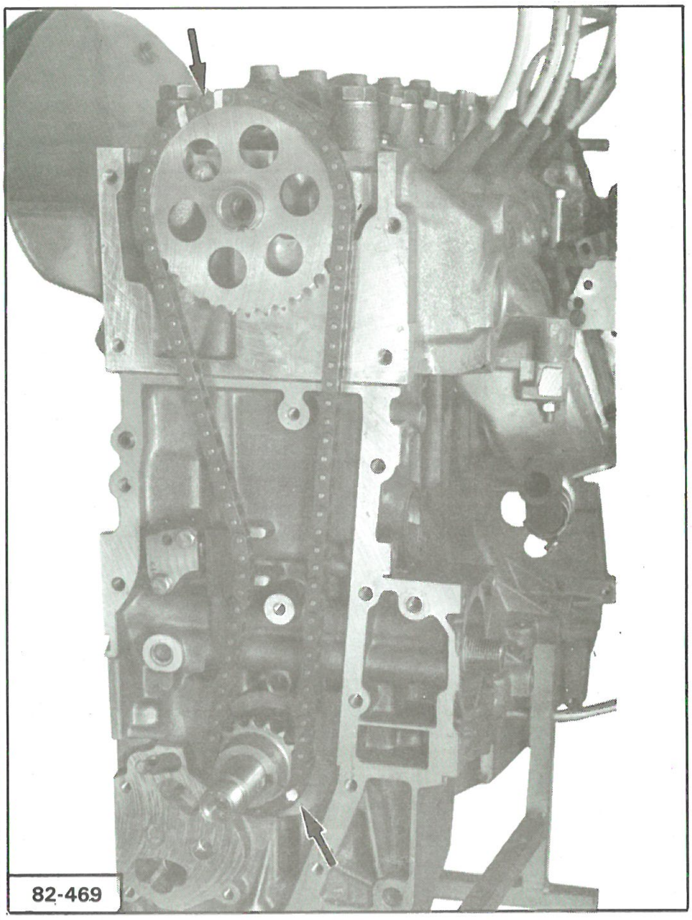

1°)
2°)
82-206

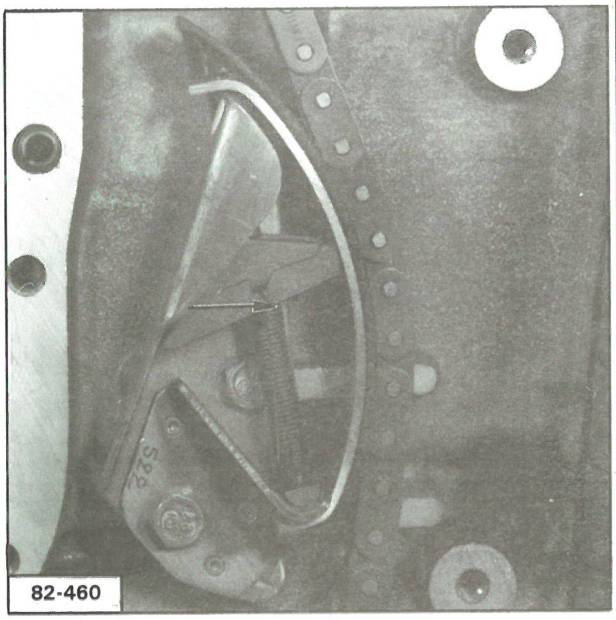

82-462
x2
0,6mdaN

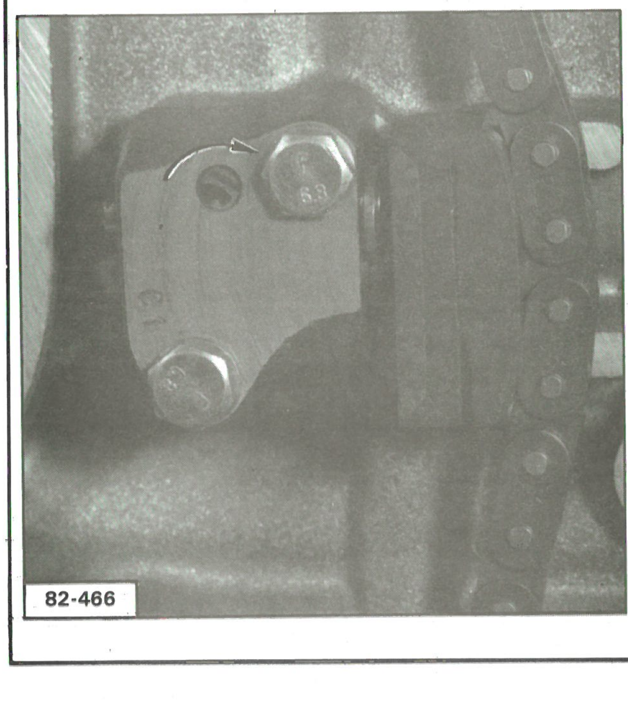

82-457
x2
0,6mdN

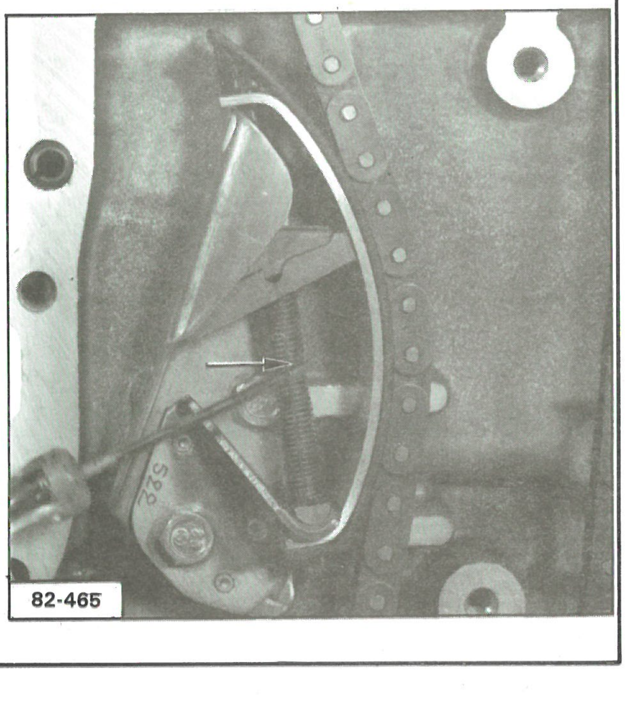

82-467

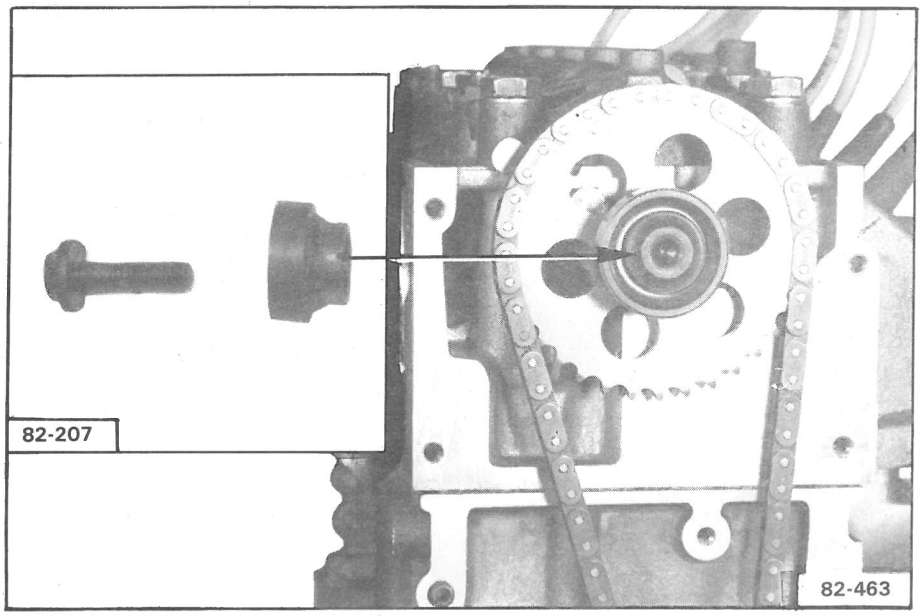

82-458


82-469


82-460

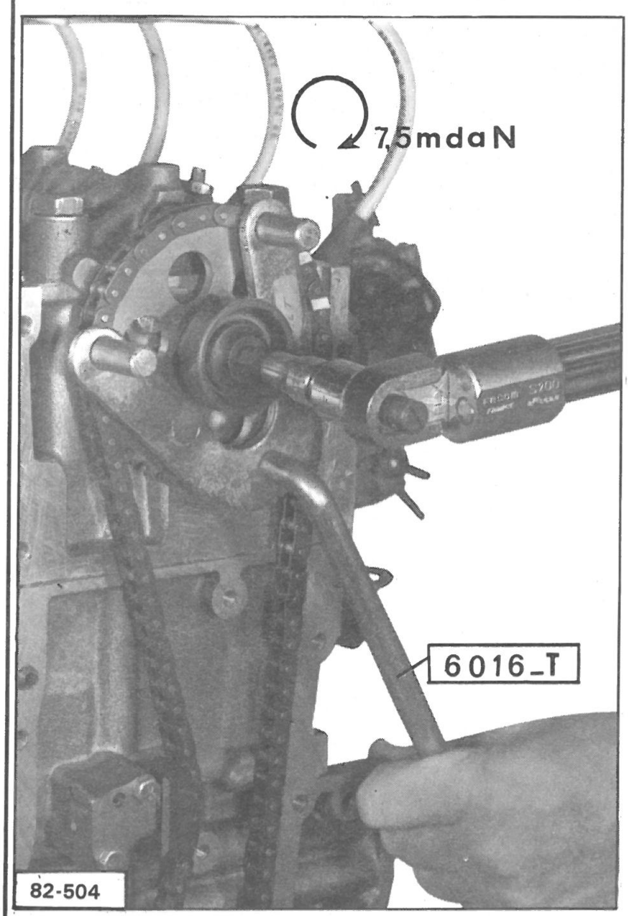

82-466


82-465

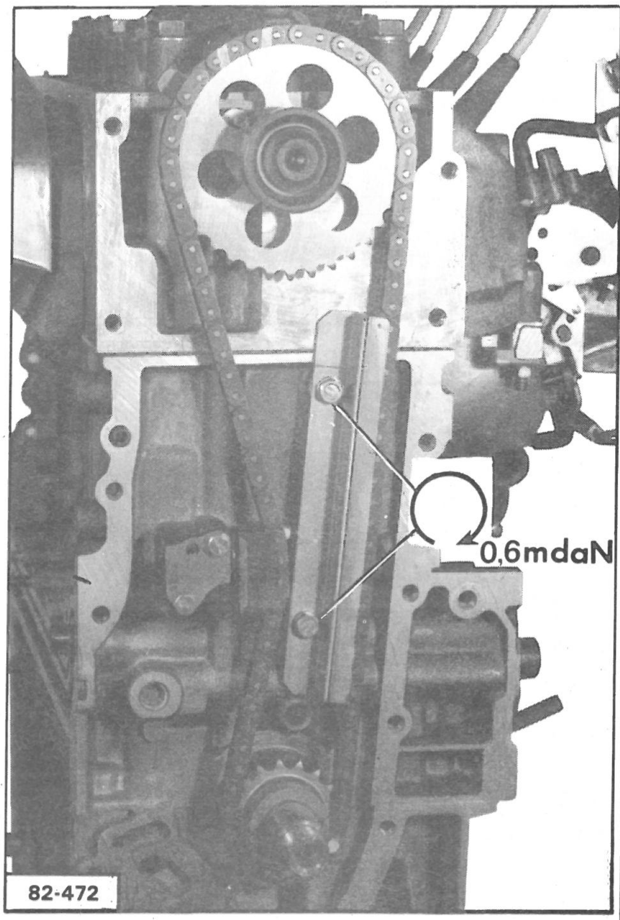


82-207

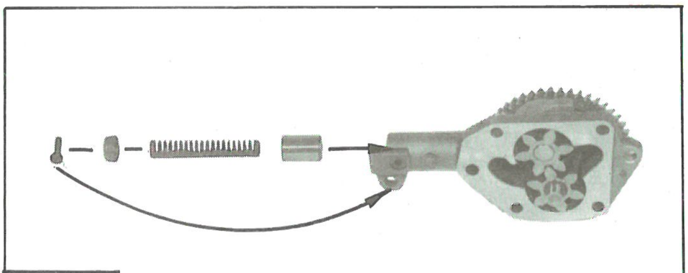
82-463



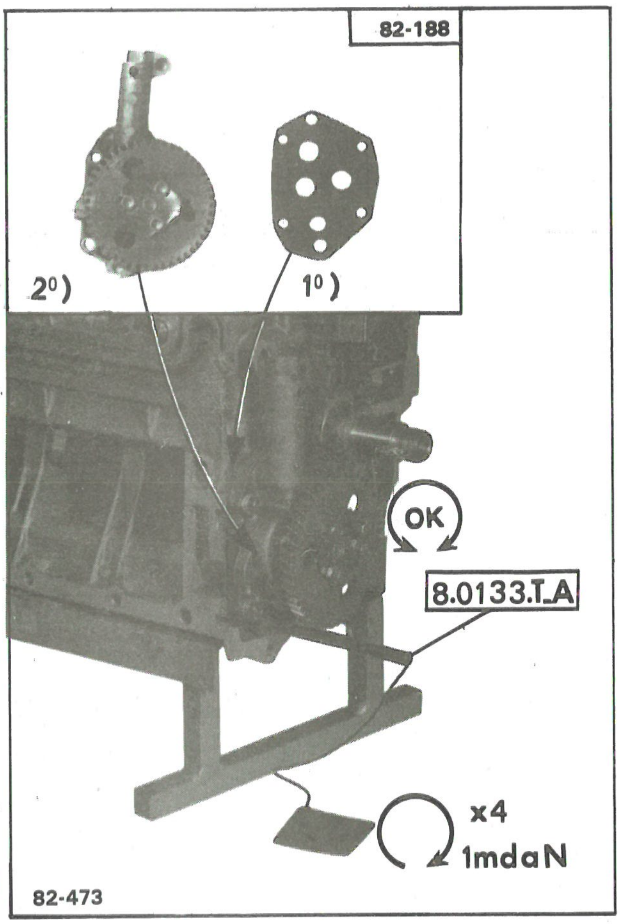
82-504



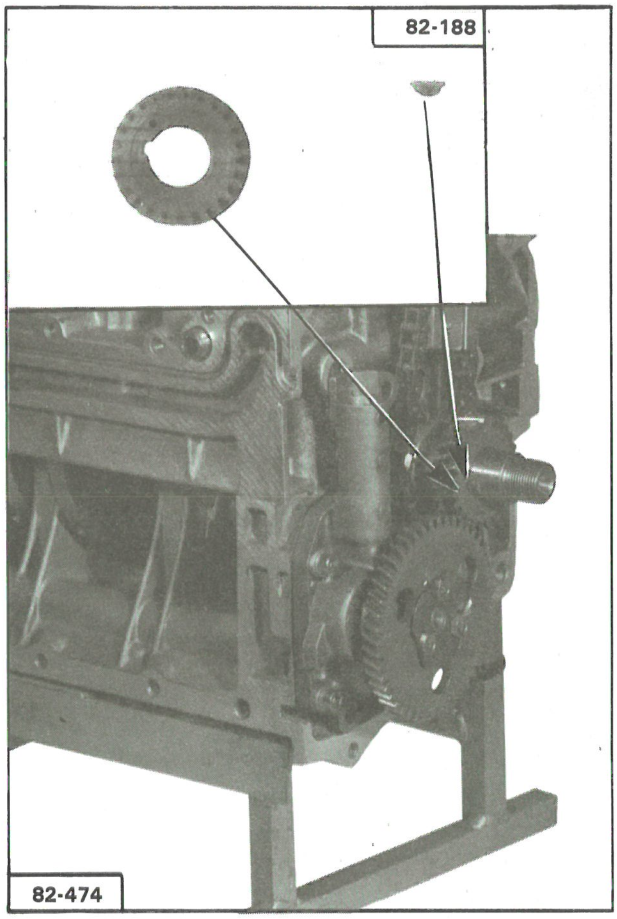
82-472



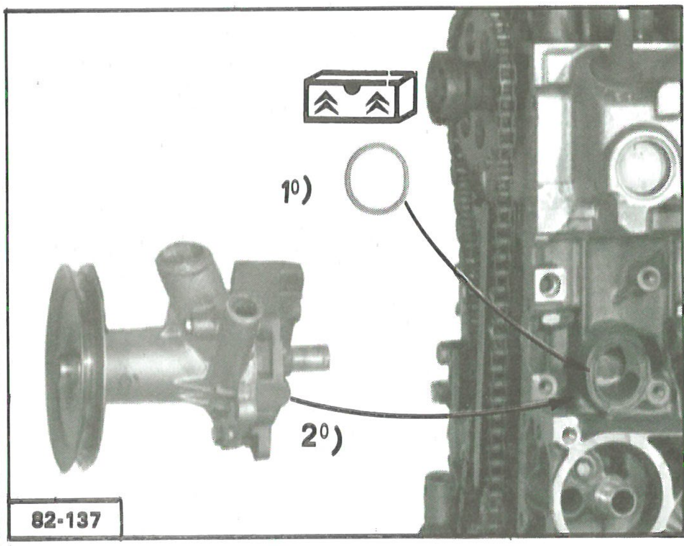
82-599



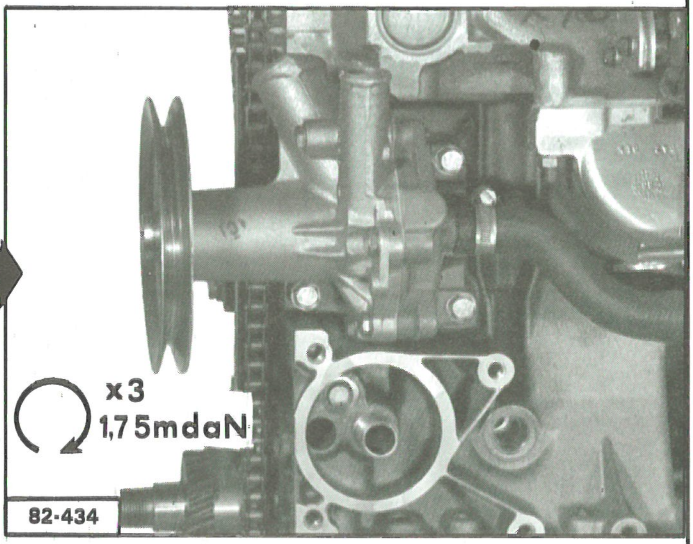
82-188 82-473



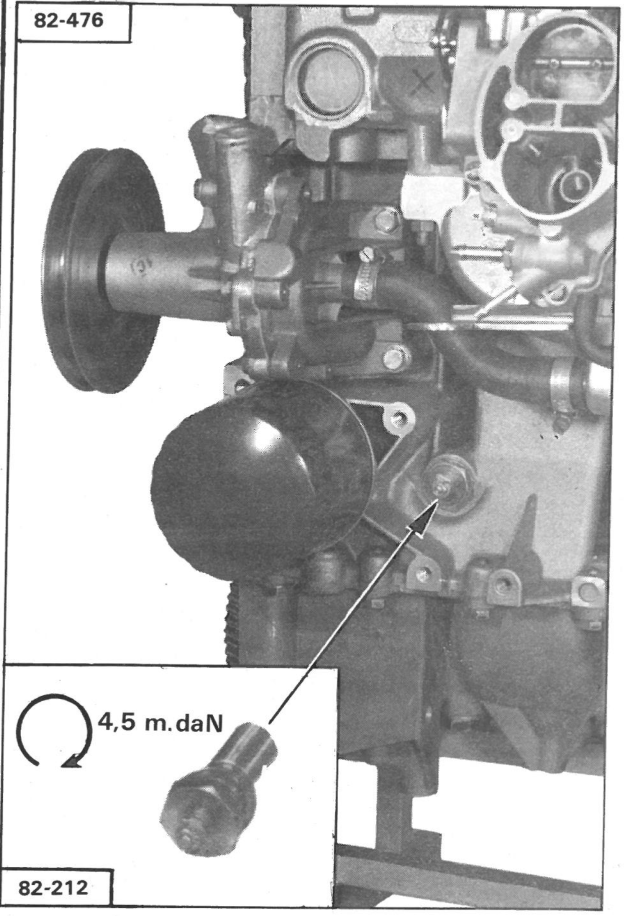
82-188 82-474

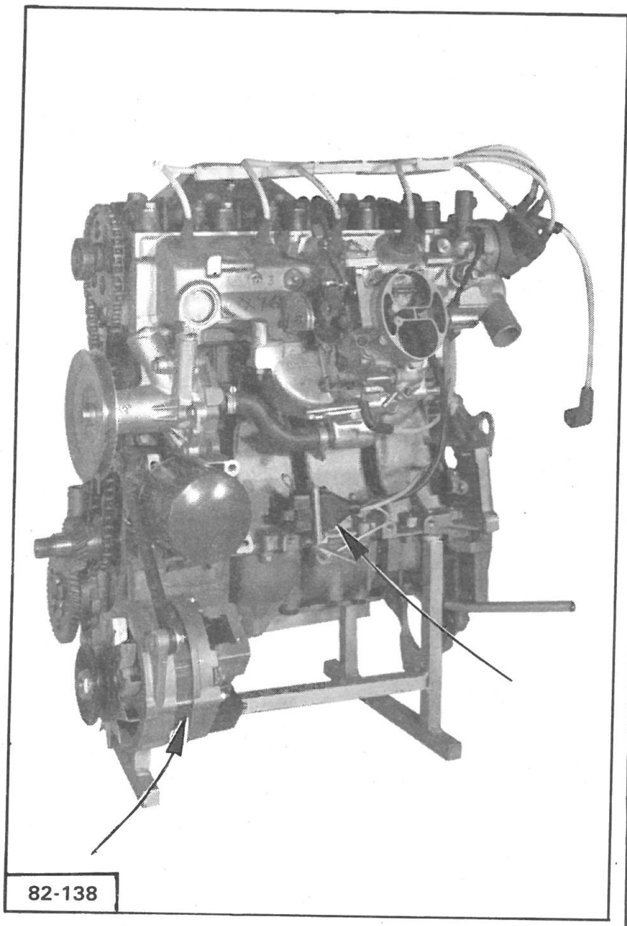


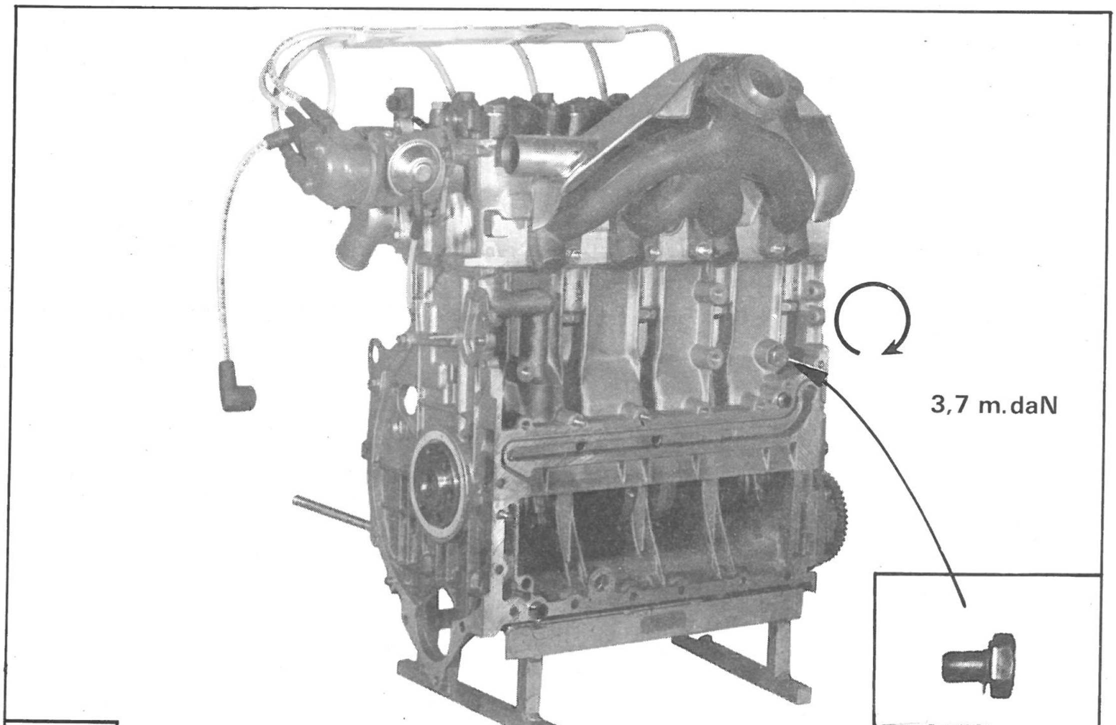
82-137



82-434


82-476
4,5 m.daN
82-212


82-138


3,7 m.daN
82-475
82-212

SEPARATING THE ENGINE FROM THE GEARBOX
AND FROM THE TRANSFER GEAR ASSEMBLY
WORKING ON THE CLUTCH MECHANISM

REMOVAL.

Fix support **8.0313-T.P** to the gearbox, then straighten the engine-gearbox unit in order to position it on the support, **Fig. II.**

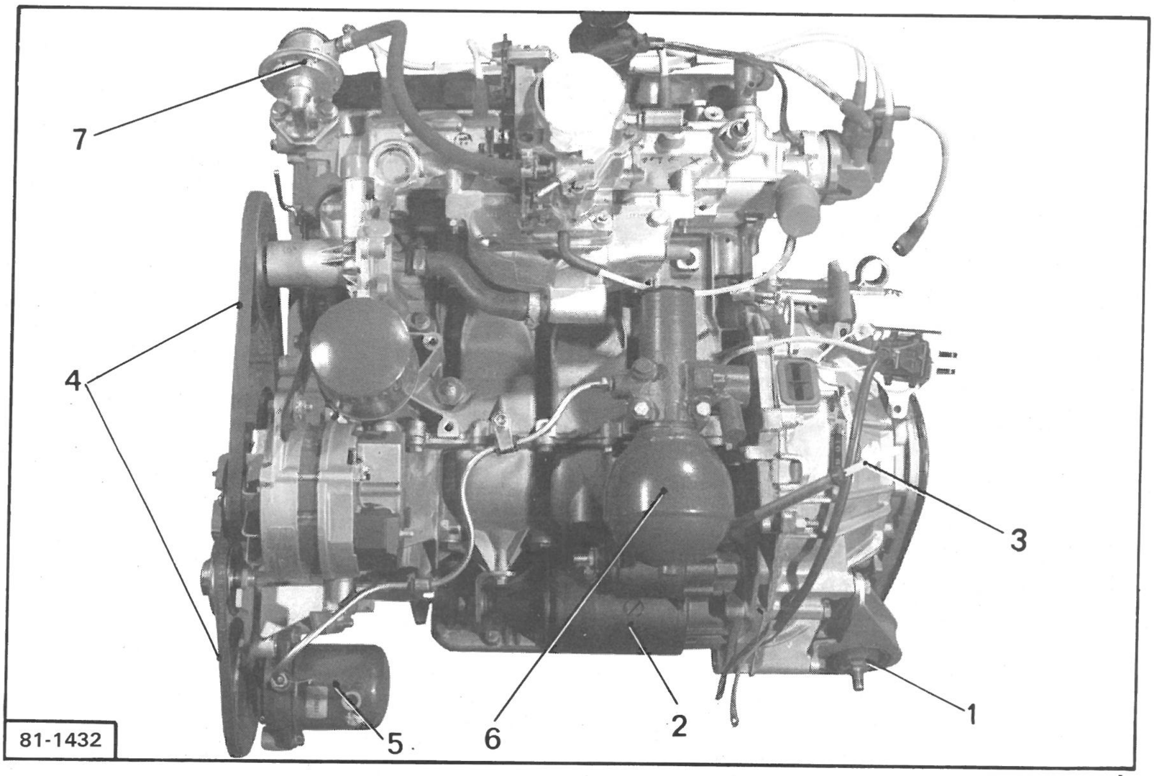
Remove : **Fig. I**

- support mounting (1),
- starter (2),
- oil gauge (3),
- belts (4),
- H.P. pump (5),
- pressure regulator (6),
- petrol pump (7).

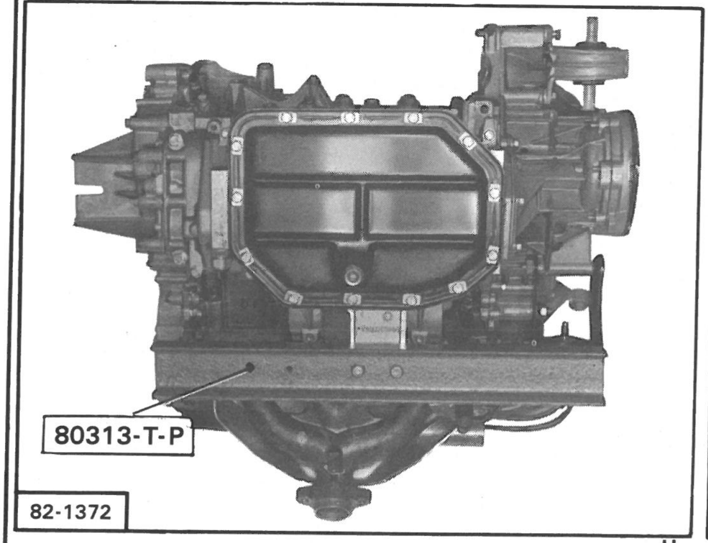
Remove, **Fig. III, IV and V :**

- the clutch casing securing screws, one of the screws is located at **« b »,**
- clutch casing (8) (by gently striking on bosses **« a »** and **« c »** with a mallet to facilitate the removal),
- clutch mechanism (9) with its disc,
- engine flywheel (10), hold the flywheel in position using locktab **6012-T.**

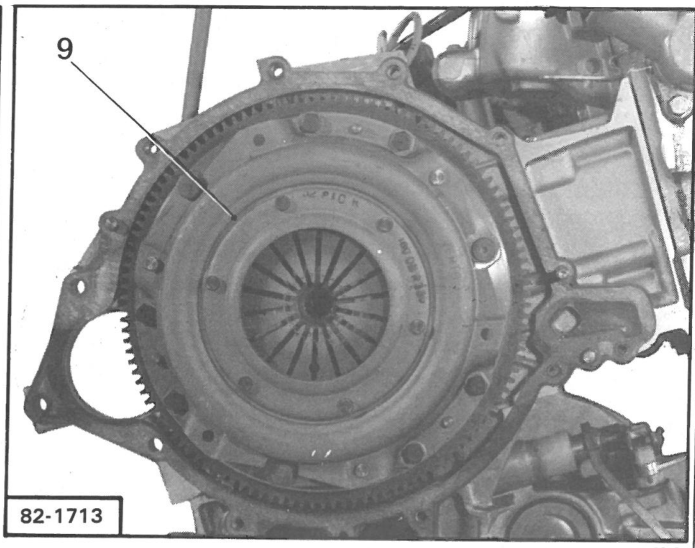
NOTE : It is useless to mark the position of the flywheel since the staggered screws allow only one fitting position.


7
4
3
1
2
6
5
81-1432

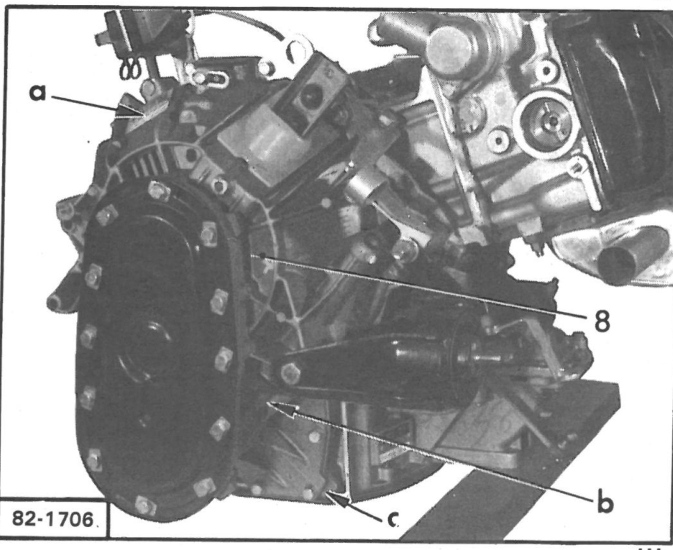
I


80313-T-P
82-1372

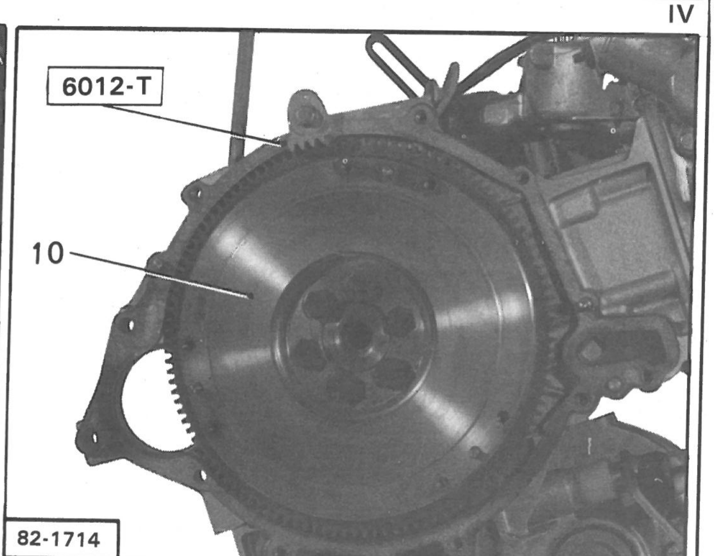
II


9
82-1713

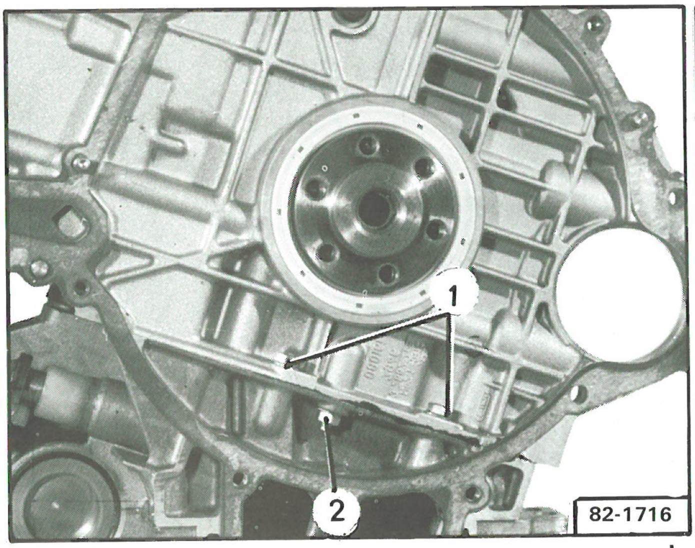
IV


a
8
b
c
82-1706

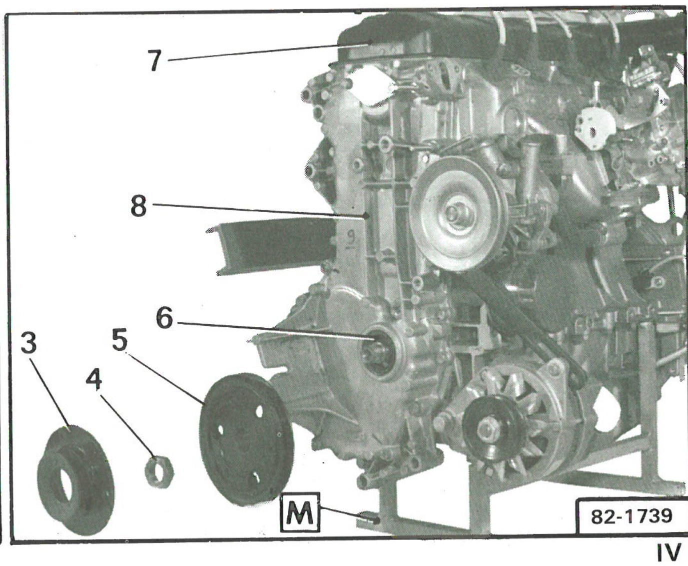
III


6012-T
10
82-1714

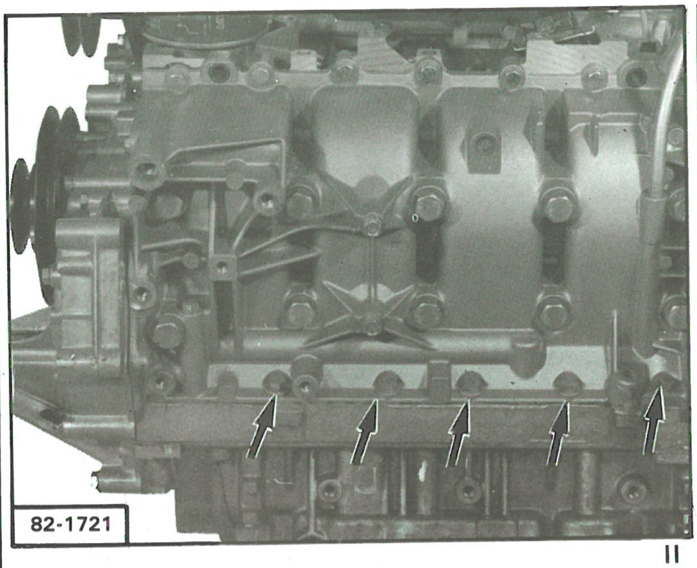
V



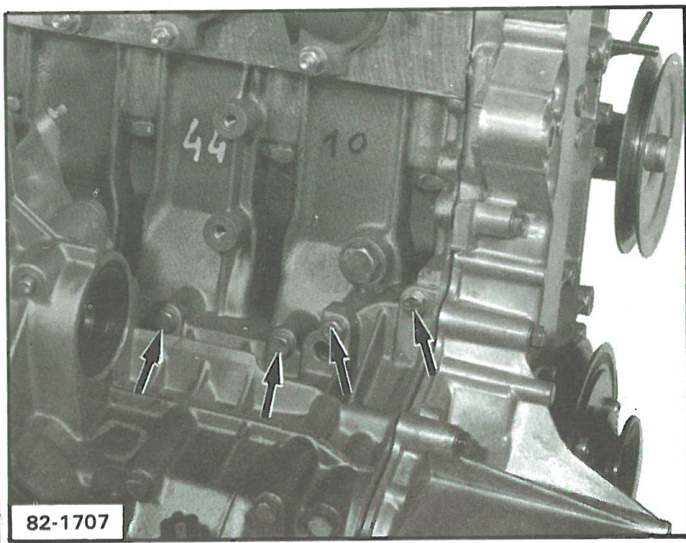
I



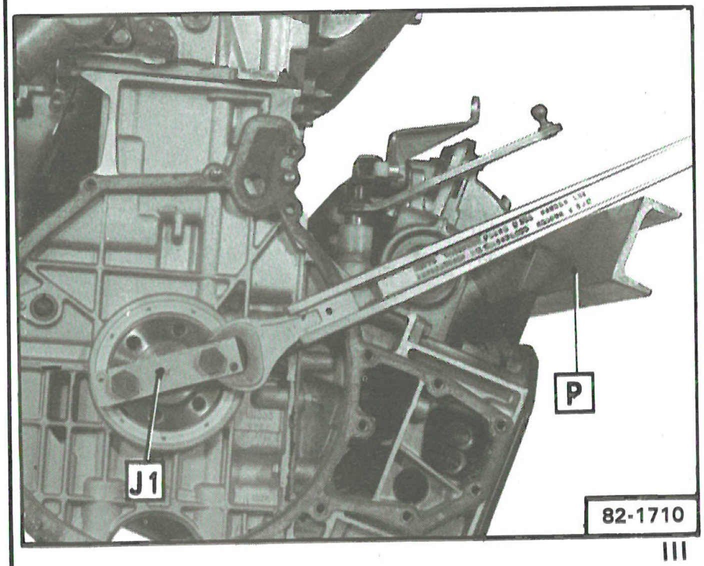
IV



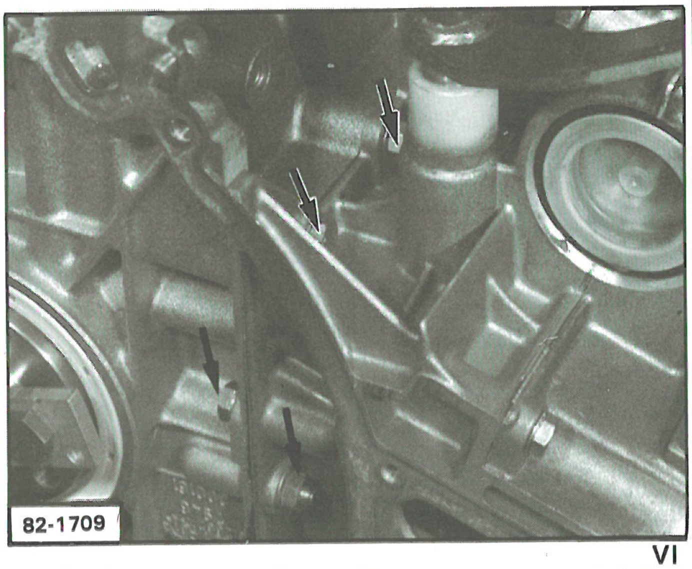
II



V



III



VI

Use the tools from kit, **reference 8.0132-T.**

Remove, **Fig. I and II :**
- screws (1) and nut (2),
- the screws (➡).

Position the engine-gearbox unit on stands **M. Fig. IV**
Fit plate **J1** and lock the crankshaft, **Fig. III.**

Remove **Fig. IV :**
- the 3 screws securing pulley (3),
- nut (4),
- pulley (5).

Remove, **Fig. IV :**
- rocker cover (7),
- timing cover (8), keep the petrol pump push-rod,
- oil seal (6).

Remove the screws and nuts ➡ : **Fig. V and VI**

Remove the gearbox by holding it using support-crossmember 8.0313-T.P.

FITTING.

If cleaning the engine is necessary:

Remove, **Fig. I :**
- the protective panel,
- lower panel (1) and the drain plug,
- suction strainer (2).

Clean and blow out the parts and the oil suction duct.

Fit :
- suction strainer (2), screw tightening torque : **1 m.daN,**
- lower panel (1) equipped with its *new* seal (3), screw tightening torque : **1 m.daN,**
- drain plug *(new seal),* tightening torque : **2.8 m.daN**
- protective panel.

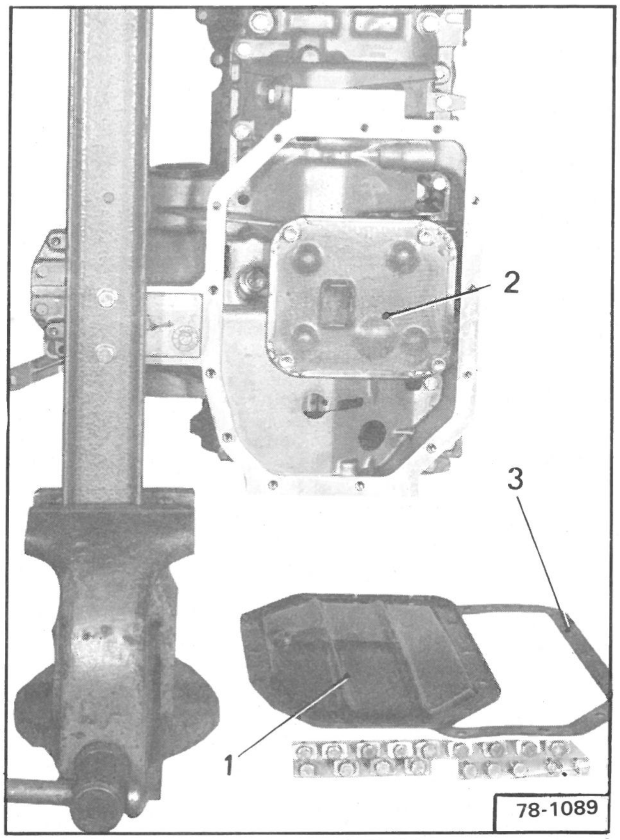
Ensure that centering pins (5) and studs (4) are fitted : **Fig. II.**

Fit a *new* O-ring seal on the gearbox at **« e », Fig. III.**

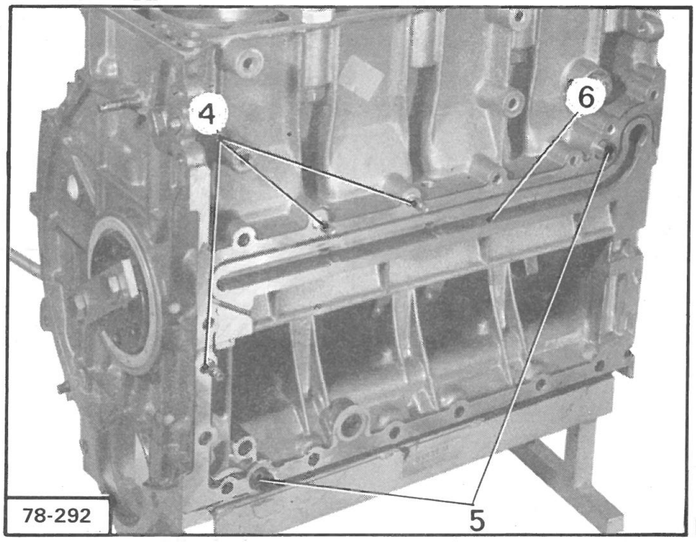
Apply a sealing compound on the engine sealing surface as well as around oil duct (6), **Fig. II.**

Assemble the gearbox, taking care not to drive in the pins (5), **Fig. II.**

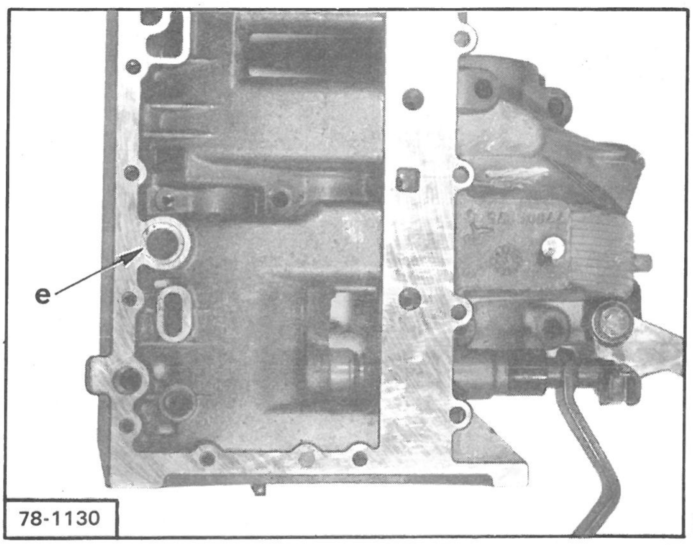
Fit the securing screws and nuts *(elastic washers).*
Tightening torque : **1.5 m.daN.**



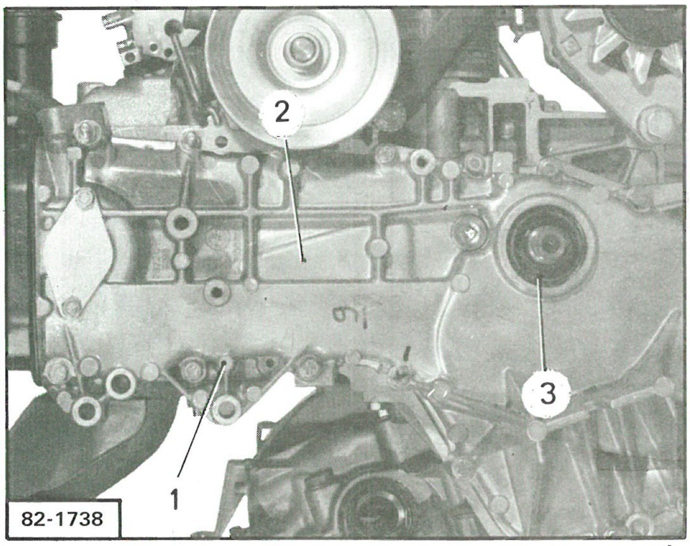
I



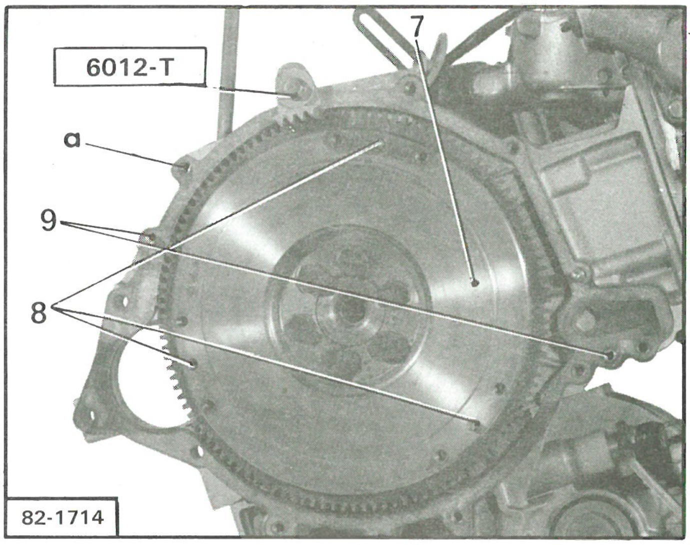
II



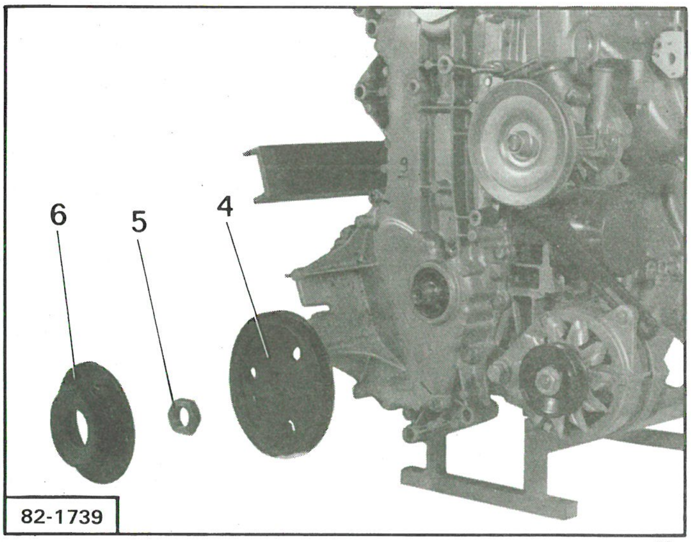
III



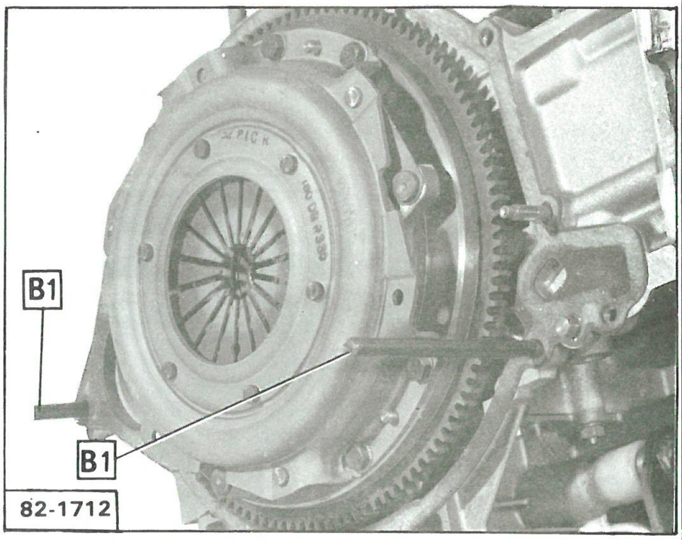
I



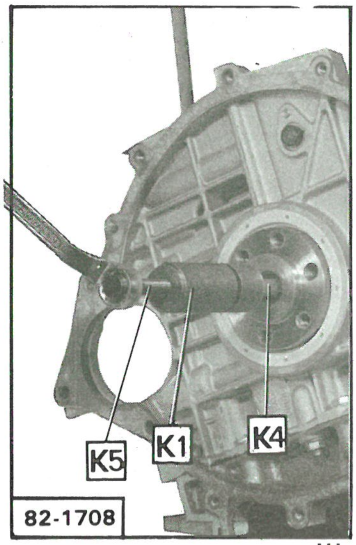
V



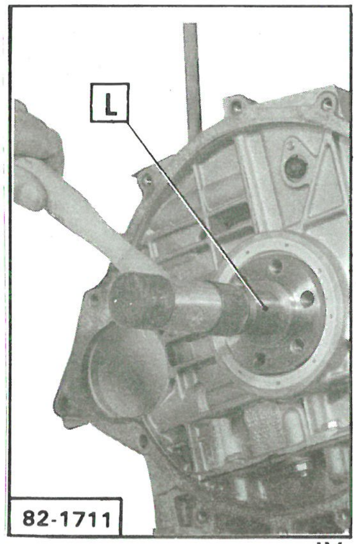
II



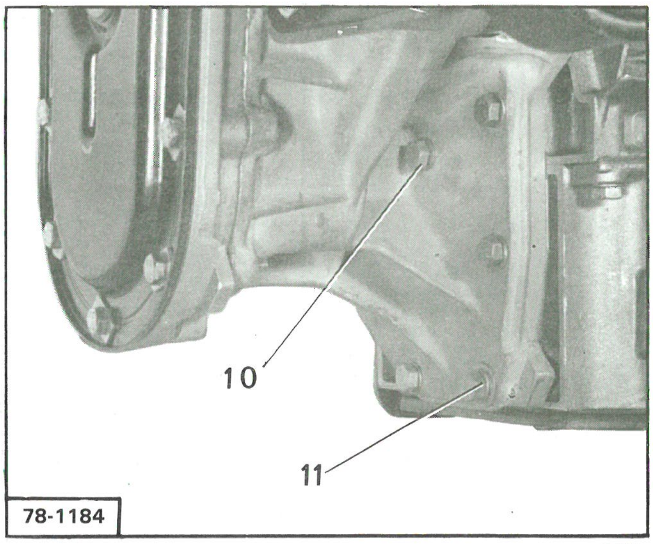
VI



III



IV



VII

Center and fit the timing cover, Fig. I :

- make sure centering pin (1) is correctly fitted, then fit the timing cover *new* seal dry and timing cover (2) itself,
- oil seal (3) being removed, center the timing cover using centering ring **F**,
- fit and tighten the mounting screws, tightening torque : **1.2 m.daN,**
- tallow and fit *new* oil seal (3), using mandrel **G**.

Fit, **Fig. II :**

- pulley (4) by positioning it on the key,
- nut (5) (LOCTITE FRENETANCH). Hold the crankshaft in position and tighten nut (5) to **14 m.daN**,
- pulley (6) with its 3 screws.

If necessary : **Replace the centering ring of the engine pinion, Fig. III and IV :**

- remove the centering ring,
- use pulley **K1** fitted with screw **K5** and jaws **K4**,
- insert a *new* ring, with **the chamfer directed towards the outside,** drive it home by gently striking with a mallet (mandrel **L**).

NOTE : **Since the centering ring is a self-lubricating ring, it should never be degreased, should the need arise, soak it in engine oil before fitting.**

Fit the engine flywheel (7), Fig. V :

- the flywheel orifices should coincide with the crankshaft tapped holes,
- soak the screws in LOCTITE FRENETANCH and fit them. Tightening torque : **6.8 m.daN**. Hold the flywheel in position using quadrant **6012-T.**

Fit the clutch, Fig. V :

- make sure the three centering studs (8) are in position,
- center the disc using centering tool **8.0209-T.A,**
- fit the mechanism and tighten the screws to **1 m.daN** *(elastic washers).*

Fit both the clutch casing and the transfer gear assembly, Fig. V, VI and VII :

- make sure centering dowels (9) are fitted,
- position centering tools **B**,
- fit a *new* seal dry,
- fit both the clutch casing and the transfer gear assembly by slightly rotating the drive-shaft and the engine flywheel in order to insert the splines correctly,
- screw, without tightening, bolt (11) and the extended head screw located at **« a »** and used as an earth terminal,
- remove centering tools **B**,
- fit the sling attachment and the sheath stop of the clutch cable,
- **position, without tightening**, all the mounting screws,
- tighten screw (10) first, then tighten all the other screws including the extended head screw to **1 m.daN.**

Refit :

- the rocker cover *(new seal)*. Tighten moderately to **1 m.daN,**
- the HP pump,
- the pressure regulator,
- the belts,
- the oil gauge,
- the starter,
- the elastic support,
- the petrol pump.

CHECKING AND ADJUSTING THE ROCKERS

The adjustment should be carried out with the engine cold.

Fig. I
Clear the access to the cylinder-cover (H.T leads, hose, etc . . .).

Remove rocker cover (1) with its gasket.

Fig. II
Adjust the rockers :

Inlet : 0.10 to 0.15 mm
Exhaust : 0.20 to 0.30 mm

POSSIBLE METHODS

I - Valves in rocking position :

(Inlet valve starting to open and exhaust valve closing).

Bring cyl. No. 1 in rocking position, adjust cyl. No. 4
Bring cyl. No. 3 in rocking position, adjust cyl. No. 2
Bring cyl. No. 4 in rocking position, adjust cyl. No. 1
Bring cyl. No. 2 in rocking position, adjust cyl. No. 3

II - Exhaust valves fully open :

Valve to be fully opened :	Adjust the rocker : Inlet	Adjust the rocker : Exhaust
Exhaust valve, cyl. No. 1	cyl. No. 3	cyl. No. 4
" , cyl. No. 3	cyl. No. 4	cyl. No. 2
" , cyl. No. 4	cyl. No. 2	cyl. No. 1
" , cyl. No. 2	cyl. No. 1	cyl. No. 3

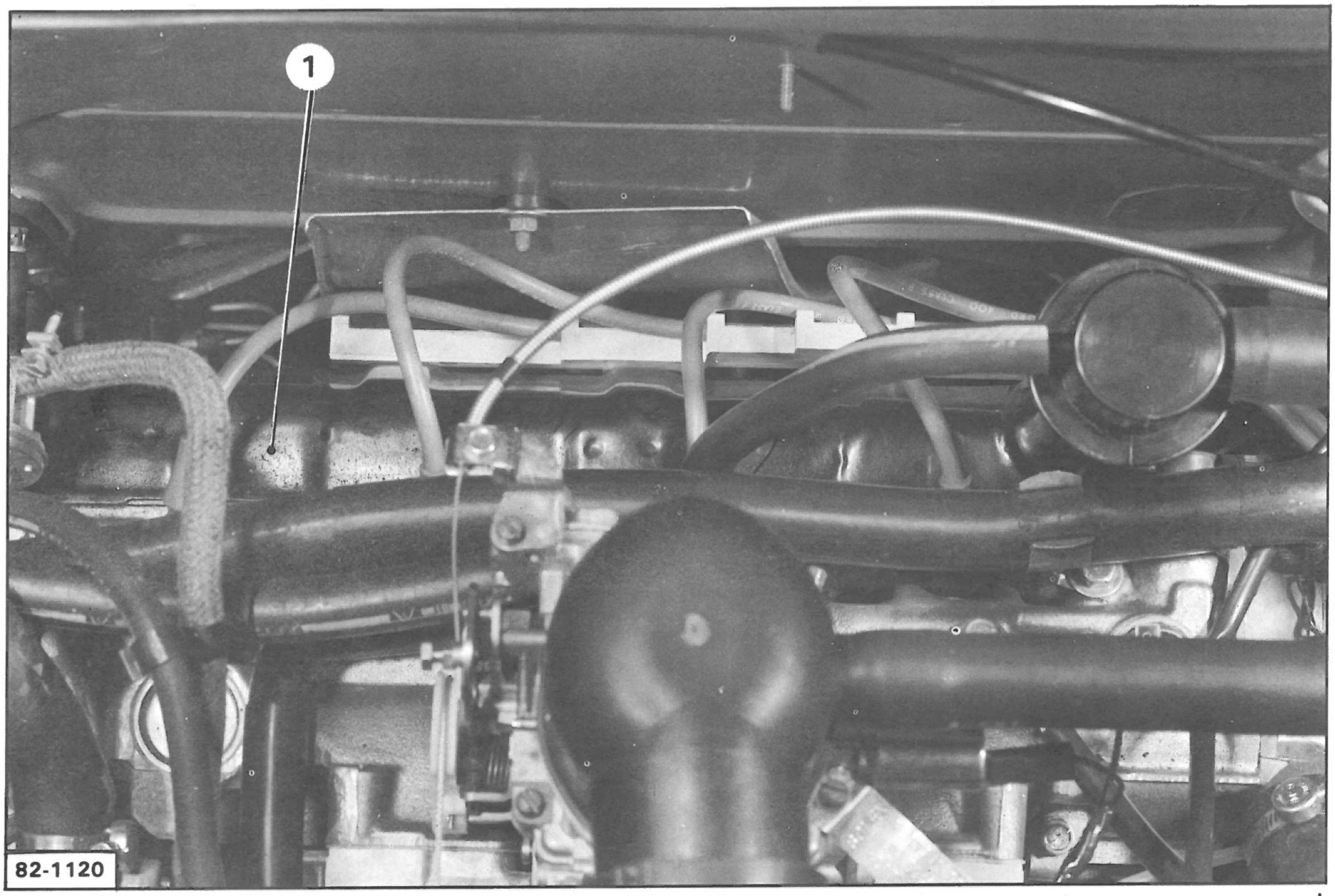
Tighten locknuts (2) of the rocker adjustment screws to : 1.7 m.daN.

Use tool **8.0130-T** from engine kit **8.0132-T.**

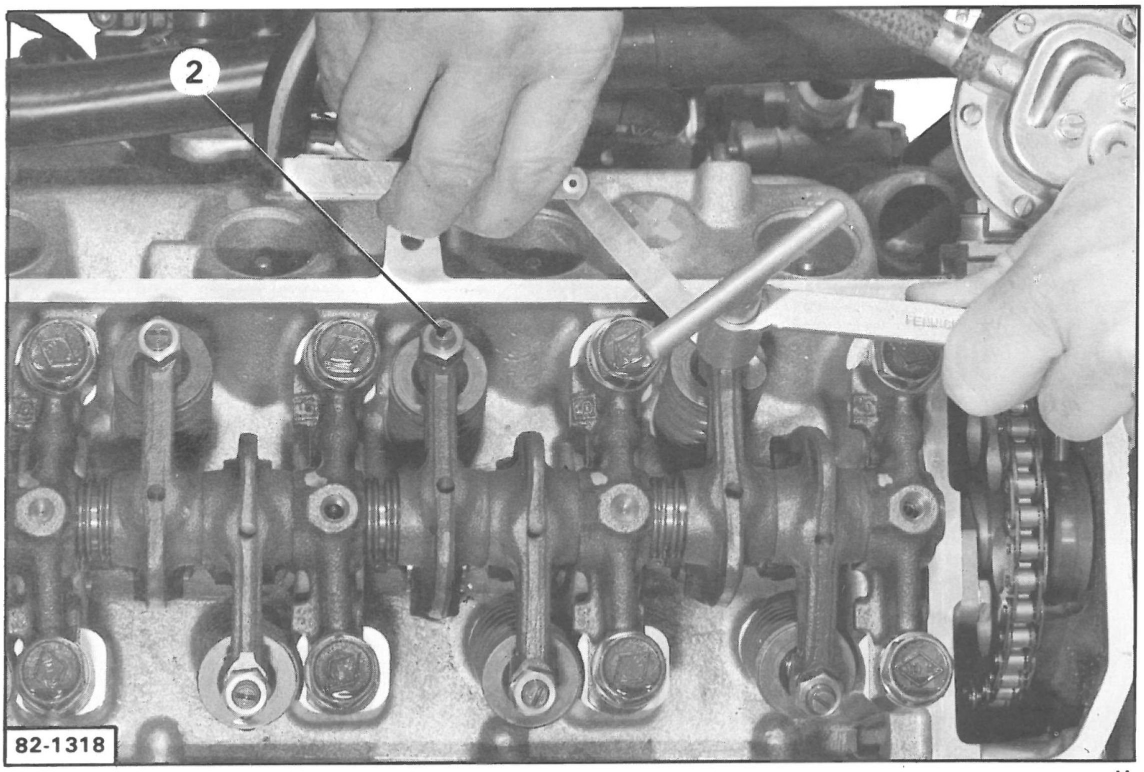
NOTE.— To rotate the engine, lift one of the front wheels, engage 4th gear, and rotate the crankshaft by means of the raised wheel.

4. Fit rocker cover (1) with its gasket. Make sure there is no roughness on the joint surface.

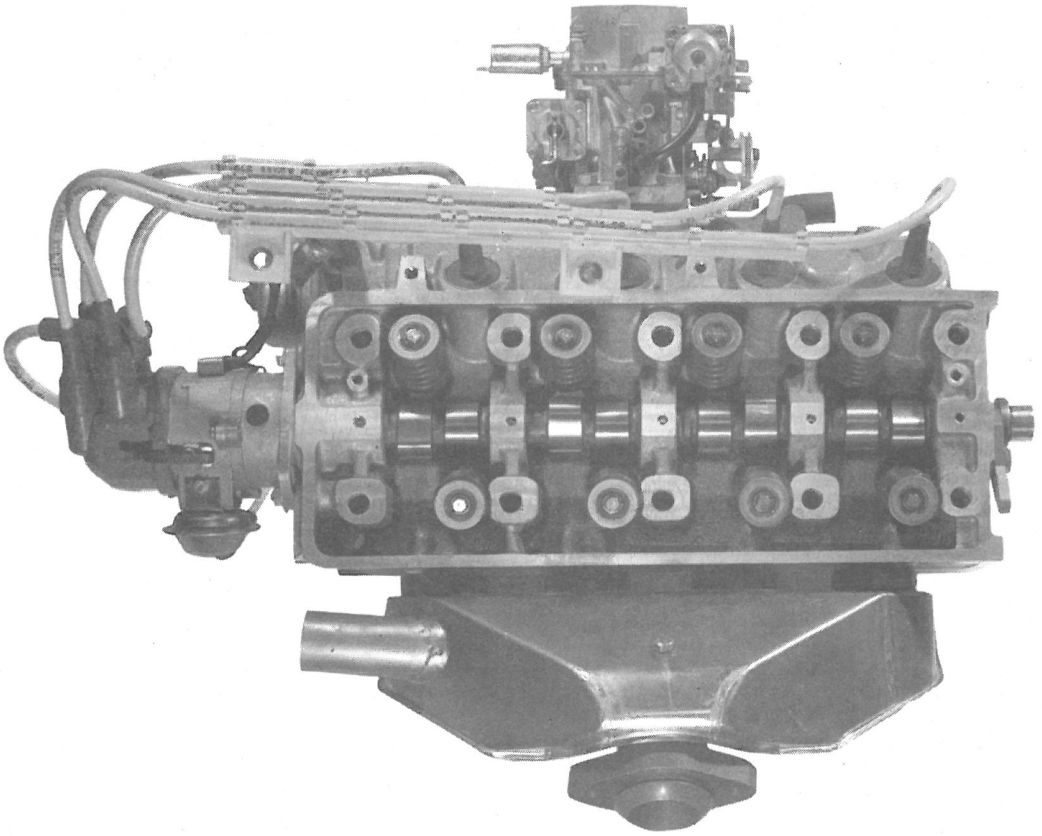
Tighten the rocker cover securing screws to : **1 mdaN.**



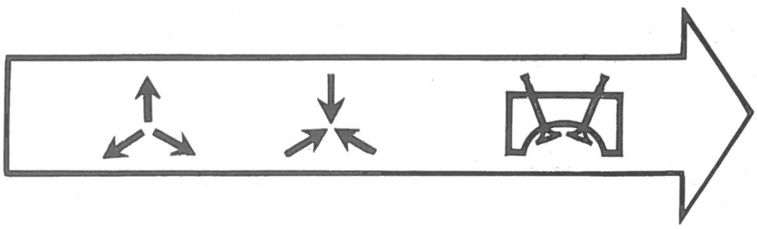
I

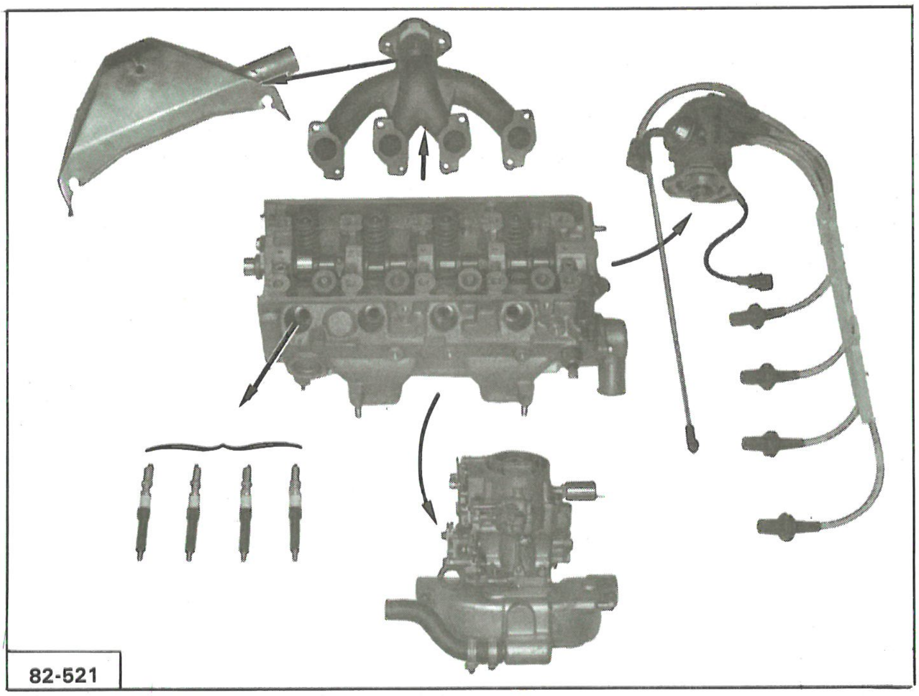


II

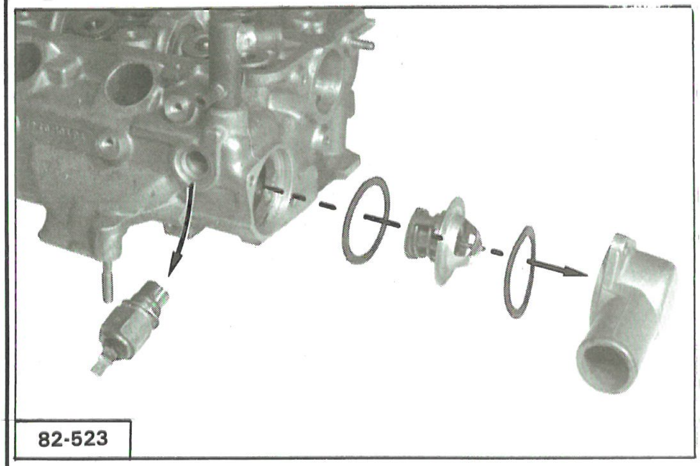


82-513

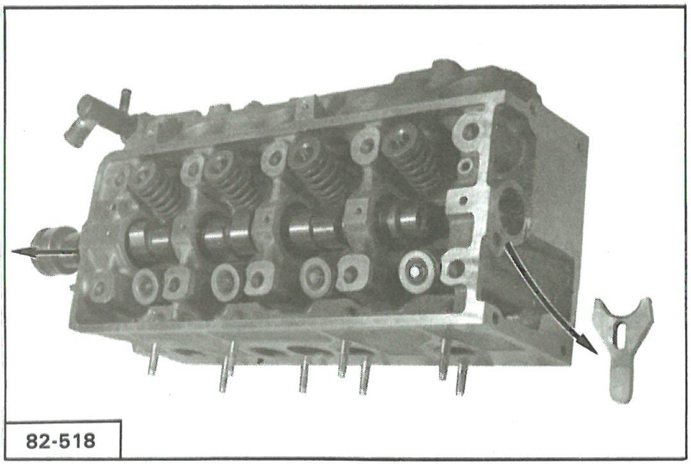




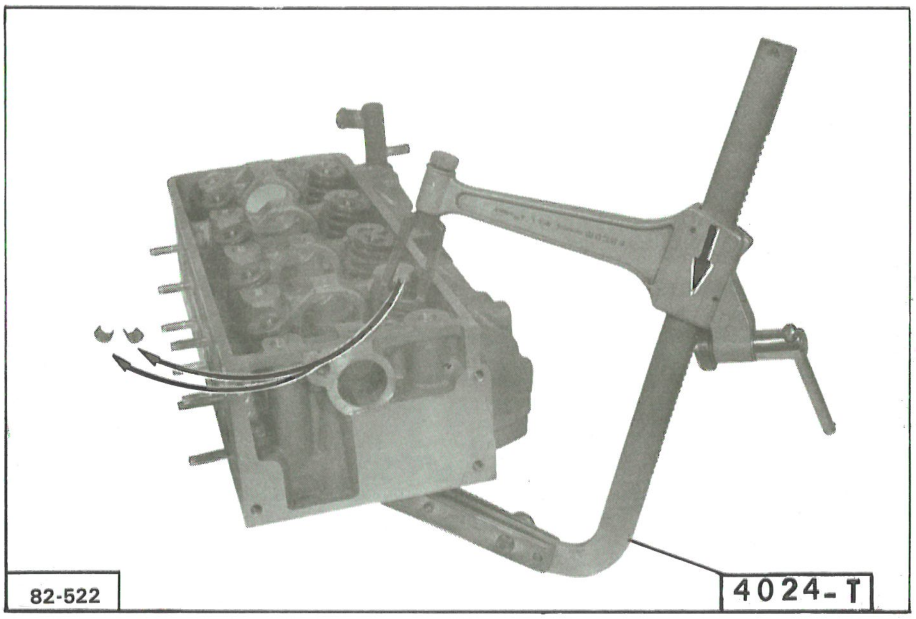
82-521



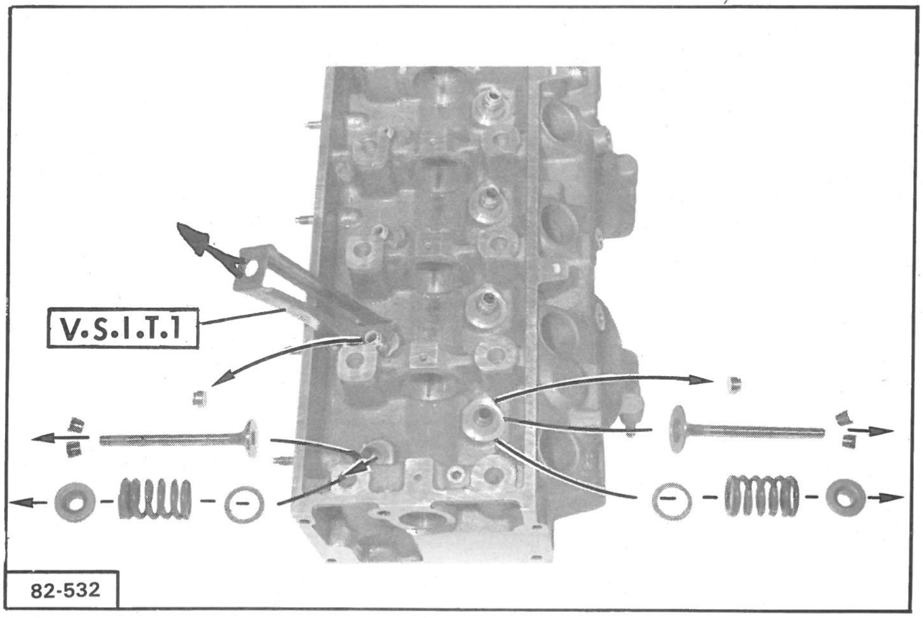
82-523



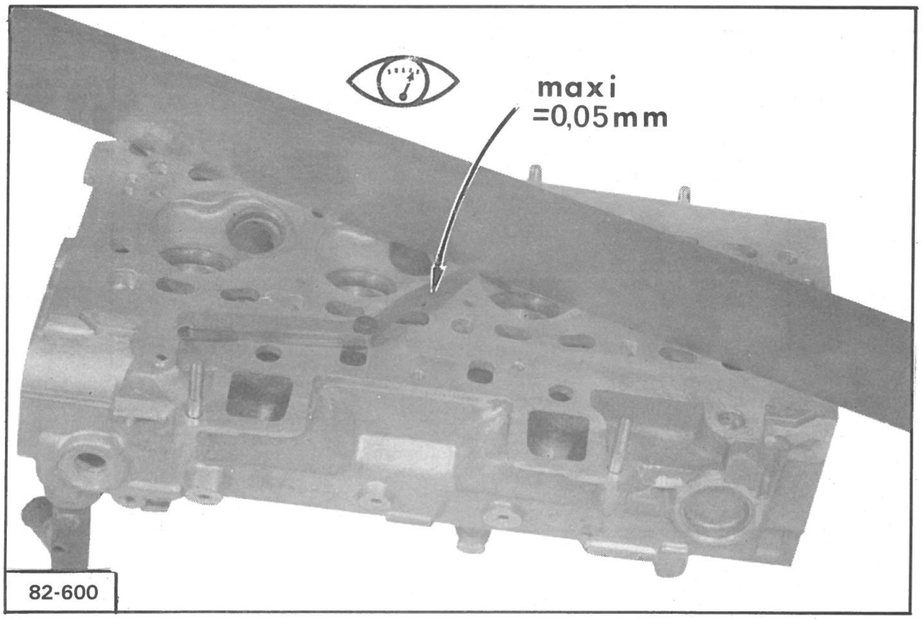
82-518



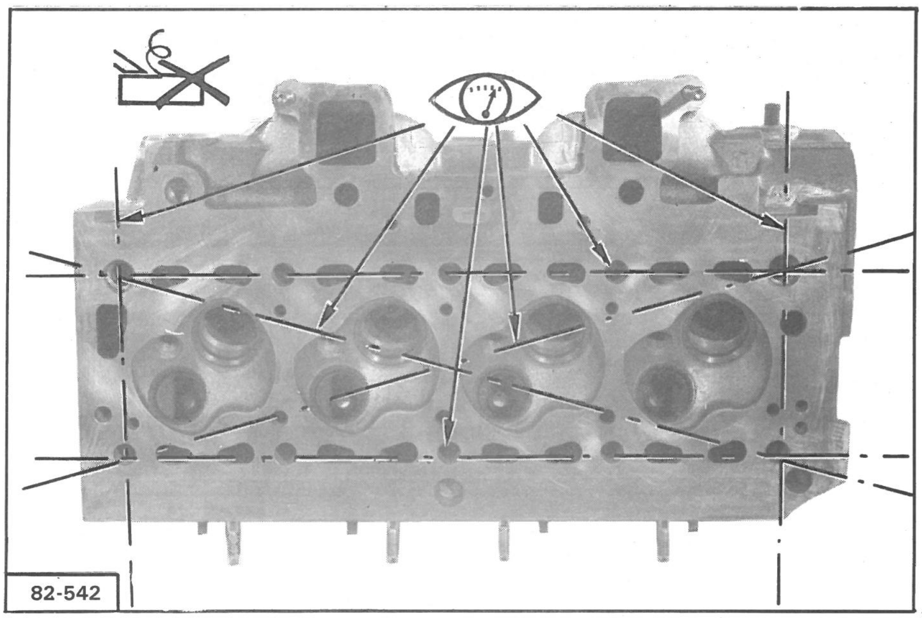
82-522

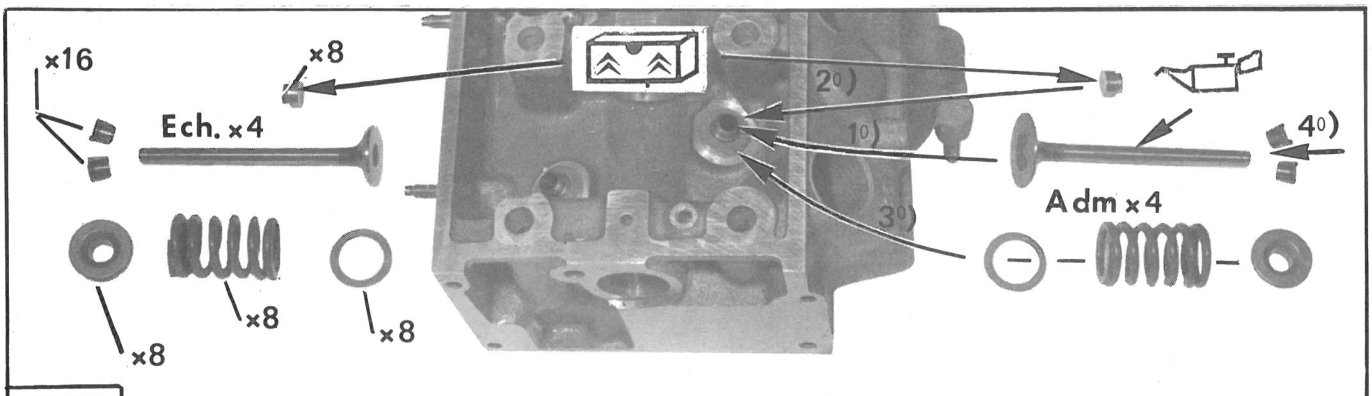


82-532

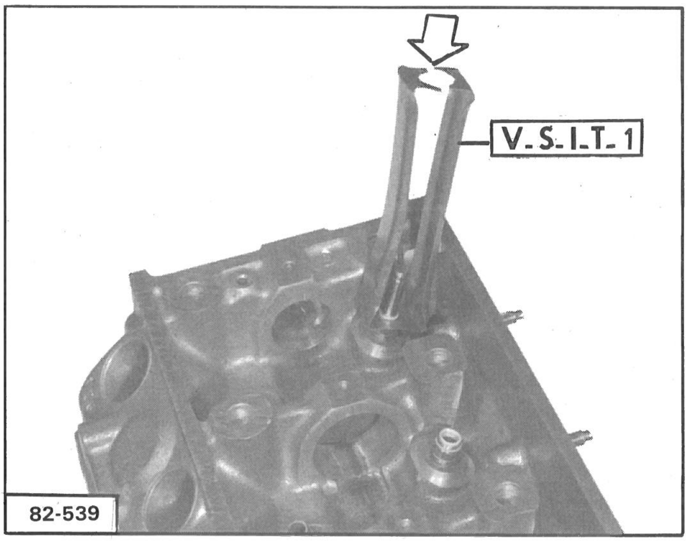


82-600

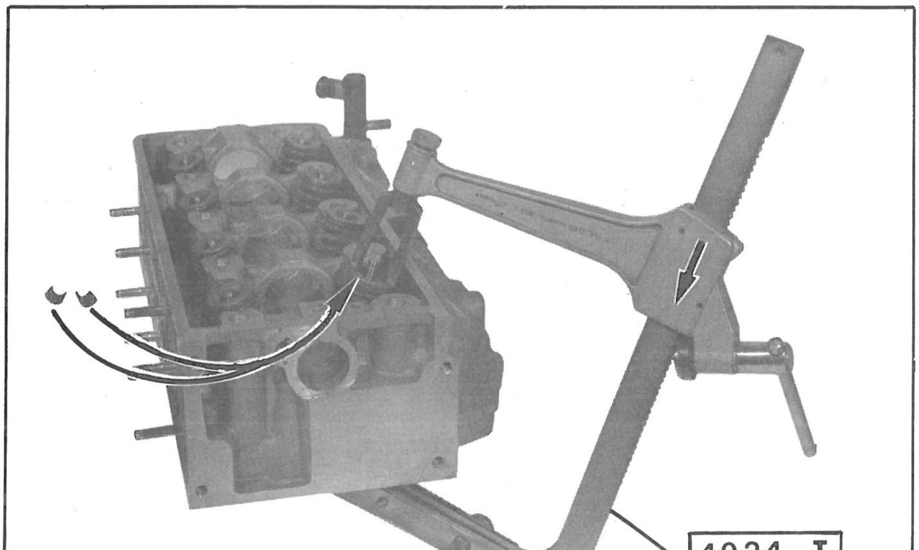

82-542



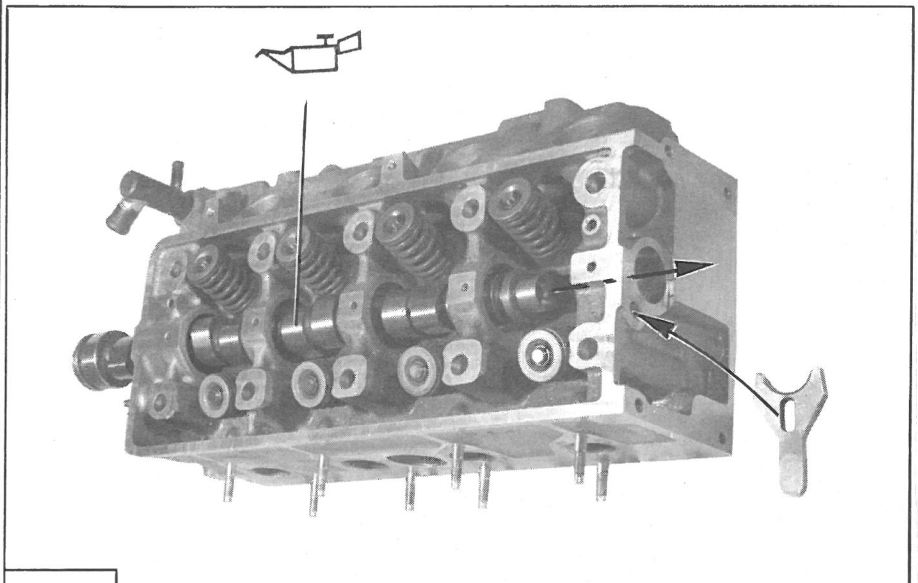
82-532



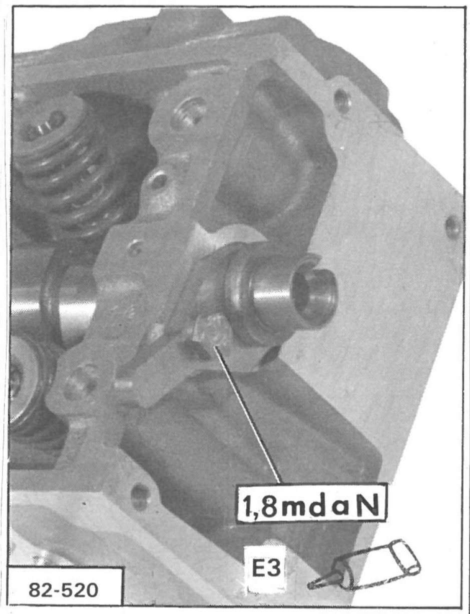
82-539



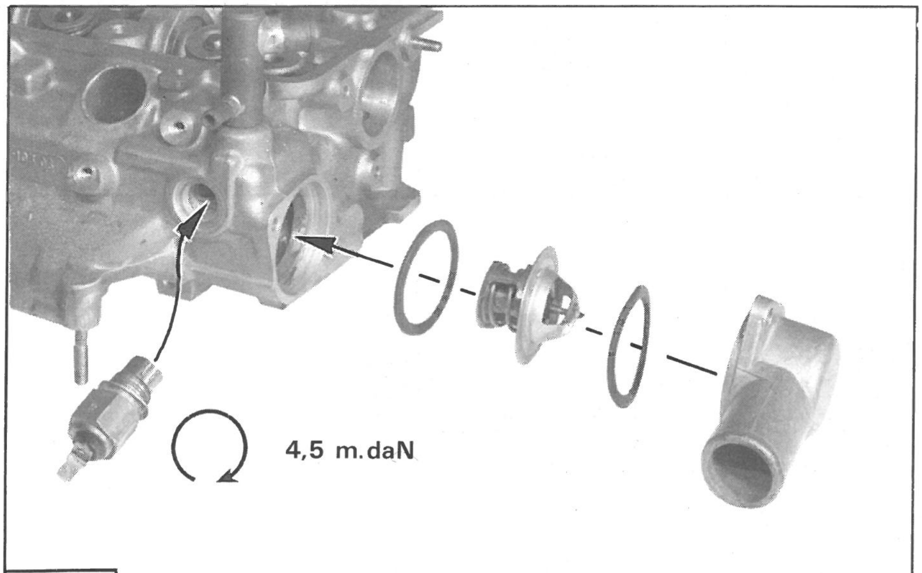
82-522



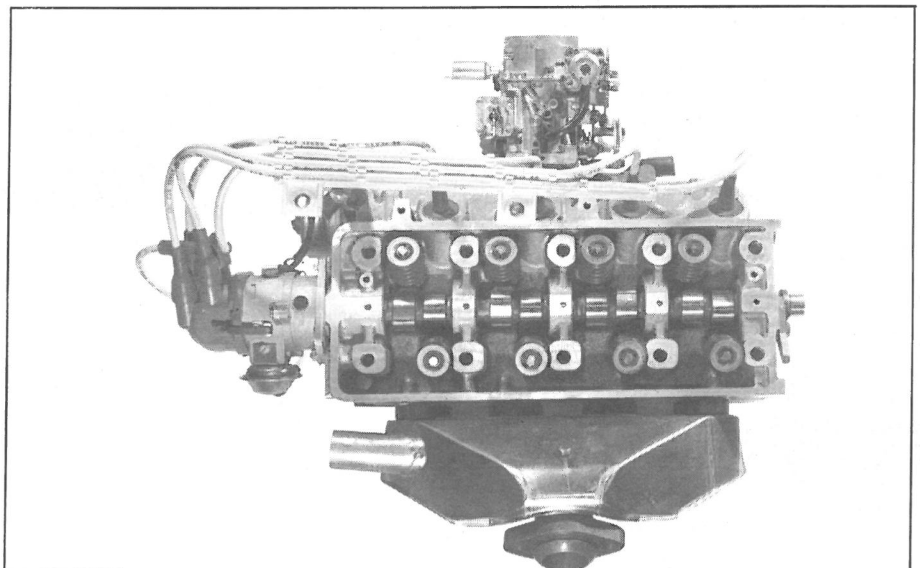
82-518



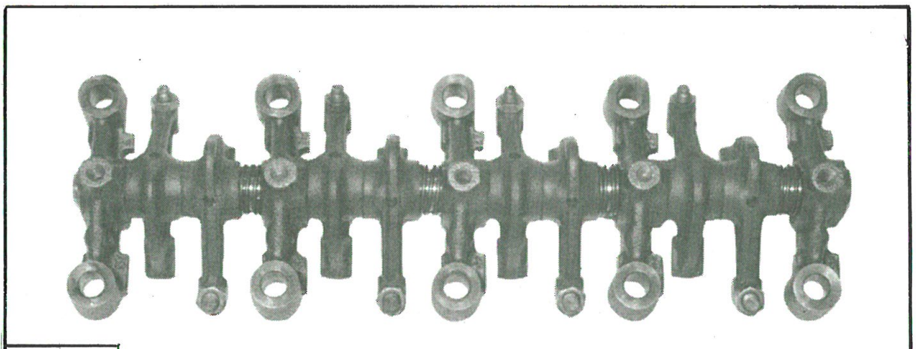
82-520



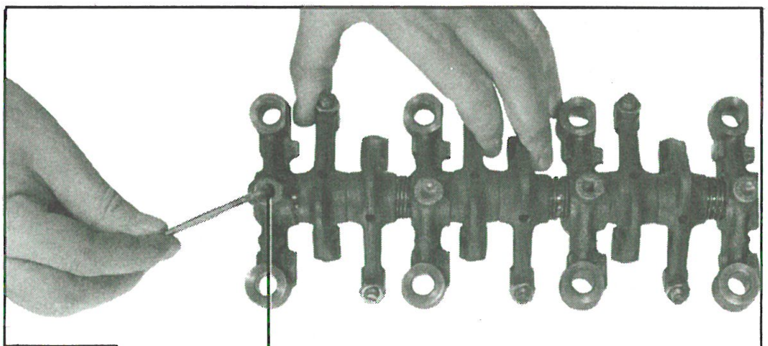
82-523



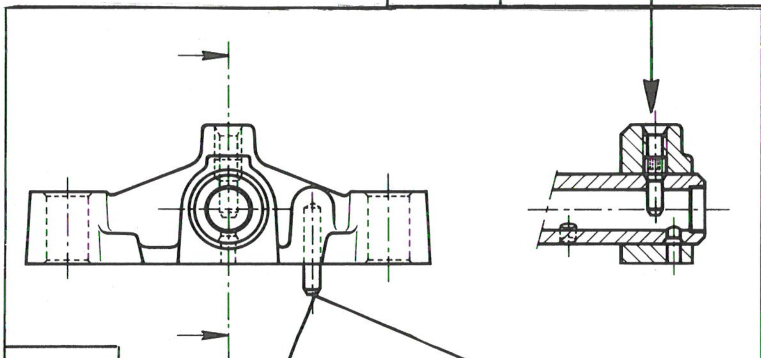
82-513



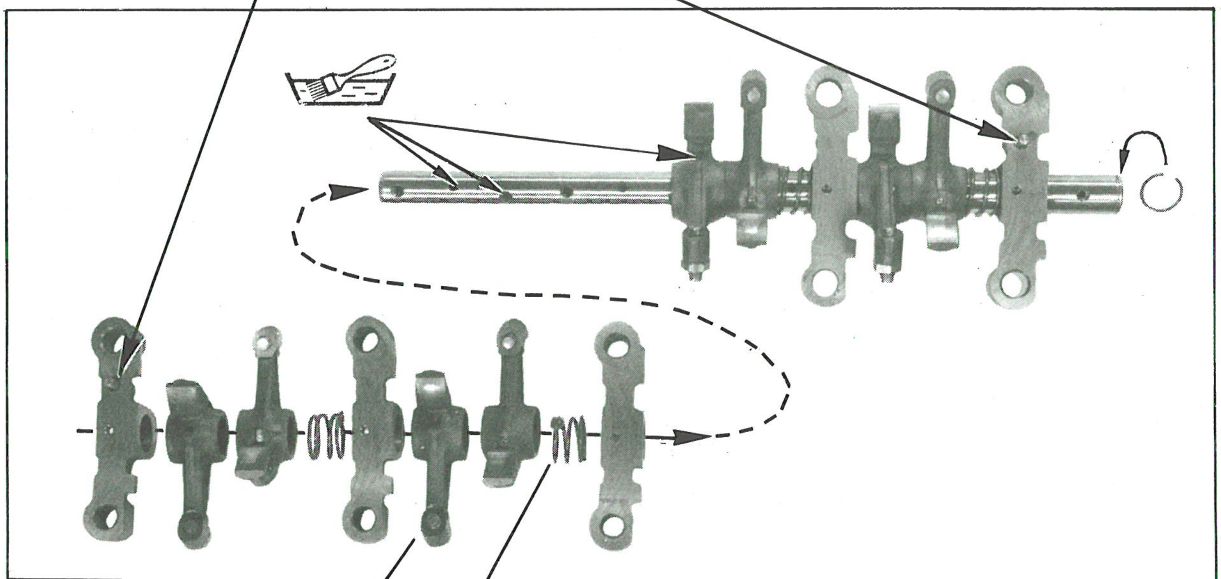
82-533



82-541



BX. 12-3



82-540

CHECKING THE OIL PRESSURE

Rotate the engine until the oil temperature is around **90°.**

Stop the engine.
Remove the spare wheel.
Remove *(on the R.H side of the crankcase)* the oil pressure switch (1) : **Fig. I.**

Position union **4043-T** (copper gasket) fitted with pressure gauge **2279-T** graduated from **0 to 10 bars** and connect a tachometer : **Fig. II.**

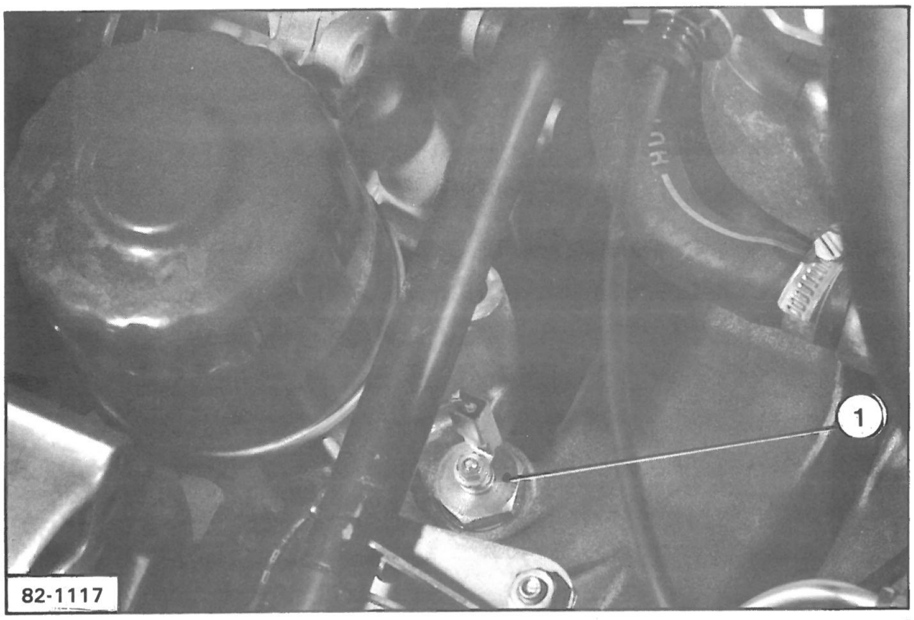
Check the oil pressure.
Rotate the engine and **bring the speed up to 4000 rpm.**
For a new engine, the pressure should be 3 bars min.

Depending on the mileage, there may be a gradual drop in pressure which can reach **0.4 bars.**

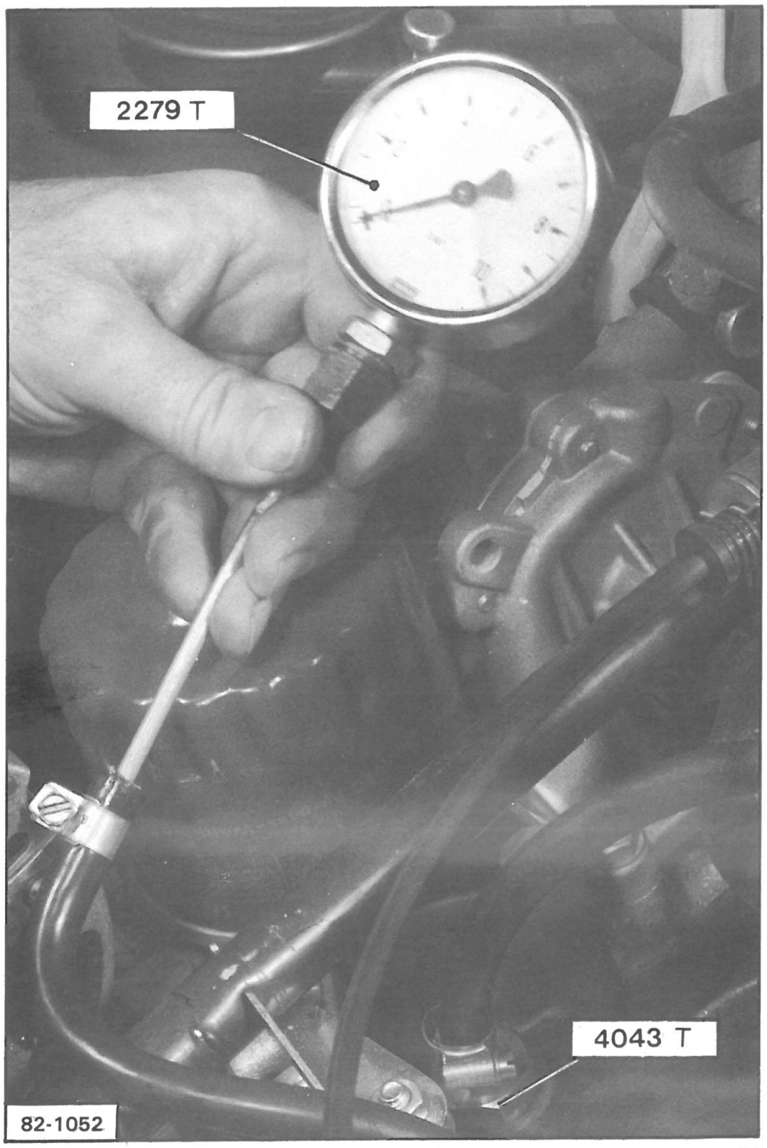
Remove pressure gauge **2279-T**, union **4043-T** and the tachometer.

Fit oil pressure switch (1).
Tightening torque : 2 m.daN *(copper gasket).*
Connect the pressure switch lead.

Check the engine oil level and top up if necessary.



I



II

CHARACTERISTICS AND SPECIAL FEATURES OF THE ENGINE

I. GENERAL CHARACTERISTICS

ENGINE	BX 16
Type (on engine plate)	171 A
Cubic capacity	1580 cc
Number of cylinders	4
Bore	83 mm
Stroke	73 mm
Compression ratio	9.5 : 1
Effective power (ISO)	64.8 kW at 6000 rpm
Effective power (DIN)	90 CV at 6000 rpm
Maximum torque (ISO)	12.7 m.daN at 3500 rpm
Maximum torque (DIN)	13 m.kg at 3500 rpm
Firing order	1 - 3 - 4 - 2 (cylinder No. 1 at engine flywheel side)
Direction of rotation	Clockwise as seen from timing end

Cooling system : Water-cooled, plus anti-freeze all over the year.

Lubrication system : Under pressure, supplied by a gear-type oil pump driven by a chain. Outer oil cartridge fitted with a by-pass.

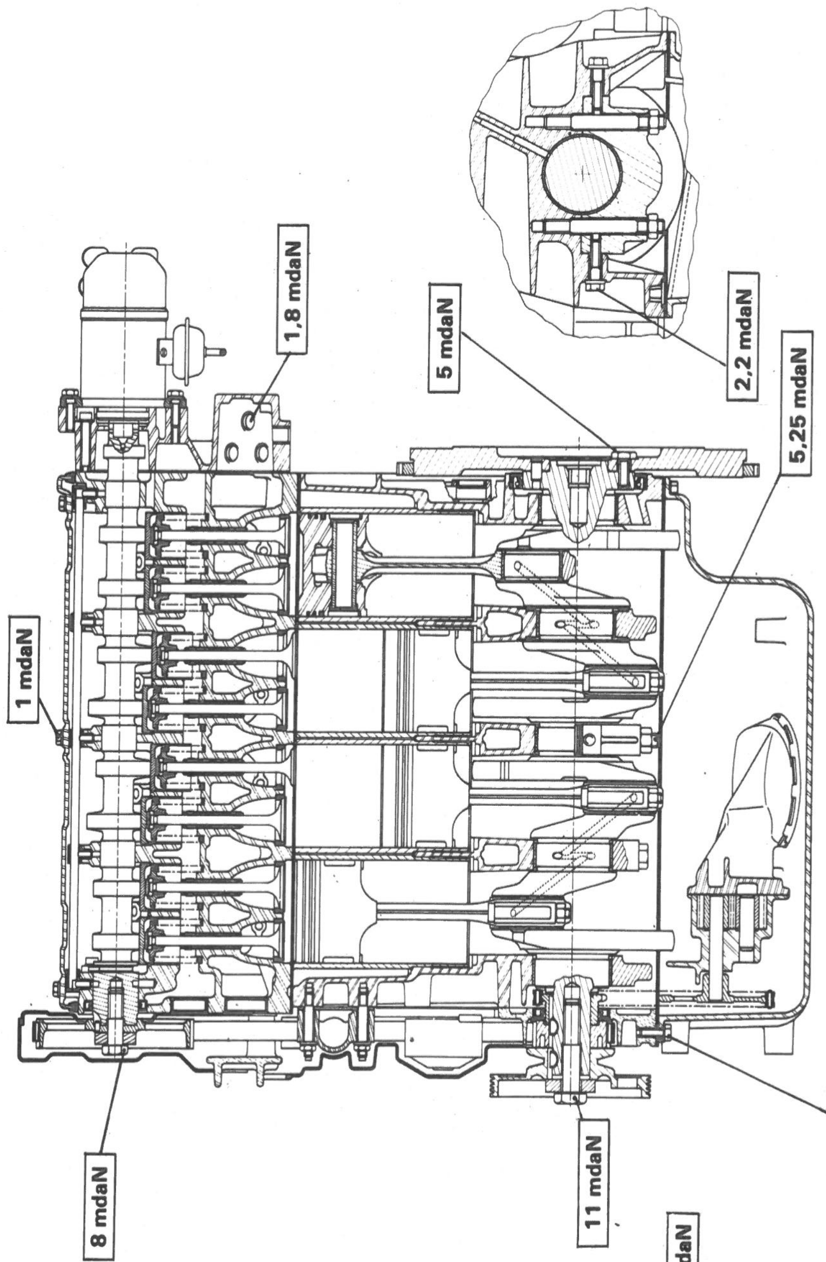
Supply : Petrol pump driven by an eccentric on camshaft.

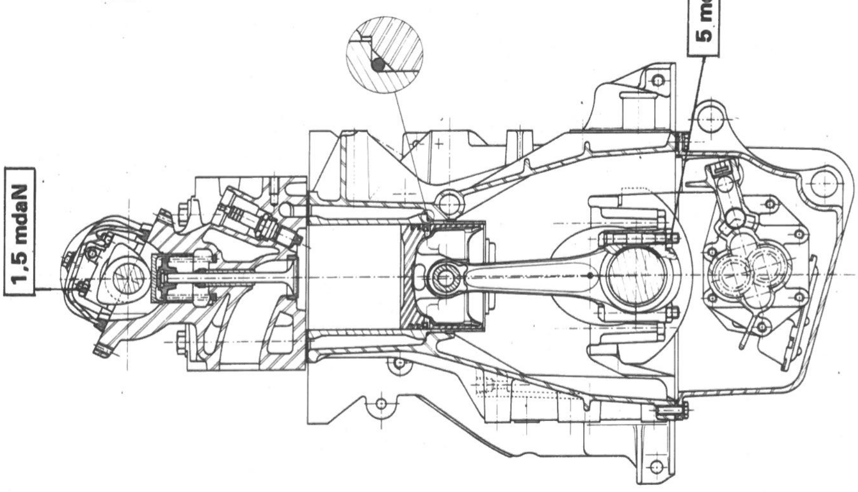
Petrol to be used : R 99 Octane rating (Premium, 4 star).

Ignition : Distributor at camshaft end, horizontally fitted. Conical seating type sparking plugs (without seal), **tightening torque : 1.5 to 2 m.daN.**

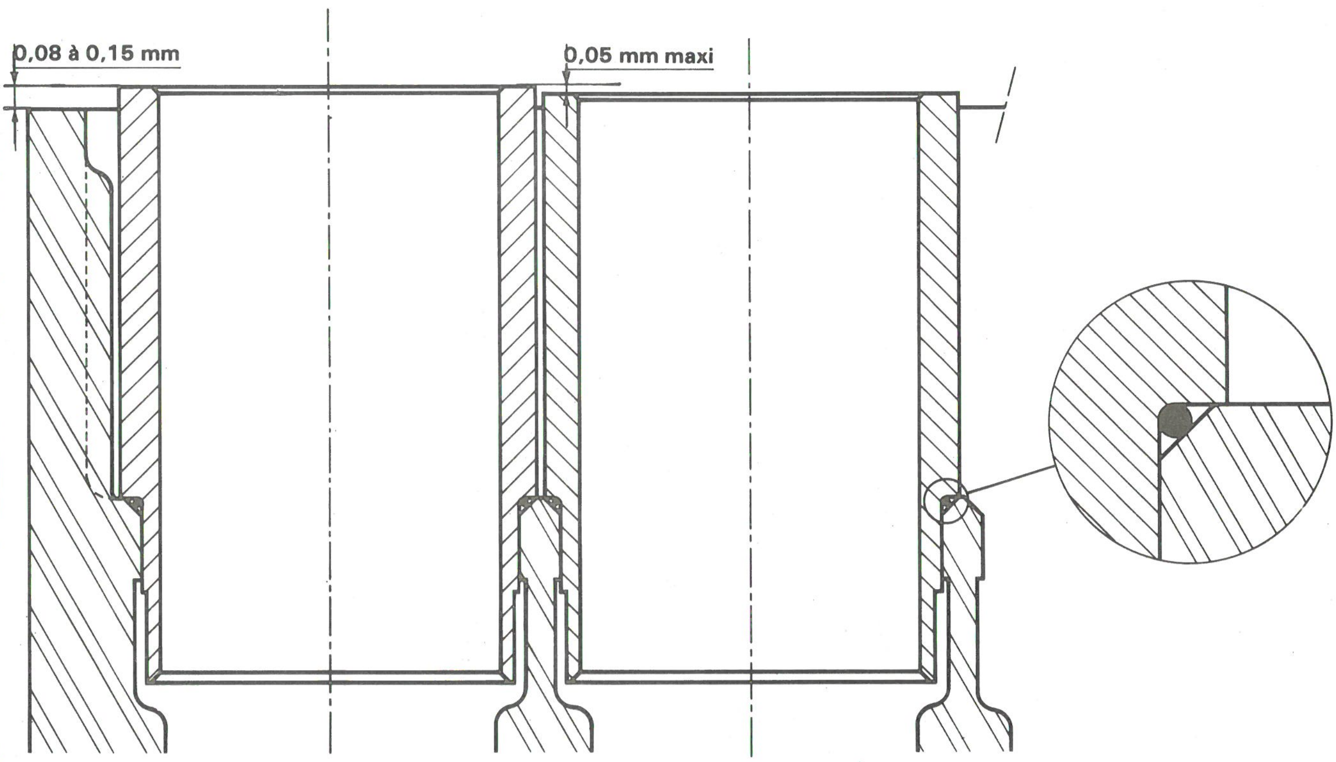
Timing : Overhead camshaft located on the cylinder-head and driven by a belt. Setting of the clearances with pads.

BX 10-1


1,8 mdaN
5 mdaN
2,2 mdaN
5,25 mdaN
1 mdaN
8 mdaN
11 mdaN
2 mdaN

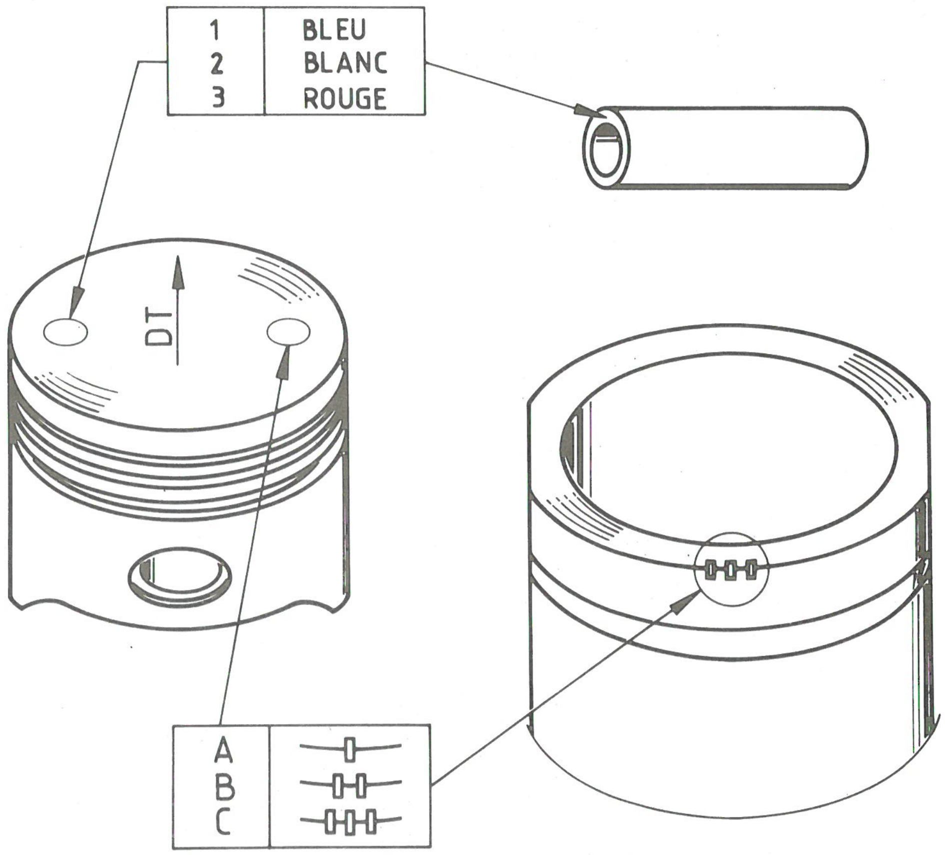

1,5 mdaN
5 mdaN

BX 10-2



BX 11-2

I



BX 12-4

II

II. SPECIAL FEATURES

Crankcase
In light alloy.
Bore of crankshaft bearings .... dia. 63.708 to 63.727

Crankshaft (5 bearings).
Crankshaft end float .... 0.07 to 0.27 mm
Thickness of the adjustment half-rings .... 2.30 - 2.35 - 2.40 - 2.45 - 2.50 mm
Max. out of round of crankpins and journals .... 0.007 mm

	CRANKPINS	JOURNALS
Standard dimensions	dia. $60\,^{0}_{-0.019\text{ mm}}$	dia. $45\,^{-0.010\text{ mm}}_{-0.029\text{ mm}}$
Dimensions after regrinding	dia. $59.7\,^{0}_{-0.019\text{ mm}}$	dia. $44.7\,^{-0.010\text{ mm}}_{-0.029\text{ mm}}$
Standard thickness of bearing	1.842 mm	1.817 mm
Thickness of bearing after replacement	1.992 mm	1.967 mm

Connecting rods :
Bore of connecting rod small ends .... dia. $22\,^{-0.029\text{ mm}}_{-0.041\text{ mm}}$

Tightness between connecting-rod small ends and gudgeon pin .... 0.020 to 0.041 mm

Bore of connecting-rod big ends .... dia. $48.655\,^{+0.016}_{0}$ mm

Liners - Pistons :
- **The tightness of the liner base is ensured by an O-ring seal.**
- **Liner protrusion, Fig. I** *(without O-ring seal)* .... 0.08 to 0.15 mm
- Difference between the height of two liners .... 0.05 mm max.
- Liner piston matching : three classes, marks engraved on the piston and on the liner, **Fig. II.**

- The gudgeon pins are loose fitted in the pistons and tight fitted in the con-rods : three classes, marks engraved on the pistons and paint mark on the gudgeon pins.
- After fitting, the mark on the crown of the piston *(arrow)* should face timing gear.

- Piston offset .... 1.5 mm

Cylinder-head :

- Max. permissible warp .... 0.05 mm

- Tightening : tallow the screw threads before fitting the screws and tighten them following the tightening sequence, **Fig. I :**

A) Tightening the cylinder-head :

1- Pre-tightening .... **6 mdaN**
2- Screw after screw : loosen the screw, then re-tighten it to .... **2 mdaN**
The final tightening angle should be .... **120°**

B) After fitting the cylinder-head, or reconditioning the engine : rotate the engine until the electric fan cuts in, let it cool down 2 hours min.
Loosen screw (1) of the engine mounting, inside the engine unit, **Fig. II.**
Screw after screw : loosen the screw, then re-tighten it to .... **2 mdaN**
The final tightening angle should be .... **120°**
Re-tighten screw (1) of the engine mounting to .... **2.3 mdaN**

Valves	**Angle**	**Head dia. (mm)**	**Stem dia (mm)**	**Length (mm)**	**Dia. of the guide bore**
Inlet	90°	40	$7.98\,^{0}_{-0.015}$	107.49 ± 0.1	$\mathbf{8}\,^{-0.022}_{0}$
Exhaust	90°	32	$7.96\,^{0}_{-0.015}$	106.92 ± 0.1	$\mathbf{8}\,^{-0.022}_{0}$

Valve springs	**Length under load**	**Load (in kg)**
Inlet and exhaust	40.5 mm	41 ± 2.5
Wire dia. : 4.4 mm	30 mm	80 ± 2

Timing :

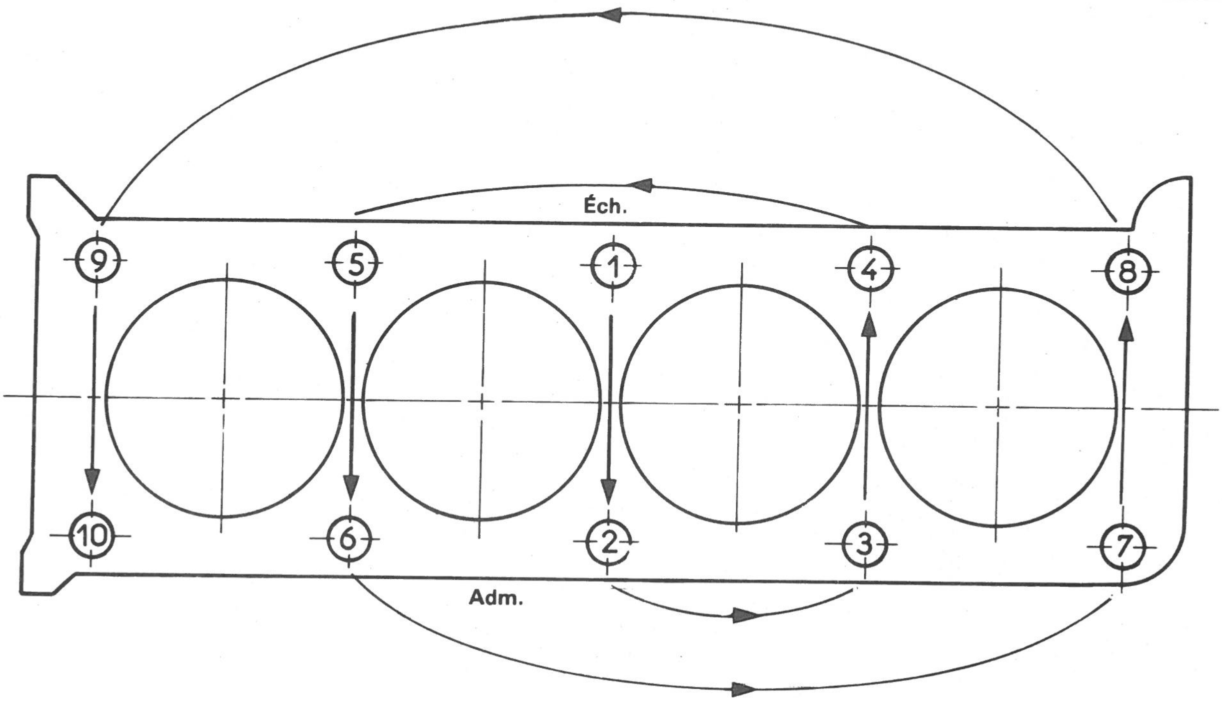
Valve running clearance *(engine cold)*
Inlet : 0.20 ± 0.05 mm
Exhaust : 0.40 ± 0.05 mm

This clearance is obtained using pads of various thicknesses inserted between the push-rod and the valve stem.
Pad thickness : **from 2.225 mm to 3.025 mm** (in steps of 0.025 mm)
from 3.100 mm to 3.550 mm (in steps of 0.075 mm)

ENGINE Type	Valve lift	Before Top Dead Center	After Bottom Dead Center	Before Bottom Dead Center	After Top Dead Center
171 A	10.4 mm	0°	37°	35°	2°

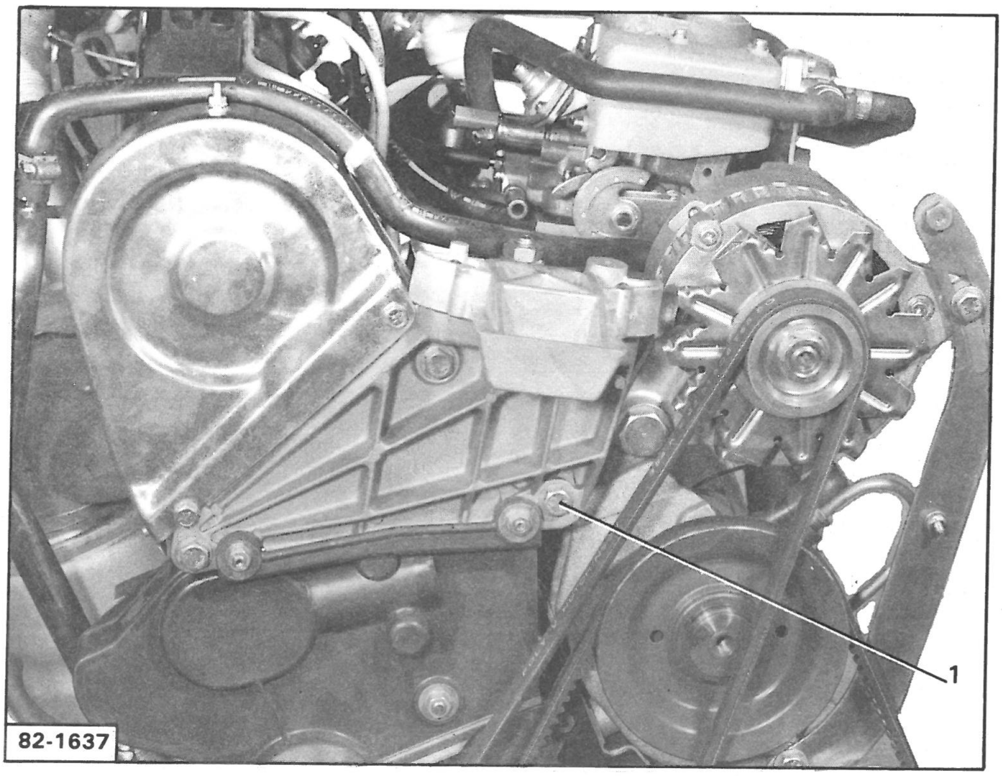
Theoretical setting of the timing diagram with a valve theoretical clearance of 1 mm.

Camshaft : end float *(not adjustable)* .... 0.07 to 0.16 mm



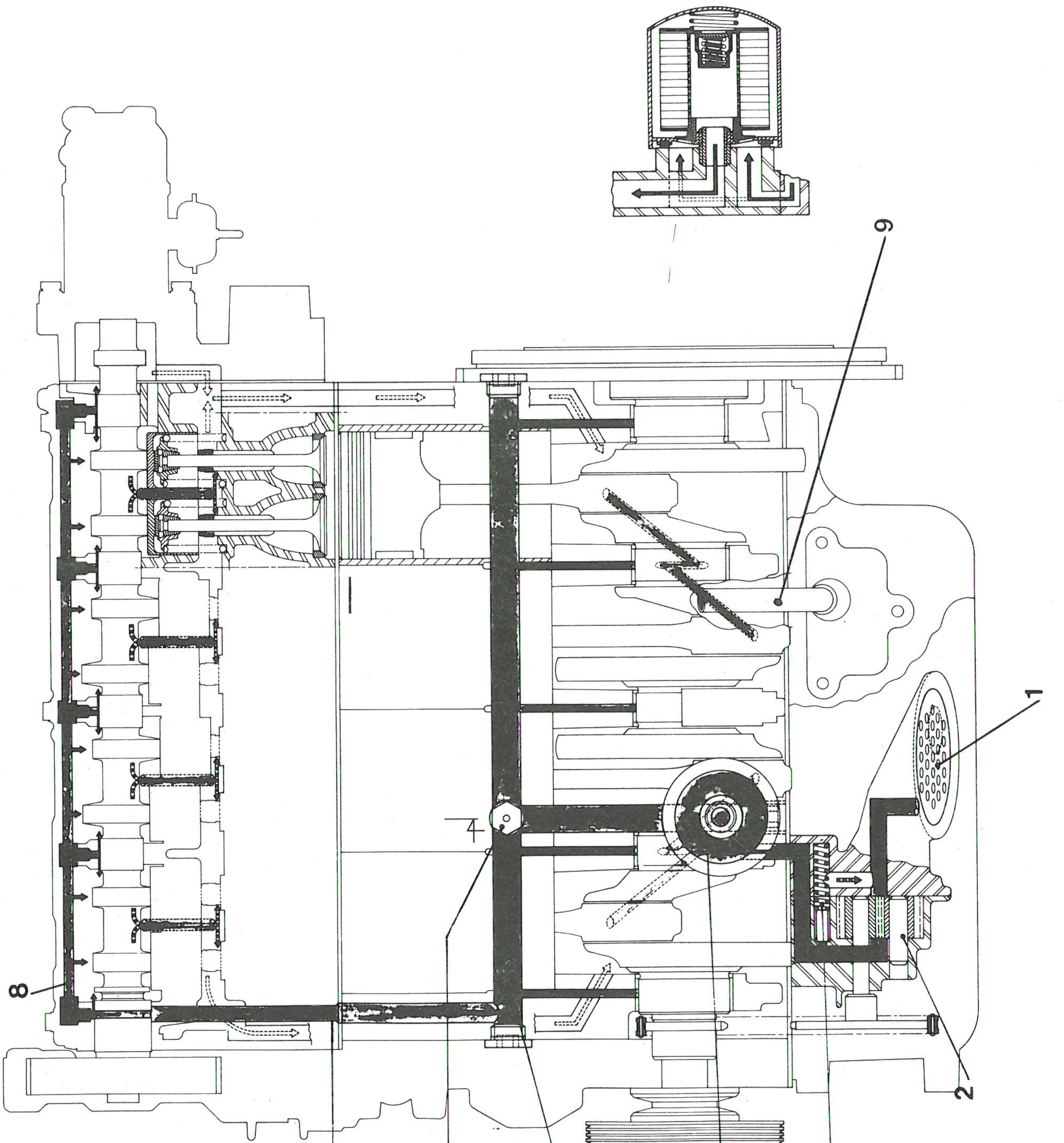
V 11-1

I



82-1637

II


1
2
3
4
5
6
7
8
9

Lubrication circuit :

1. Suction strainer
2. Oil pump
3. Relief valve *(return to pump suction)*
4. Filter cartridge with a by-pass valve
5. Pump supplying the crankshaft bearings and the connecting-rod big ends
6. Oil pressure switch
7. Filter for cylinder-head supply
8. Gallery supplying the bearings and the cams
9. Well for draining the circuit by suction

Oil pressure	3.5 bars at 4000 rpm

Calibration of the pressure switch	Stops operating at	0.8 bars max.
	Operates	Between 0.58 and 0.44 bars

Oil cartridge reference (with by-pass) :
- PURFLUX LS 468 B.

Oil recommended :
TOTAL GOLD 15 W 40 (G.B.)
TOTAL GTS 15 W 40 or TOTAL GTi ville route 10 W 30 (France)

Below - 10° C : HD 3-C 20 W 20 (G.B.)
TOTAL GTi ville route 10 W 30 (France)

ENGINE type		171 A
Capacity (in litres)	New engine	5.2
	After draining	5
	Between min. and max.	1.5

Cooling circuit :

1. Switch for water min. level
2. Radiator bleed screw
3. Radiator
4. Electric fan
5. Filler plug with calibration check valve (1 bar)
6. Thermal switch for electric fan cutting-in (2 speeds)
7. Inlet chamber
8. Outlet pipe
9. Water pump
10. Choke
11. Carburettor
12. Bleed screw
13. « Aerotherme » control box
14. « Aerotherme »
15. Bleed screw
16. Thermostat (Calorstat)
17. Engine coolant warning temperature switch (112°) *(warning lamp lights on), lead with yellow plug*
18. Engine coolant temperature switch (105°) *(warning lamp flashes), lead with blue plug*
"a" Crankcase drain plug on water inlet housing

Radiator surface . . . . 16 dm^2

Circuit capacity (approx.) . . . . 7 litres

Proportion of anti-freeze *(all over the year)* . . . . 28% (for a protection at - 15° C)

Thermostat, reference . . . . V 5348

Starts opening at . . . . 82° C

Fully opens at . . . . 93° C

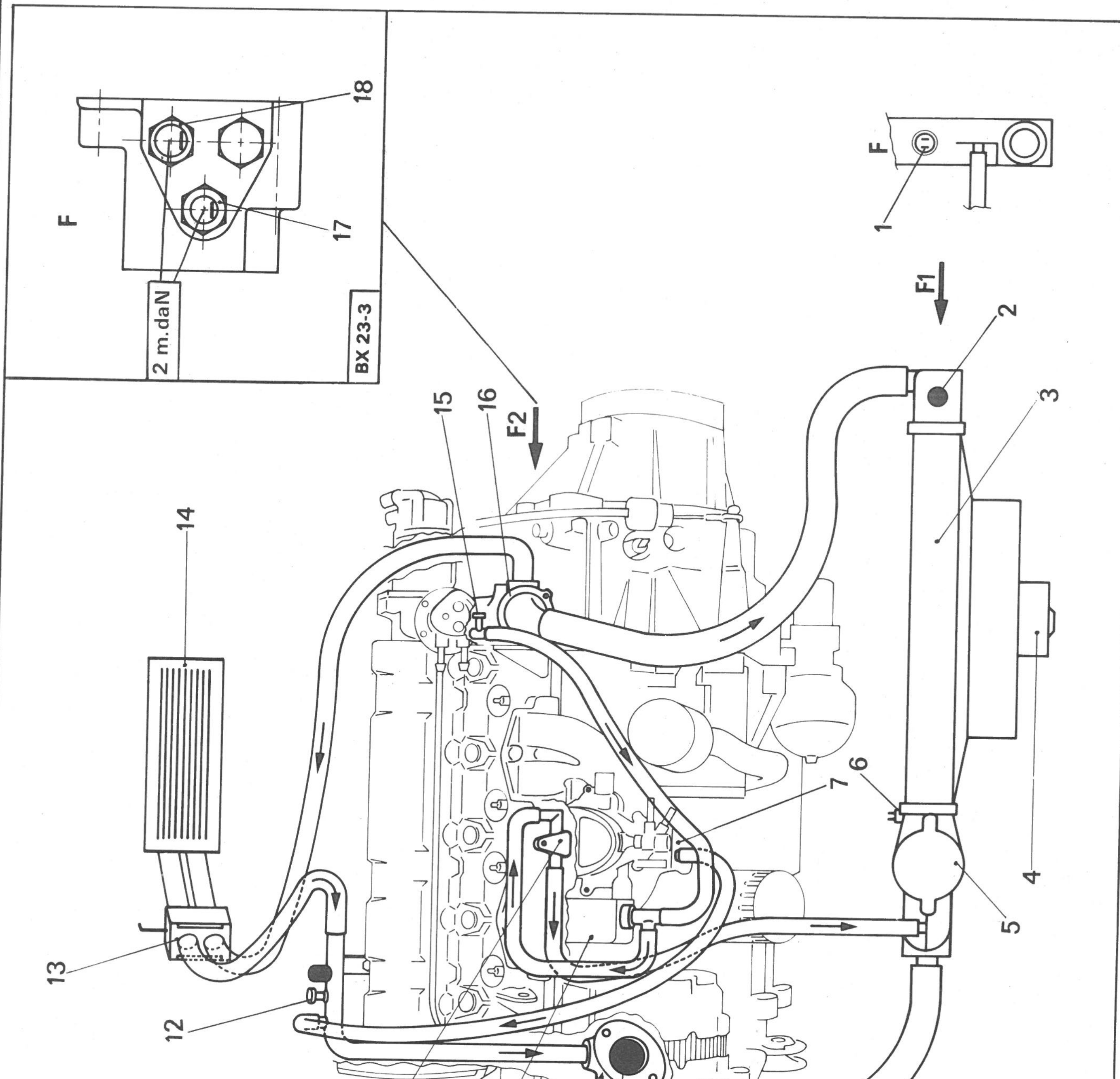
Min. stroke . . . . 7.5 mm

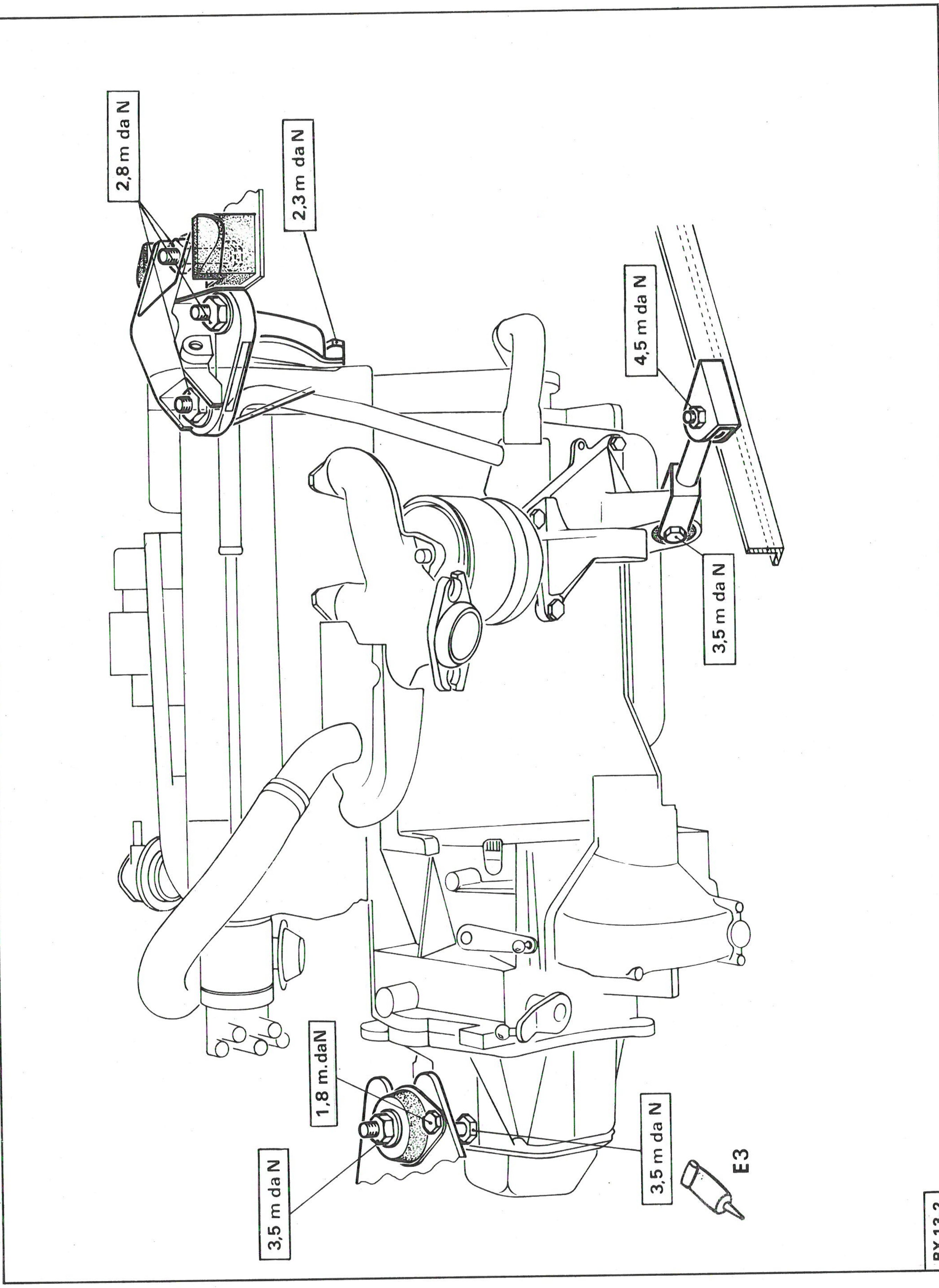
Radiator plug (calibration) . . . . 1 bar

Engine coolant warning temperature switch . . . . 110° C to 114° C *(Yellow plug)*

Engine coolant temperature switch . . . . 103° C to 107° C *(Blue plug)*

Thermal switch for electric fan cutting-in :
First speed . . . . 84° C to 90° C
Second speed . . . . 90° C to 96° C


F
18
17
2 m.daN
BX 23-3
F
1
F1
2
3
4
5
6
7
F2
15
16
14
13
12
11
10
"a"
9
F
8
F1
F2
BX 23-2


2,8 m da N
2,3 m da N
4,5 m da N
3,5 m da N
1,8 m.daN
3,5 m da N
3,5 m da N
E3
BX 13-2

Engine-gearbox suspension (3 points).

R.H. mounting : fixed on both the cylinder-head and the crankcase.

L.H. mounting : fixed on the gearbox casing.

Lower mounting : torque link fixed on the crankcase.

III. TOOLS RECOMMENDED

273-T : R.P. Ref. : OUT 100 273-T
Spanner for drain plug

2 8301-T : R.P. Ref. : OUT 128 301-T
Release handle for plug spanner

2 8303-T : R.P. Ref. : OUT 128 303-T
Plug spanner

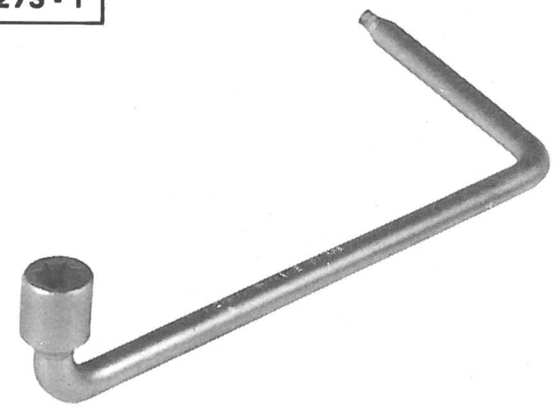
8 1403-T : R.P. Ref. : OUT 181 403-T
Spanner for oil filter cartridge

Op. XB.16 - 220-0 : Checking oil pressure

2279-T : Pressure gauge graduated from 0 to 10 bars

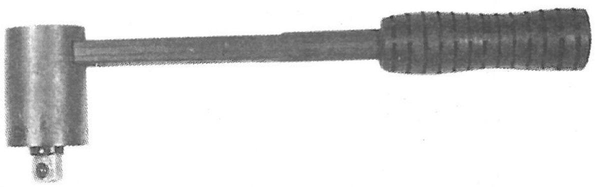
7001-T : R.P. Ref. : 107 001-T
Union for oil pressure take-off point

273 - T



79-257

2 8301 - T

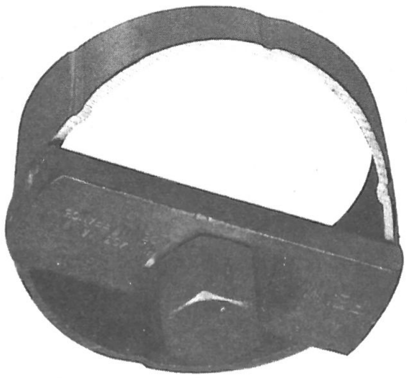


78-752

2 8303 - T

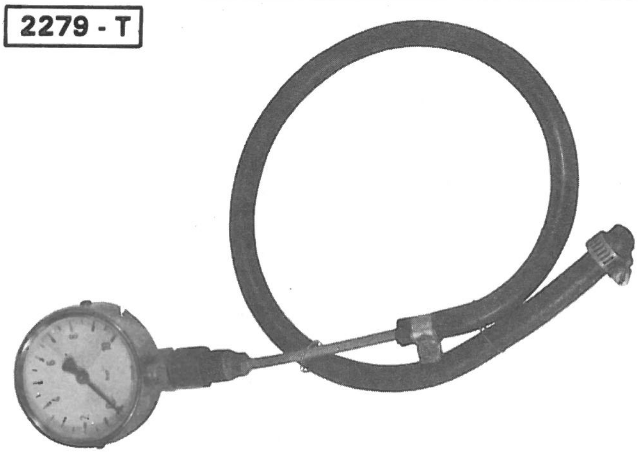
78-752

8 1403 - T



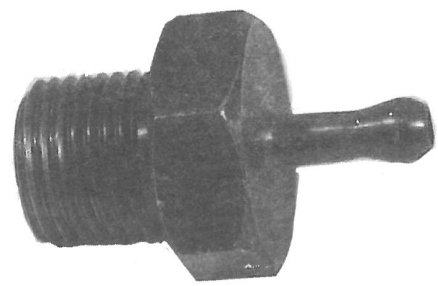
78-325

2279 - T



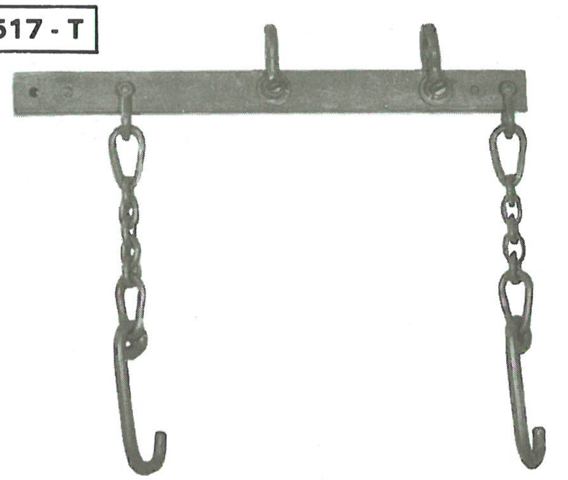
82-590

7001 - T



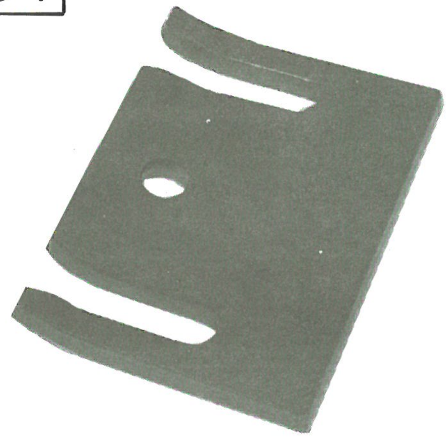
82-1901

2517 - T



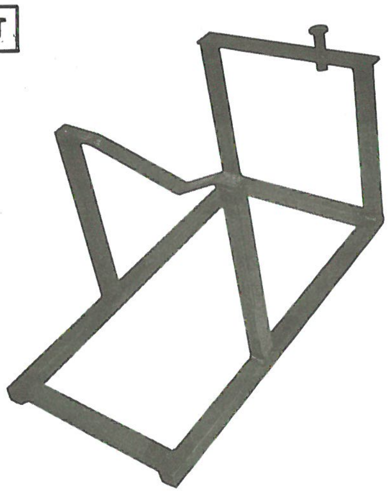
13-555

7005 - T



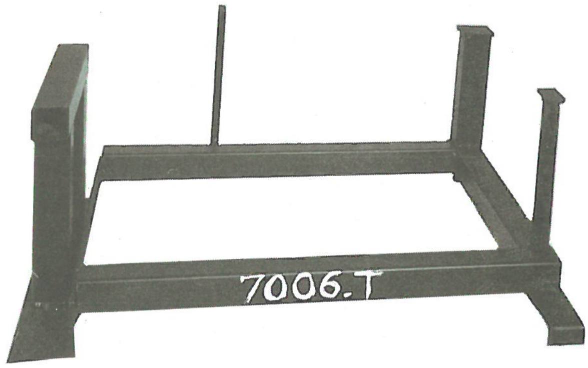
82-1660

6022 - T



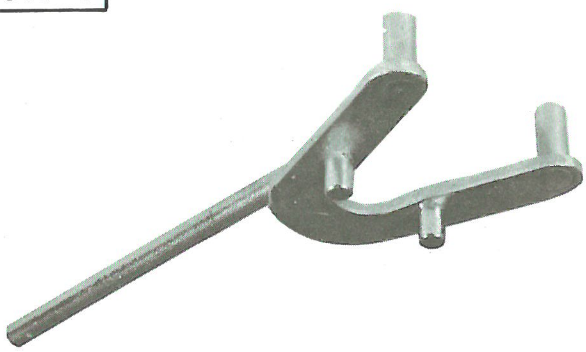
79-481

7006 - T



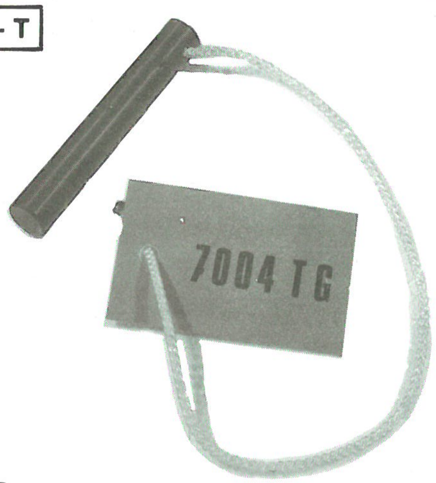
82-1928

6016 - T



79-256

7004 - T



82-1953

Op. XB.16 100-1 : Removing and fitting an engine-gearbox unit

2517-T : Sling for lifting the engine gearbox unit

7005-T : R.P. Ref. : OUT 20 7005-T
Support bracket for removing and fitting the engine-gearbox unit

6022-T : R.P. Ref. : 20 6022-T
Engine support

7006-T : R.P. Ref. : OUT 30 7006-T
Intermediate engine support (to be used with **6022-T**)

Op. XB 122-4 : Working on timing gear

6016-T : R.P. Ref. : OUT 30 6016-T
Tool for locking the timing pinions in place

7004-T : R.P. Ref. : OUT 30 7004-T
G : Pin for timing adjustment

Op. XB.16 - 100-3 : Reconditioning an engine

1671-T : 12 mm dia. inertia and expanding puller (for crankshaft bush)

1713-T : Mandrel for centering clutch disc

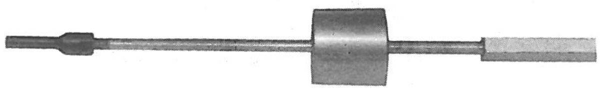
2437-T : Dial gauge

3052-T : Mandrel for fitting crankshaft bush

6016-T : R.P. Ref. : OUT 30 6016-T
Tool for locking the timing pinions in place

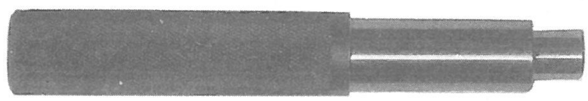
6021-T : R.P. Ref. : OUT 30 6021-T
Support for removing and fitting gudgeon pins

1671 - T



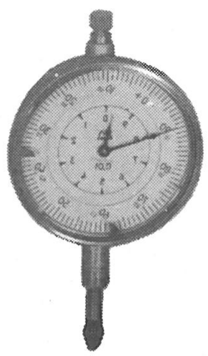
76-923

1713 - T



12-694

2437 - T

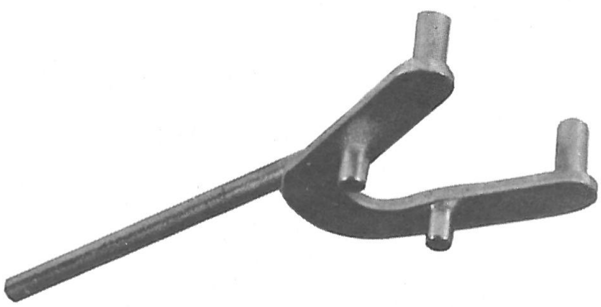


12-827

3052 - T

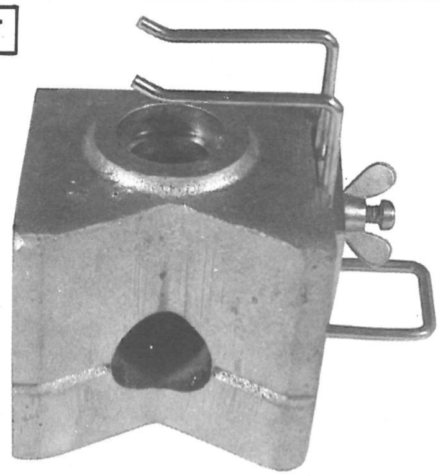
76-923

6016 - T



79-256

6021 - T

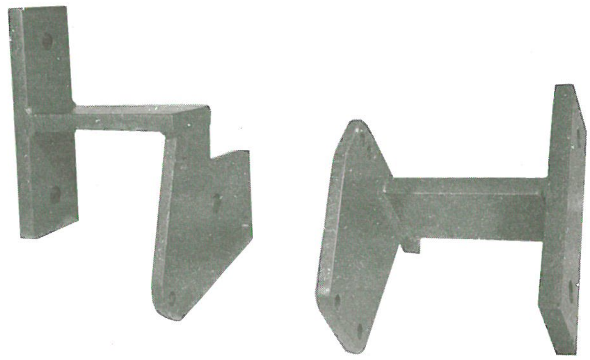


79-258

2509 - T

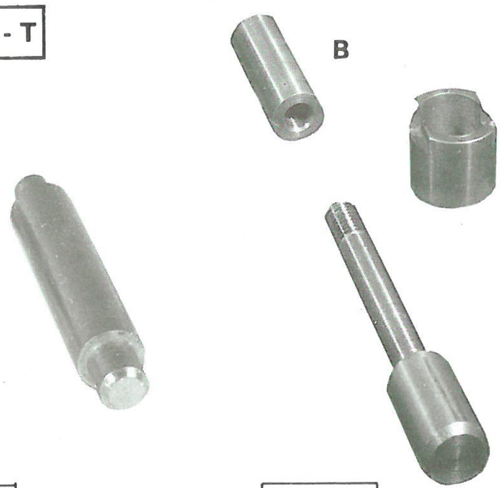
12-612

7002 - T



82-1902

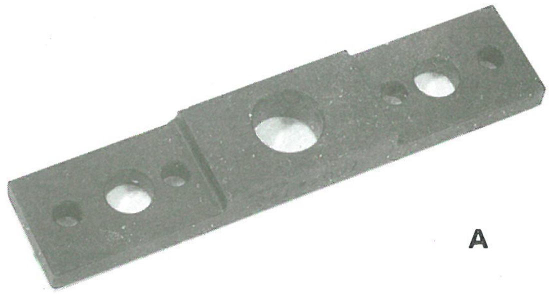
7003 - T



79-255

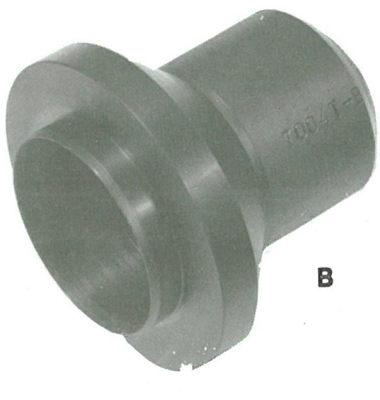
82-1898

7004 - T



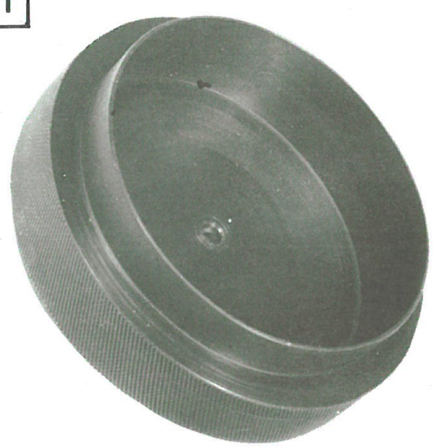
82-1954

7004 - T



82-1957

7004 - T



82-1950

2509-T : Engine support stand

7002-T : R.P. Ref. : OUT 307002-T
Engine support, to be used with support stand **2509-T**

7003-T : R.P. Ref. : OUT 30 7003-T
B : Spindles for removing and fitting 22 mm dia. gudgeon pins

7004-T : R.P. Ref. : OUT 30 7004-T

ENGINE KIT :
A : Oil seal puller

B : Mandrel for fitting the crankshaft oil seal, at timing end

C : Mandrel for fitting the crankshaft oil seal, at engine flywheel end

7004-T : KIT (cont.)
E : Mandrel for fitting the camshaft oil seal

F : Mounting clamp for rear bearing O-ring seals

G : 10 mm dia. pin for timing adjustment

750-T : R.P. Ref. : OUT 30 0750-T
Fixture for fitting piston rings

4069-T : R.P. Ref. : OUT 20 4069-T
Graduated quadrant for cylinder-head tightening

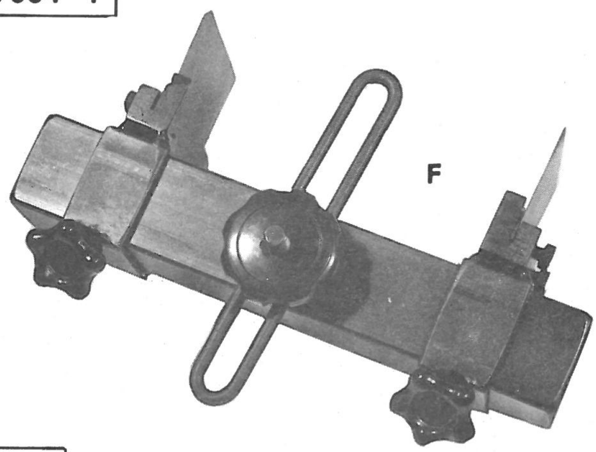
6012-T : R.P. Ref. : OUT 30 6012-T
Toothed sector for locking engine flywheel in place

7004 - T

E

82-1956

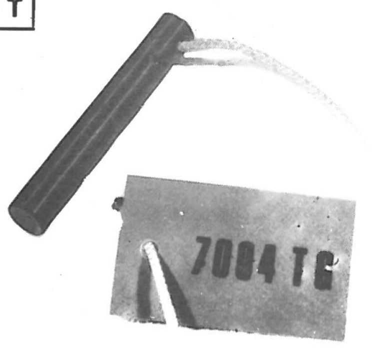
7004 - T



F

82-1955

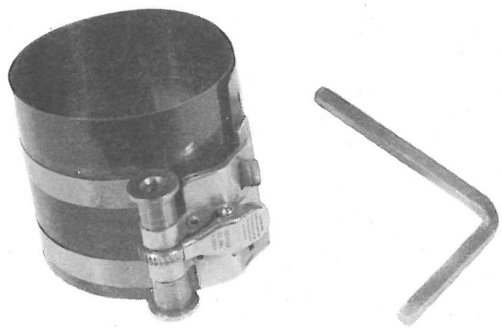
7004 - T



G

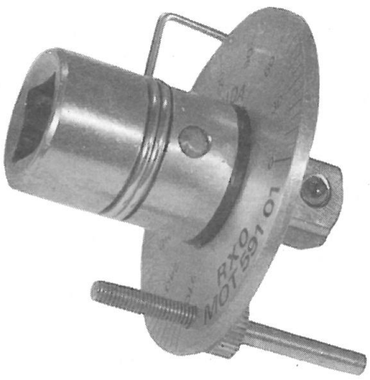
82-1953

750 - T



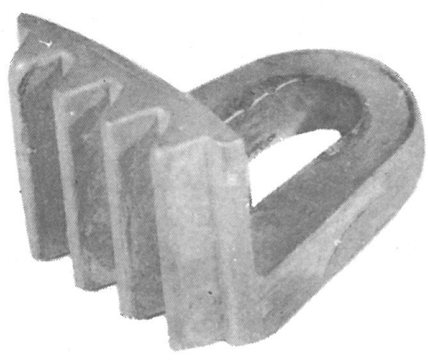
81-1371

4069 - T



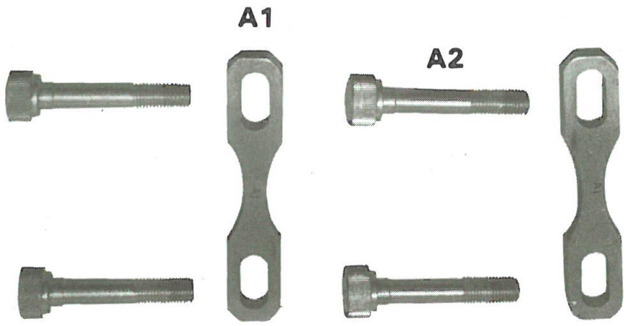
82-1983

6012 - T



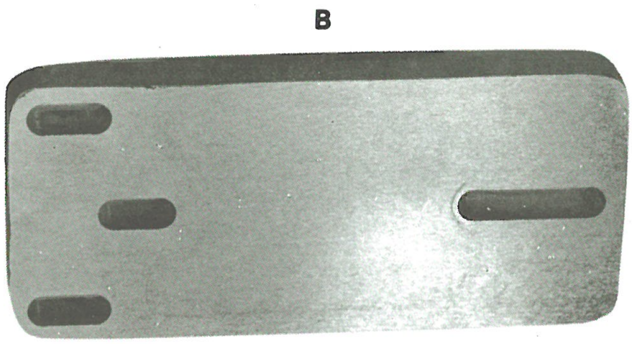
79-252

8 0132 - T



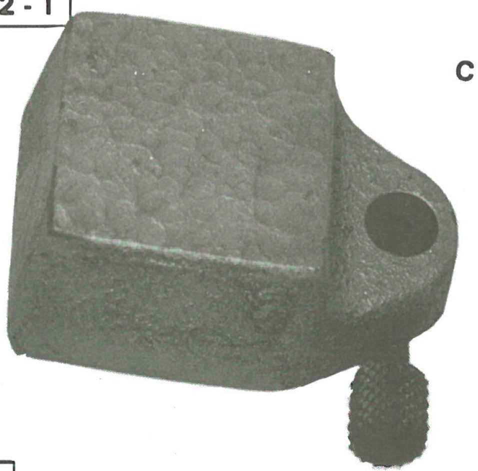
78-329

8 0132 - T



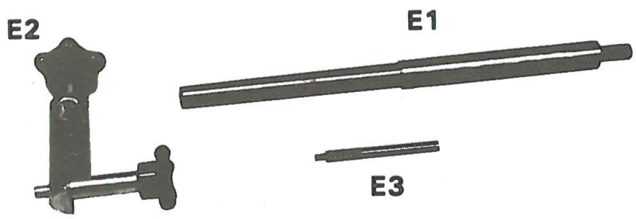
78-324

8 0132 - T



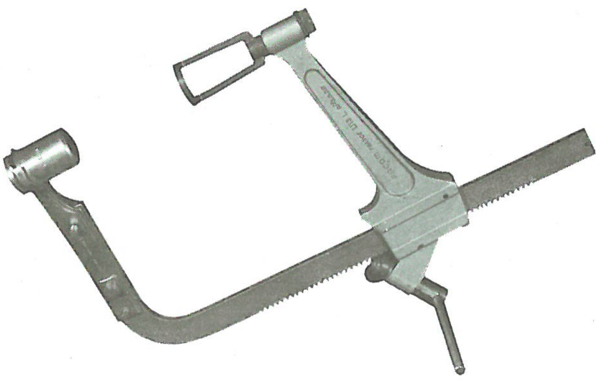
78-332

8 0132 - T



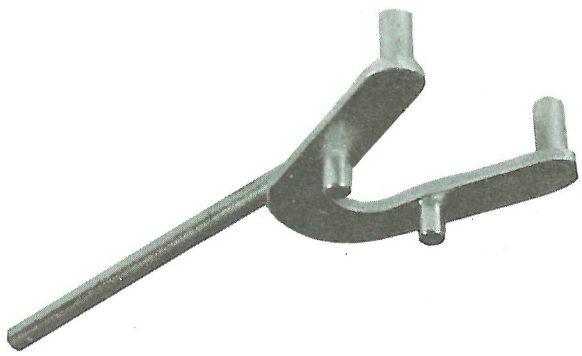
78-328

4024 - T



14029

6016 - T



79-256

8.0132-T : R.P. Ref. : OUT 38 0132-T

KIT

A1 : Liner holding clamps

A2 : Bolts

B : Plate for checking liner protrusion

C : Dial gauge support

E : Dial gauge equipment for checking crankshaft end float, comprising :
E1 : Support rod
E2 : Dial gauge holder
E3 : Extension piece

Op. XB.16.112-3 : Reconditioning a cylinder-head

4024-T : Spring universal compressor

6016-T : R.P. Ref. : OUT 30 6016-T
Tool for holding timing pinions in position

7004-T : ENGINE KIT

E : Mandrel for fitting the camshaft oil seal

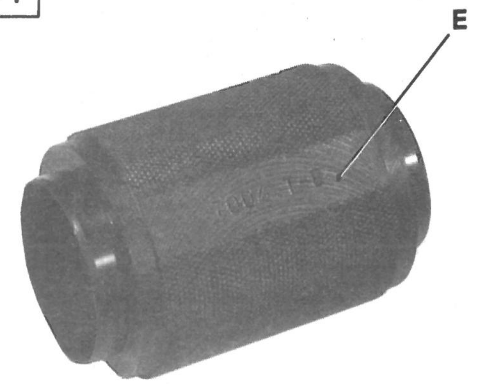
V.S.I.T. : Tool for removing and fitting the seals of the valve stems

4067-T : ENGINE KIT for C 25 with petrol engine

Z : Reference 8.0129 ZZ
Bush of 19 mm across flats for fitting the camshaft oil seal on the vehicle

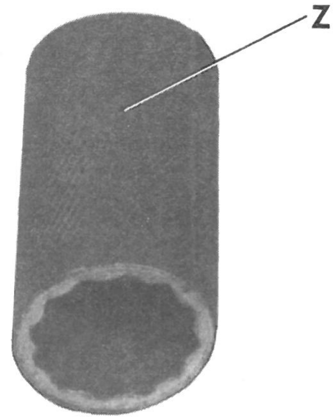
DB : Set of two levers for disengaging the cylinder-head

7004 - T



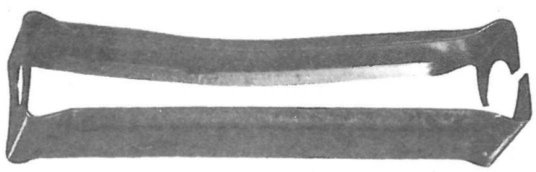
82-1956

4067-T



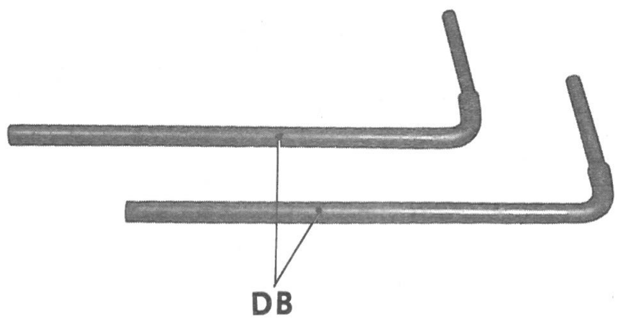
81-983

V.S.I.T.



80-652

4067-T



81-980

REMOVING AND FITTING THE ENGINE-GEARBOX UNIT

REMOVAL.

Chock the front of the vehicle, wheels hanging free, then remove the wheels.
Depressurize the hydraulic circuit.
(See Op. XB. 390-00, par. 5).
Fix the bonnet vertically *(pay attention to the windscreen wiper).*

Drain the cooling circuit.
Open the bleed screws to facilitate the draining.

Uncouple the L.H. drive-shaft, Fig. I and II :
Free the lower wheelarm from the ball-joint.
Use the ball-joint puller **1892-T** (leave the nut in place to protect the ball-joint stem).
Uncouple link-rod (1) from the anti-roll bar.
Push the swivel apart and release the drive-shaft from the gearbox *(be careful, a slight flow of oil is possible).*

Tools 7101-T.N and M should, without fail, be set in the differential outlet, Fig. III, in order to prevent the planetary gears from rotating when removing the R.H. drive-shaft.
The tools should remain in position as long as the R.H. drive-shaft is not set back in the differential.

Remove the R.H. drive-shaft :
(See Op. XB. 372-1).

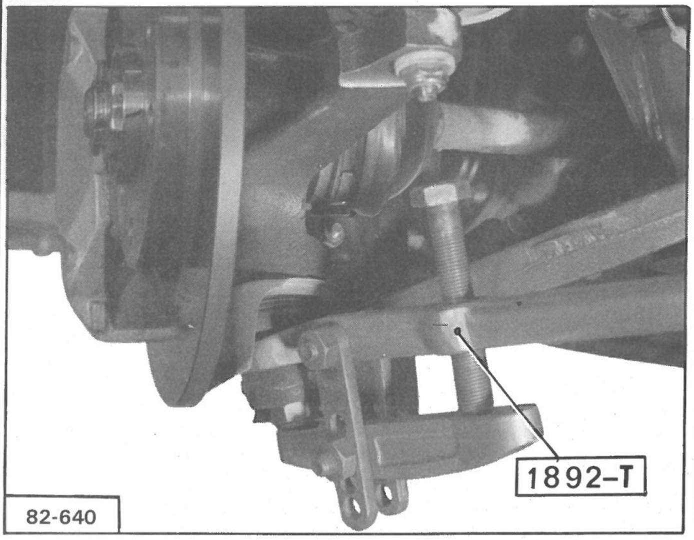
Remove, Fig. IV and V :
- the battery,
- the air filter and supporting lug (8),
- support (4) and the radiator.

Uncouple Fig. IV :
- the accelerator cable,
- the heater hoses,
- petrol supply pipes (2) and return pipes (3) *(release them from the engine by sliding them under the heater supply pipe),*
- the suction hydraulic pipe from H.P. pump (5),
- the hydraulic pipe, at pressure-regulator outlet *(fit a plug on each orifice).*

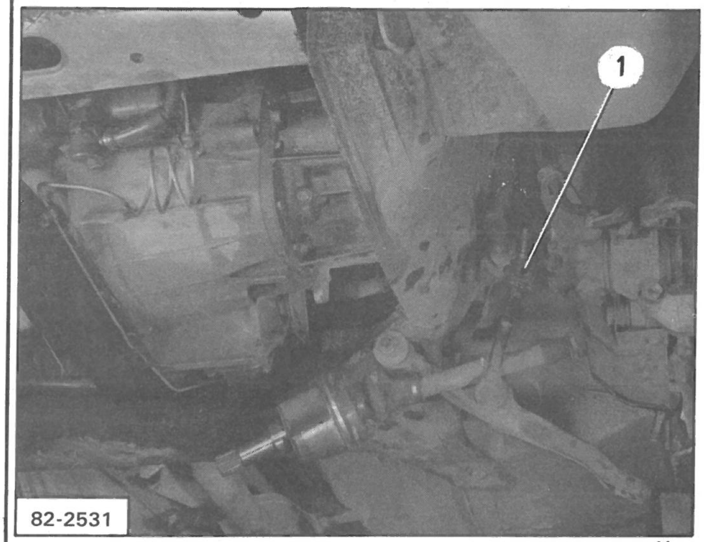
Remove support lug (6).

Disconnect, Fig. V :
- connection blocks (9),
- the distributor wiring harness,
- the coil wiring harness,
- earth cable (7) from the gearbox.

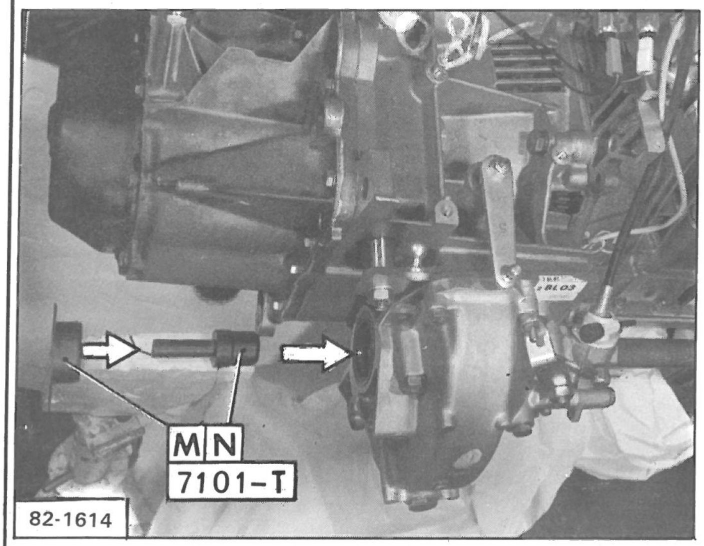
Disconnect, Fig. V :
- the speedometer cable,
- the clutch control cable *(keep link-rod (10).*


1892-T
82-640

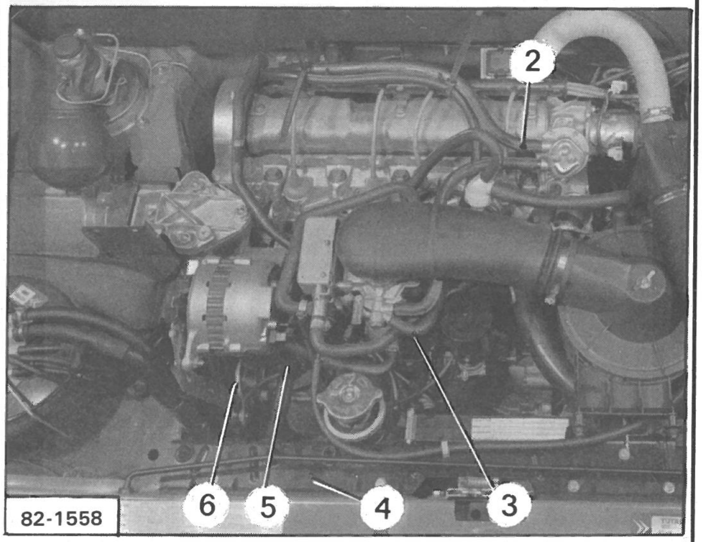
I


1
82-2531

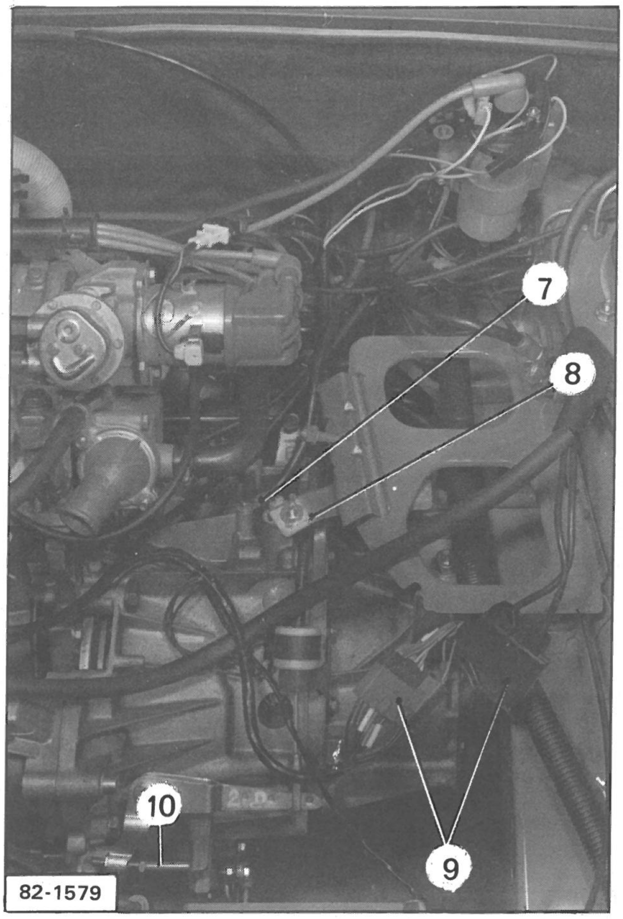
II


M N
7101-T
82-1614

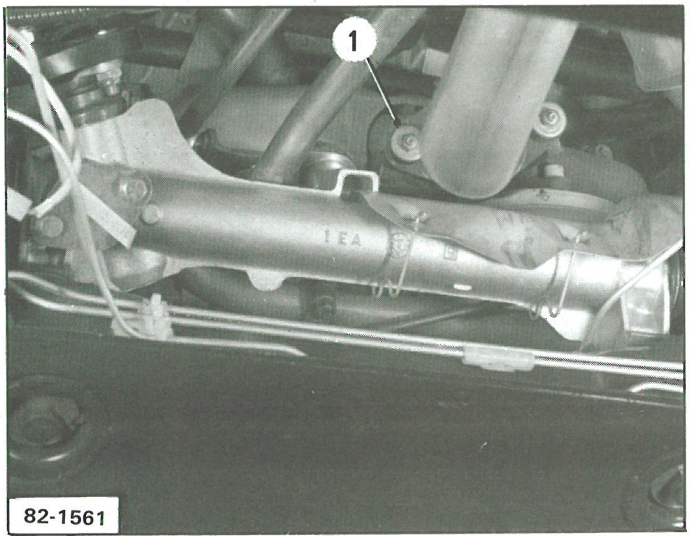
III


2
6 5 4 3
82-1558

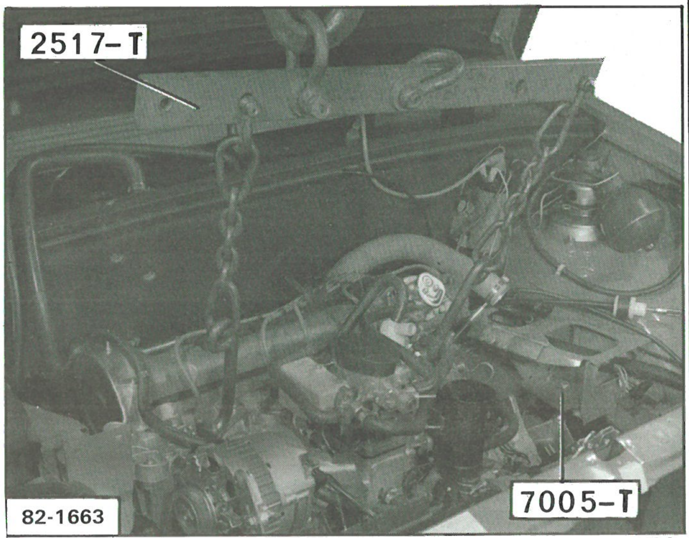
IV


7
8
10
9
82-1579

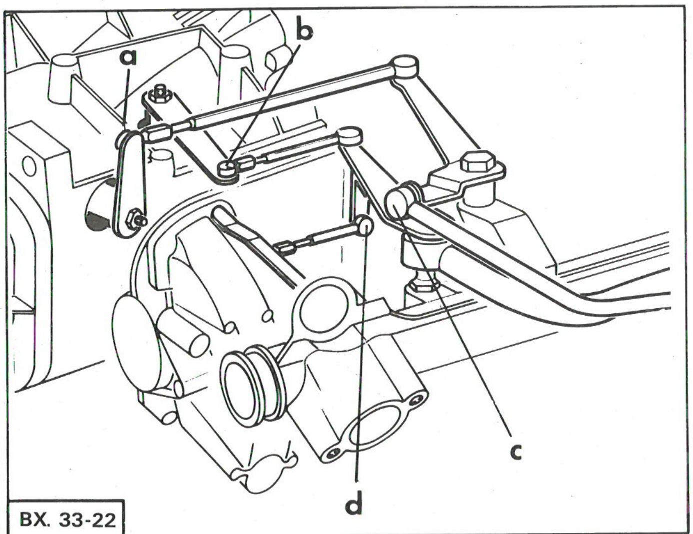
V



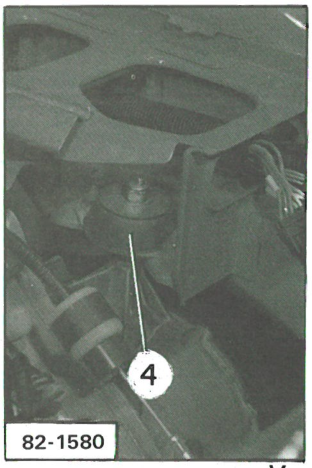
I



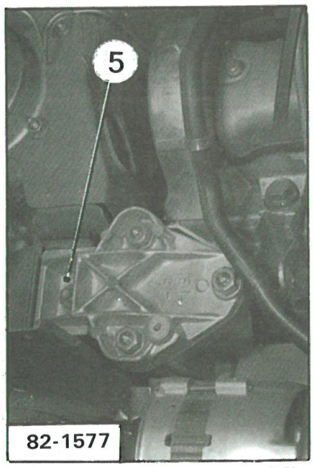
IV



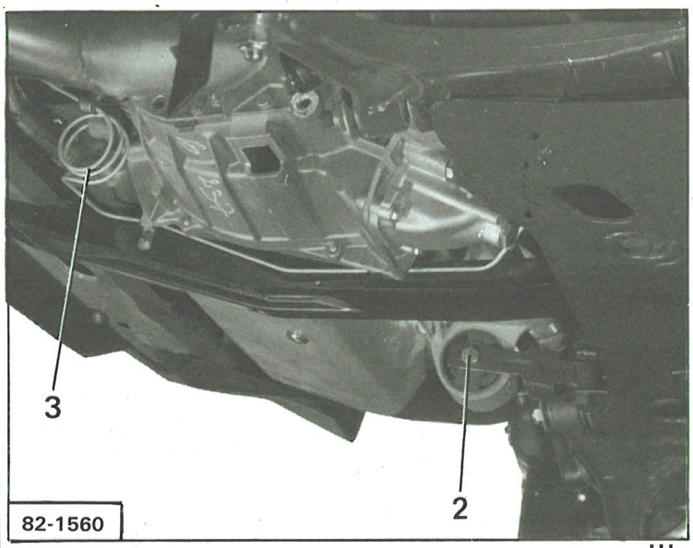
II



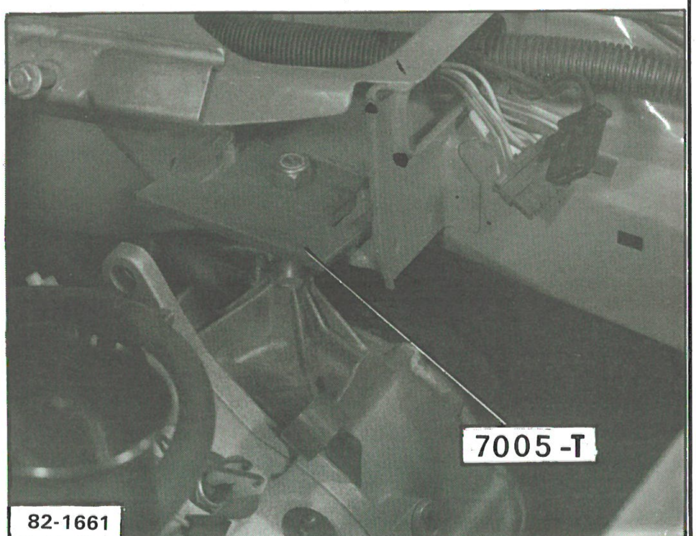
V



VI



III



VII

Uncouple exhaust ball-joint (1) flange, **Fig. I.**

Uncouple, Fig. II :
- the three link-rods controlling the gears at **« a », « b »** and **« d »,**
- the gear change control at **« c »**.

Orientate the return levers which should be parallel to the steering.

Uncouple the general supply pipe (3) from the pressure-regulator and from its flanges, **Fig. III.**

Remove screw (2) of the torque link.

Position sling **2517-T** as indicated **Fig. IV**
The sling should be tightened, remove support (4), **Fig. V** at gearbox end and replace it by support plate **7005-T Fig. VII,** the plate should be loose fitted on the axle.

Remove support nut (5) at engine end, **Fig. VI.**

Fit a protective plate **A** between the engine and the height corrector in order not to deteriorate the corrector dust-cover, **Fig. I.**

Remove the engine-gearbox unit, tilted by 45°, **Fig. II.**

Fit the engine-gearbox unit on supports **7006-T** and **6022-T.**

FITTING.

Position support plate **7005-T** which should be loose fitted on the axle, and sling **2517-T.**

Protect the height corrector and orientate the gear change return levers (1) and (2) which should be parallel to the steering, **Fig. I.**

Offer up the engine tilted by 45°. Position plate **7005-T** on the gearbox support fixed on the body and fit the assembly.

Fit support (5) at gearbox end, **Fig. IV** and spindle (3) of the torque link, **Fig. III.**

Tightening torque :
Torque link and gearbox support : **3.5 m.daN**
Support, at engine side : **2.8 m.daN**

Couple :
- the exhaust ball-joint flange, **Fig. V**
  (use grease GRIPCOTT A.F)
- the gear change link-rods,
- the cables,
- the wiring harnesses,
- the hydraulic pipes,
- the petrol supply and return pipes,
- the radiator and the hoses,
- the support lug and the air filter,
- the battery.

Fit the R.H. drive-shaft *(See Op. XB. 372-1).*

Remove tools **7101-T.N and M** and fit the L.H. drive-shaft.
Tightening torque : lower ball-joint : **3 m.daN**
Ball-joint on anti-roll bar : **4.5 m.daN.**

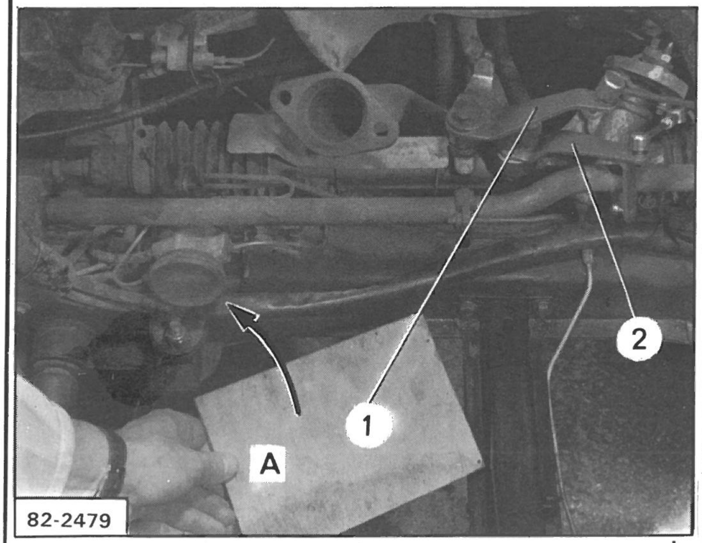
Check the engine oil level and top up if necessary.

Fill up and bleed the cooling circuit *(See Op. XB. 230-00)*

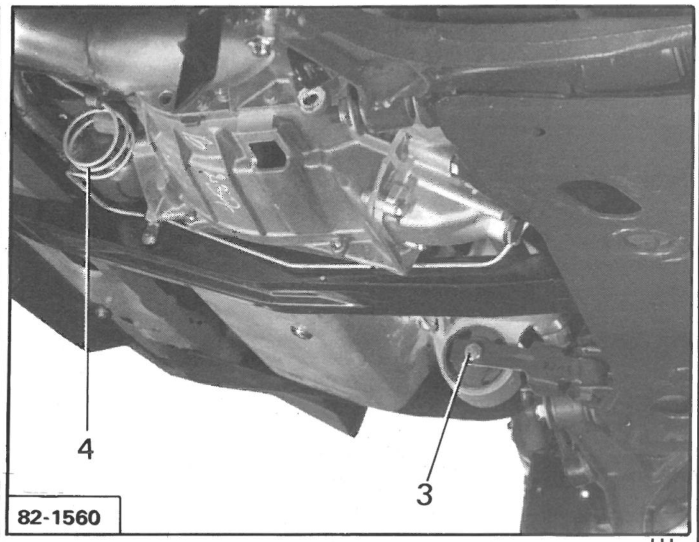
Lower the vehicle to the ground and pressurize the hydraulic circuits.

Check the adjustment of the clutch control and make sure that the gears engage correctly.

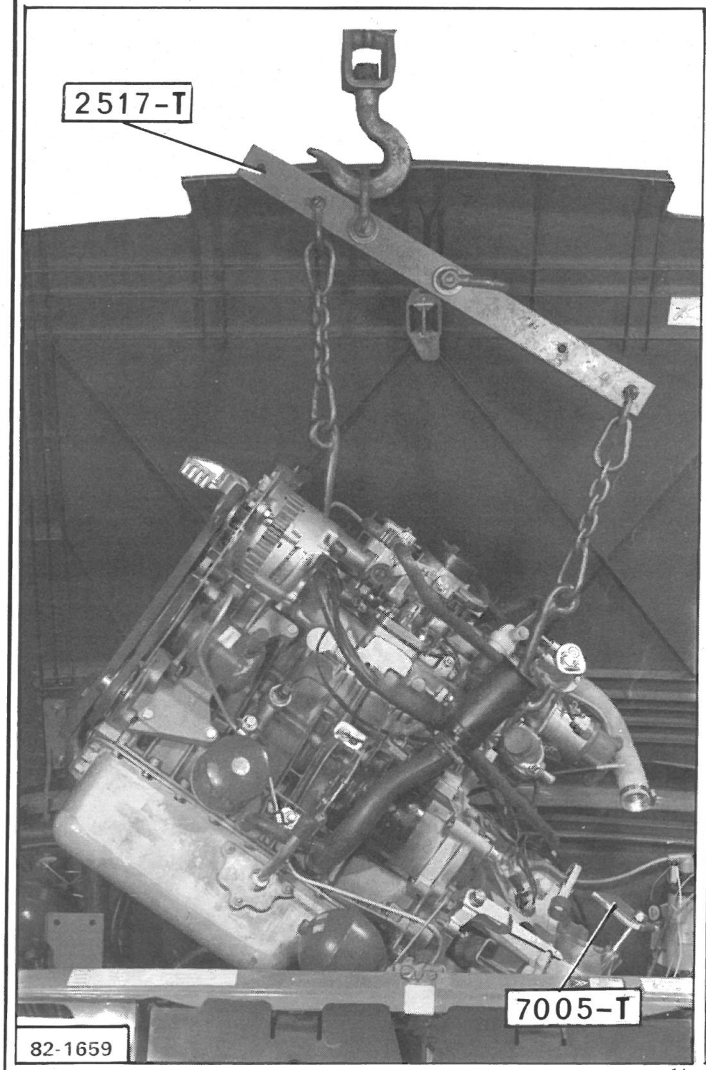
Check the gearbox oil level.



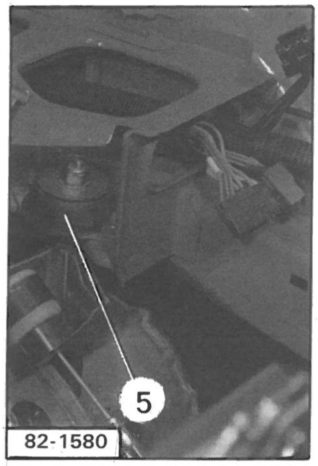
I



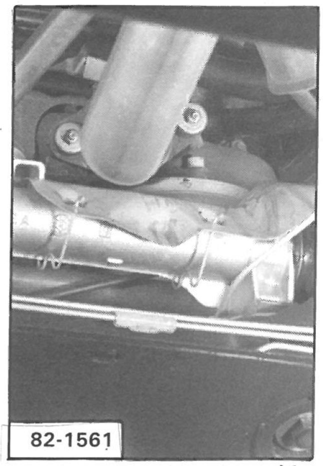
III



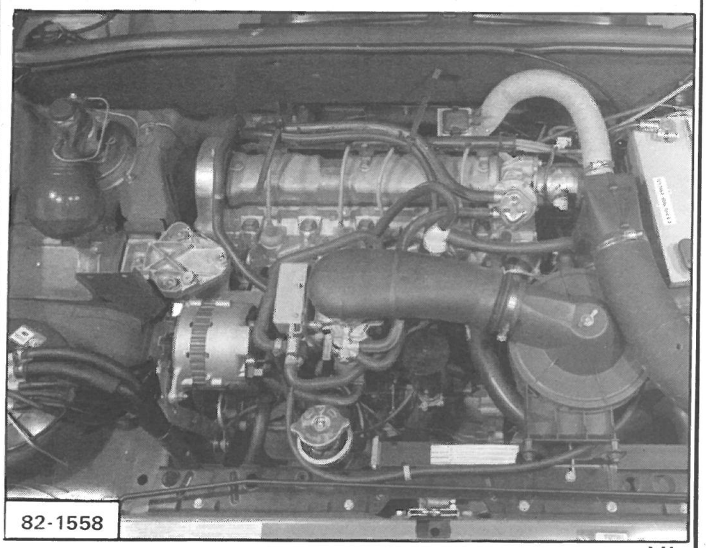
II



IV



V



VI

REMOVING AND FITTING THE CYLINDER HEAD

REMOVAL.

Jack up the front of the vehicle and remove the front right-hand wheel.

Drain the radiator.

Disconnect the battery.

Remove the air filter.

Disconnect the following : Fig. I and II
- feed pipe (2) and return pipe (3) for fuel,
- hoses (6) and (7) on water outlet duct,
- hose (8) on the intake manifold,
- hose (5) for carburettor heating return,
- the accelerator cable.

Slacken the clamp securing the water return pipe (9) for heating and its support-lug.

Remove the support screw for engine breather.

Disconnect :
- the distributor and H.T. lead,
- the thermal switches on water outlet duct,
- the idle cut-off.

Disconnect the exhaust system **Fig. III.**

Remove the lining for the front RH wing.

Lock the crankshaft, with a pin, **(Fig. IV)** in position of timing setting. Use tool **7004-T.G** (with pistons at half-stroke position).

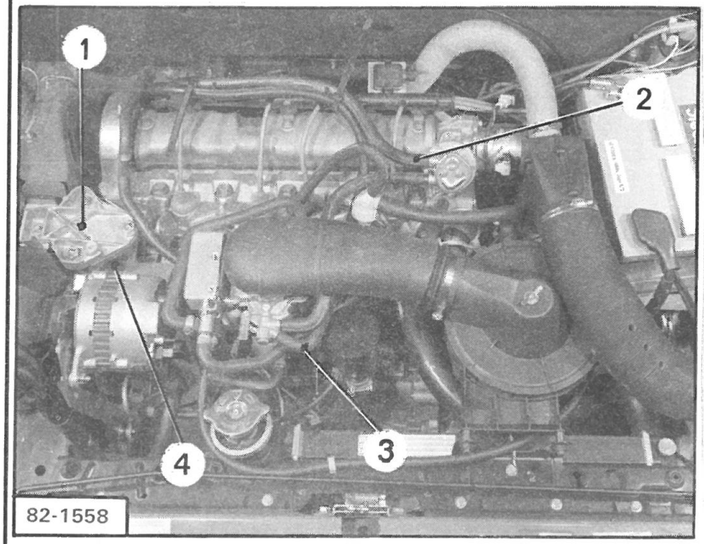
Chock the engine under the lower sump and remove the engine mounting cover (1).

Remove the timing covers and engine mounting body (4).

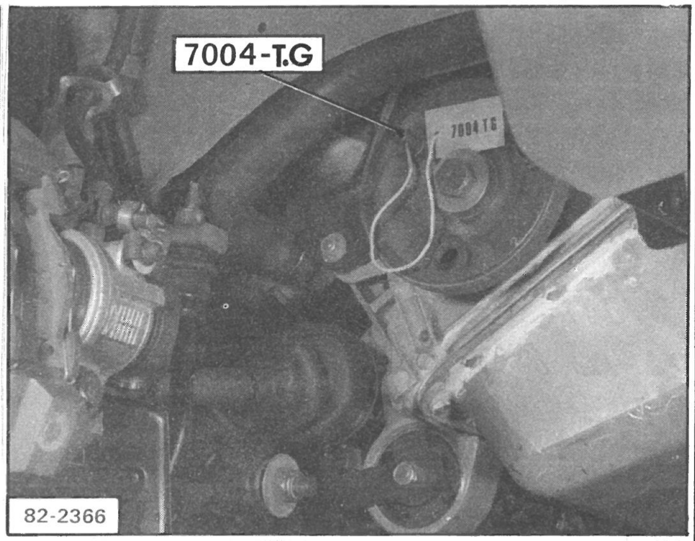
Slacken **(Fig. V)** screws (10) and slacken the timing belt by rotating the camshaft (11) by a 1/4 turn.
(17 mm A/F *locknut* and 6 mm *square*).

Remove the camshaft pulley belt.

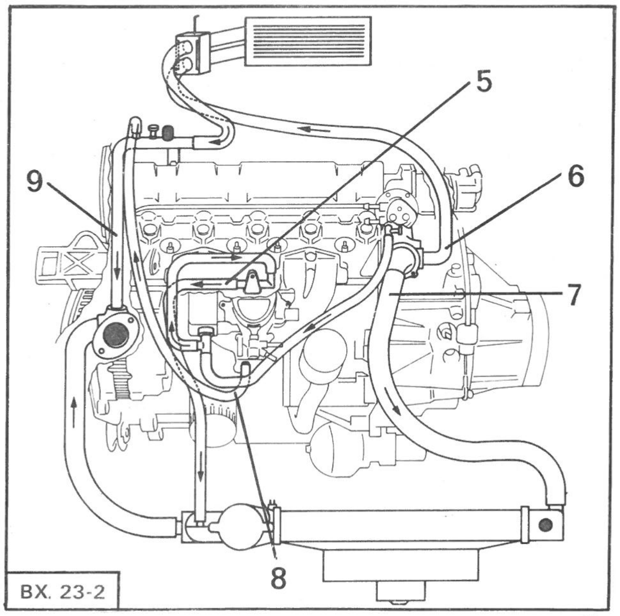
Remove the cylinder-head cover and ignition wiring harness.


1
2
3
4
82-1558

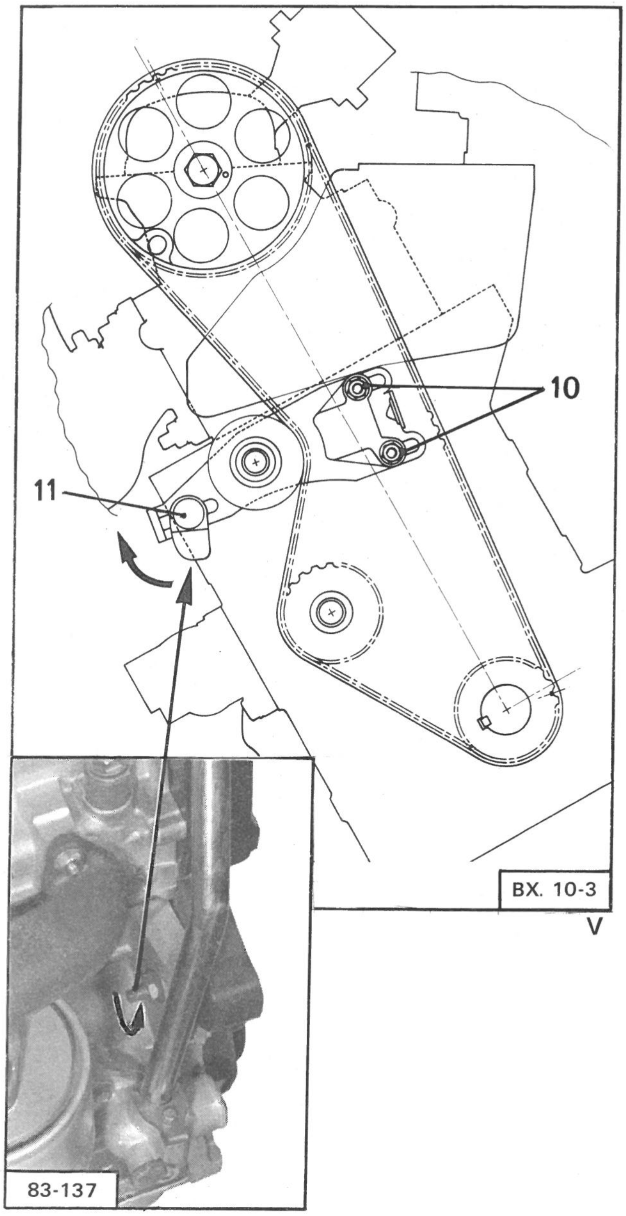
I


7004-T.G
82-2366

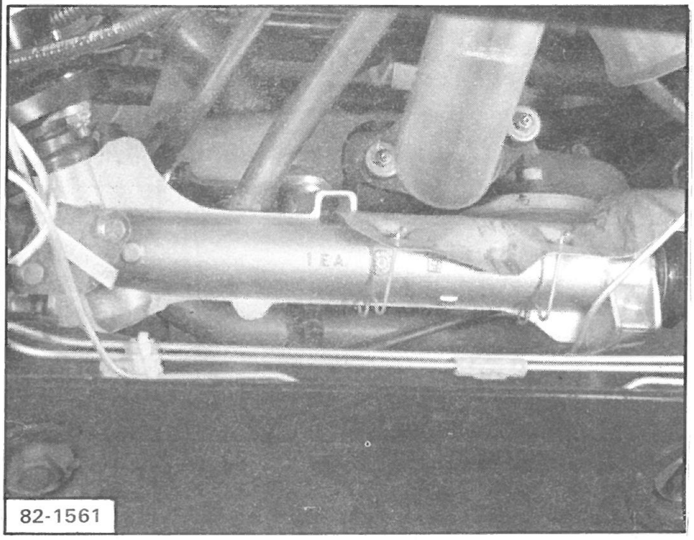
IV


5
6
7
8
9
BX. 23-2

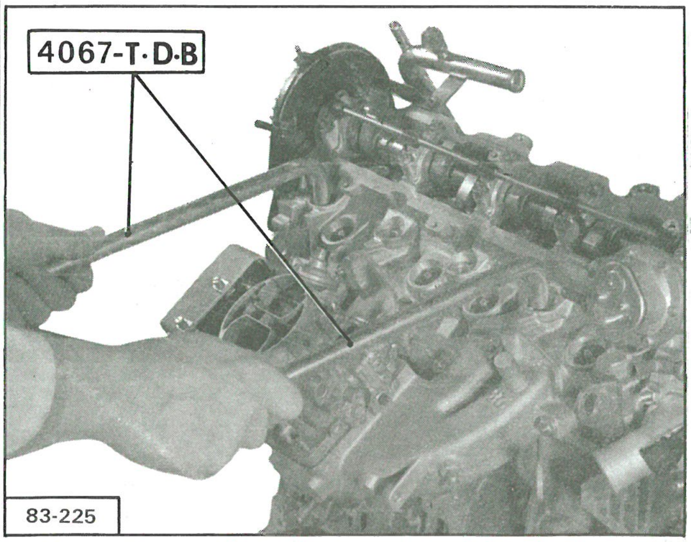
II


10
11
BX. 10-3
83-137

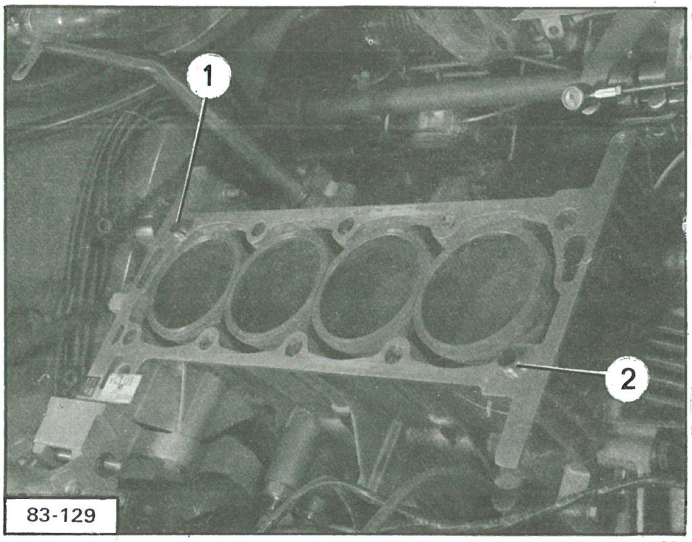
V


82-1561

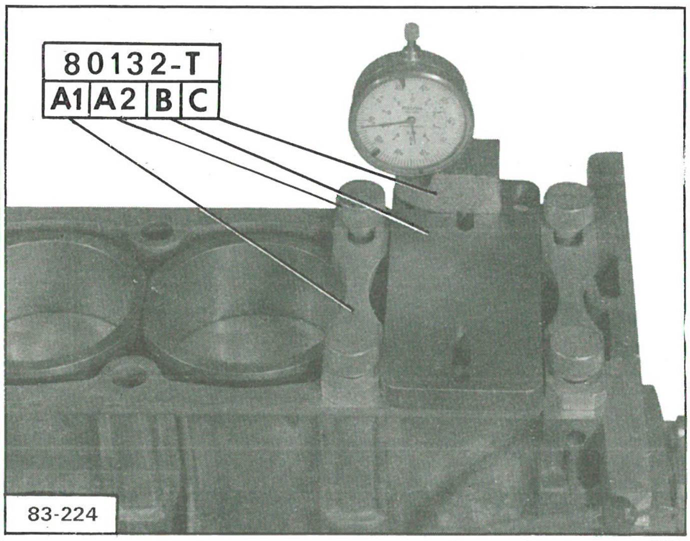
III



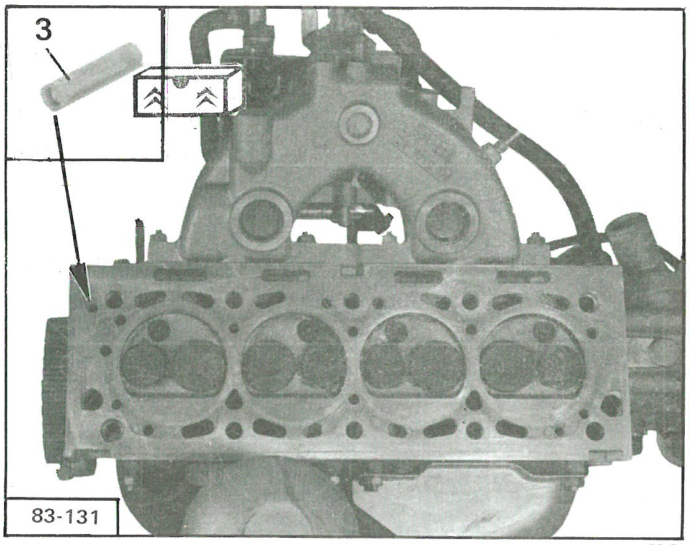
I



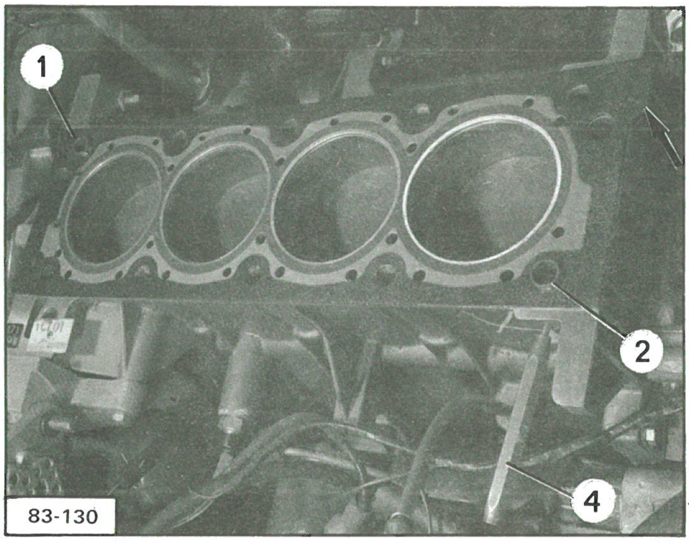
II



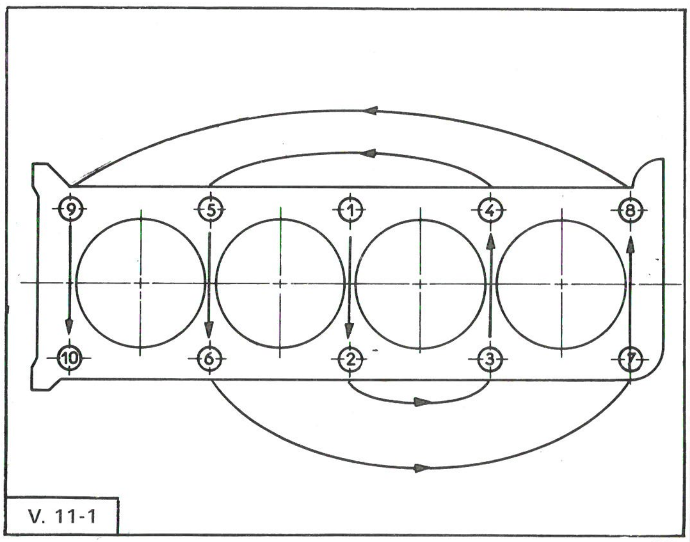
III



IV



V



VI

REMOVAL (cont.).

Remove the cylinder-head screws.

Raise the cylinder-head using the levers from kit **4067-T.D.B, Fig. I.**

Keep the lines in position using flanges **8.0132-T.A1** and screw **A.2.**

Clean the joint contact face.
Use a scouring product for joint contact face. **Never use cutting or abrasive tools.**

It is necessary to check the liner protrusion **Fig.III.**
- Remove centring bushes (1) and (2) and fit the flanges **on each side** of the first liner to compress the O-ring seal.
- The protrusion should be between **0.08 mm and 0.15 mm.** Check it using plate **B** and dial-gauge support **C.**
- Proceed in the same way for the other liners.

FITTING.

Fit a new oil filter (3) in the cylinder-head lubricating circuit, Fig. IV.

Prepare centring bushes (1) and (2) *(when refitting the cylinder-head place a pin (4) under centring bush (2), dia. = 5 mm max.).*

Fit the cylinder-head gasket dry (ident. mark ➡ at fly-wheel end) **Fig. V.**

Fit the cylinder-head :
Remove pin (4).
Tallow the threads of the screws before fitting them.
(screw (9) **Fig. VI** *fitted in centring bush (1) comprises a spacer).*

Tighten the cylinder-head following the tightening sequence indicated in **Fig. VI :**

1st Pretighten at : **6 m.daN.**
2nd Loosen then re-tighten each screw by **2 m.daN**, the angle should be **120°.**
Use a quadrant **4069-T.**

After tightening the cylinder-head, check the clearances between the cam and the tappet of the valve, Fig. I.
Even if the clearances have been adjusted with the cylinder-head removed, it is necessary to check them again.

Inlet : 0.20 ± 0.05 mm
Exhaust : 0.40 ± 0.05 mm

Use tool **6016-T** to rotate the camshaft.
If necessary, adjust the clearances between the cam and the tappet. (See Op. XB.16. 123-2).

Fit the timing belt :
With the crankshaft in position for timing setting (pin **7004-T.G**).
- pin the camshaft pulley, **fig. II,** and fit the belt.
- Rotate cam (2) by 1/4 of a turn to free the tensioner roller.

Tighten nuts (1) temporarily, Fig. II and III.

Rotate the crankshaft by two turns min. to position the belt, observe the direction of rotation (➡).
Stop the engine at 1st cylinder TDC (engine flywheel ident. mark facing "0").

Loosen nuts (1) to free the tensioner then re-tighten them.
Tighten torque : 1.6 m.daN.

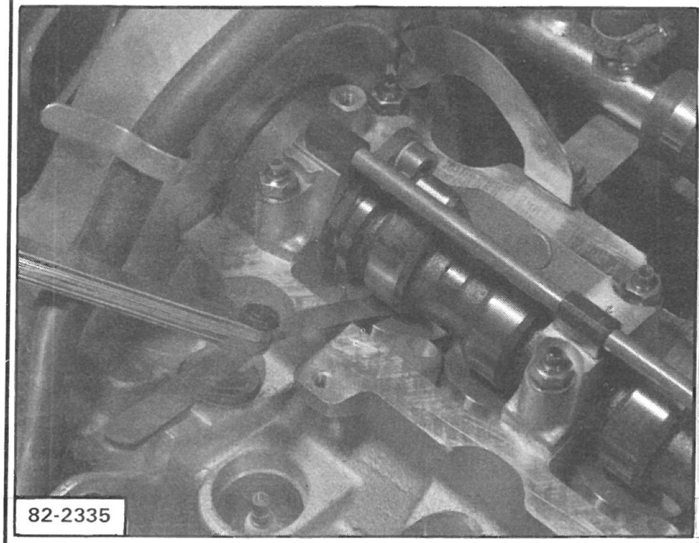
Tighten the lock-nut of locking cam (2) to **1,5 m.daN.**

Fit the lower part of engine mounting (4) and timing covers (5) and (6).

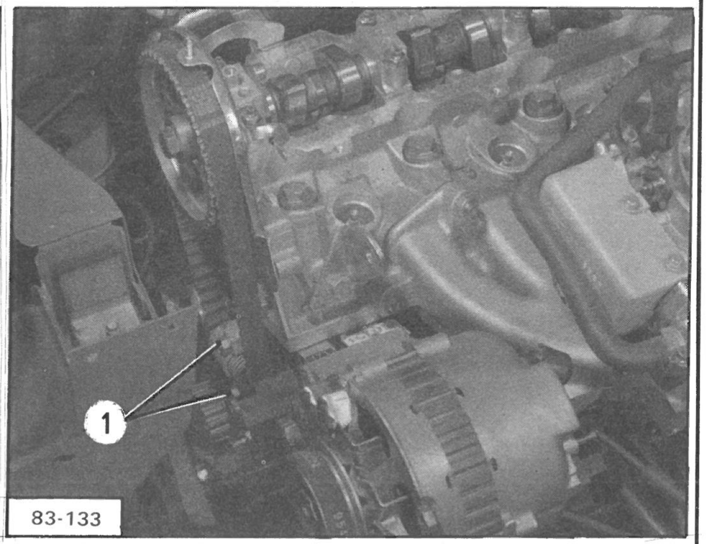
Tighten the screws of the engine mounting to **2.3 m.daN.**

Fit the upper part of the engine mounting.
Remove the chock from under the lower sump.
Tightening torque : 2.8 m.daN.

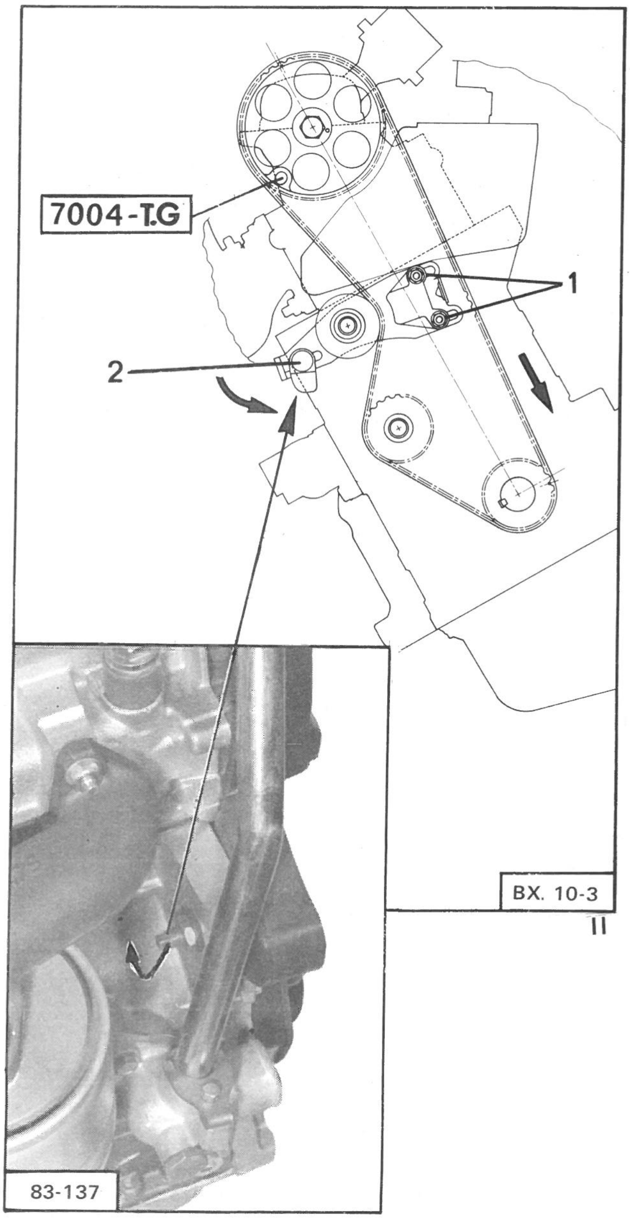
Fit the cylinder-head cover and the wiring harness.
Make sure that oil gallery (3) is in position, **Fig. V.**
Tightening torque : 1 m.daN.
Copper washer between the cylinder-head cover and the wiring harness support.



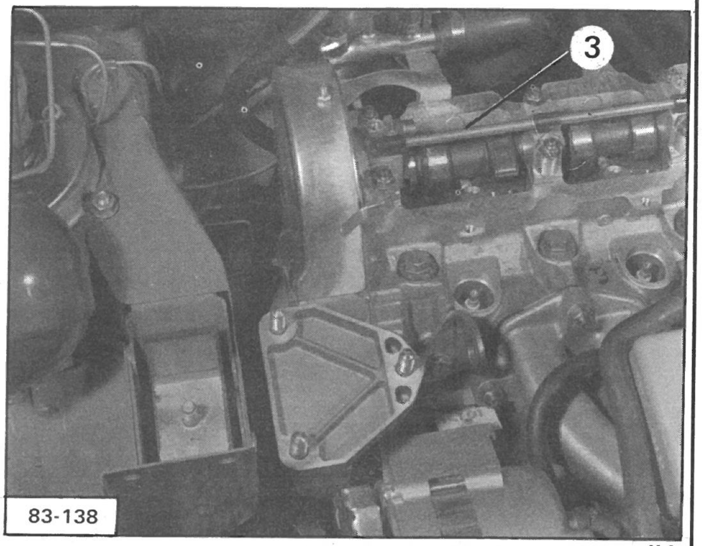
I



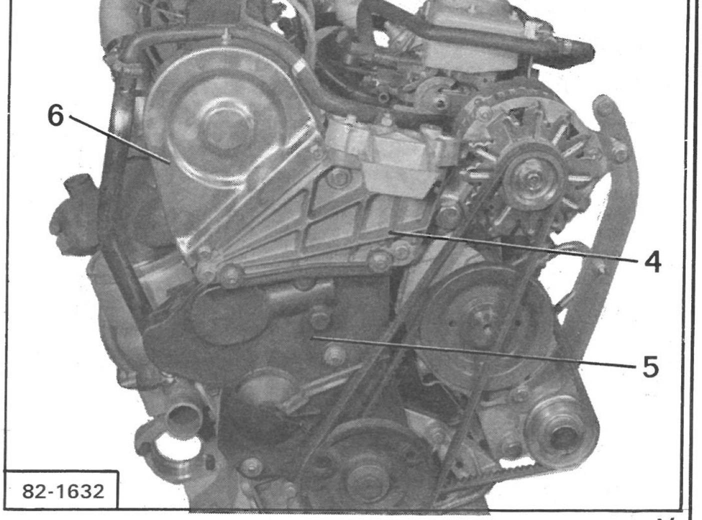
III



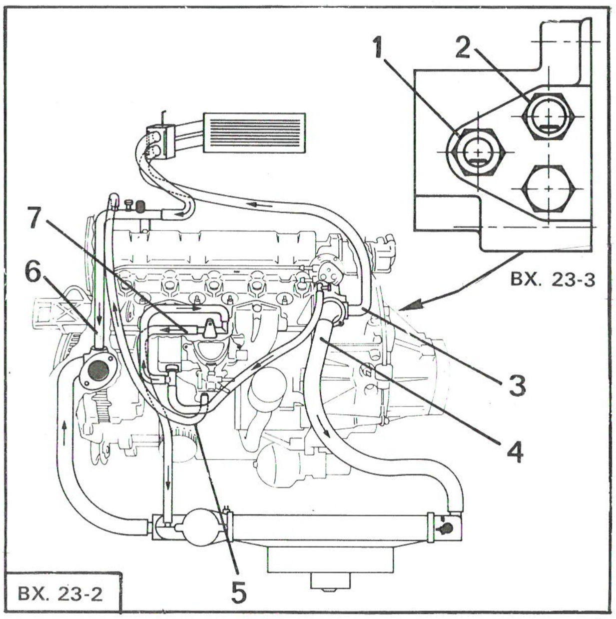
II



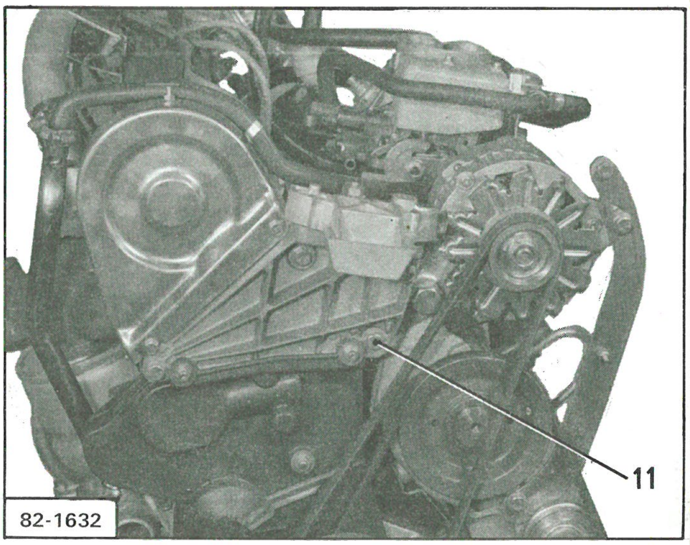
IV



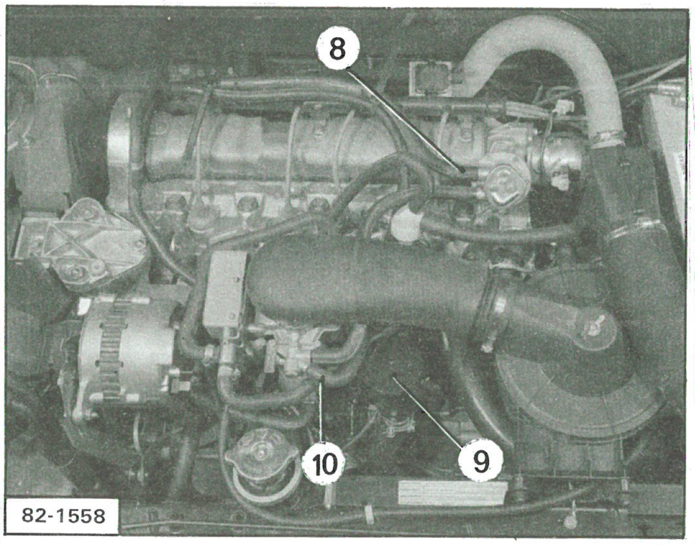
V


1
2
3
4
5
6
7
BX. 23-3
BX. 23-2

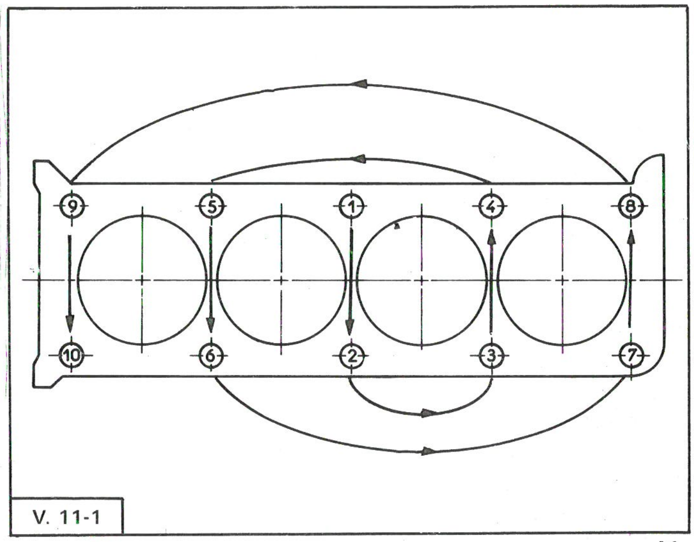
I


11
82-1632

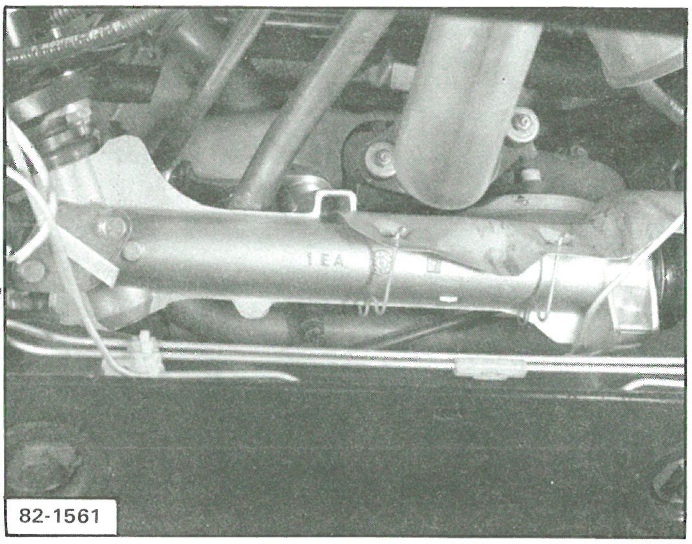
IV


8
9
10
82-1558

II


9
5
1
4
8
10
6
2
3
7
V. 11-1

V


82-1561

III

FITTING (continued).

Connect :
- hoses (3) and (4) to the water outlet duct,
- hose (5) to the intake manifold,
- hose (7) to the carburettor,
Tighten the clamp securing water return pipe (6) ans its support-lug.
- the accelerator cable.

Secure engine breather (9).

Connect :
- the thermal switches on the water outlet duct **Fig. I :**
  - (1) yellow connector,
  - (2) blue connector.
- the idle cut-off,
- the distributor.

Connect feed pipe (8) and return pipe (10) for fuel.

Connect the exhaust system.
Smear the ball-joints for exhaust screws and tube with GRIPCOTT A.F. grease.

Fit the air filter.

Fill up the cooling system (See Op. XB 230-00).

Fit the wing lining, the wheel and lower the vehicle to the ground.

Run the engine until the fan cuts in.
Allow to cool down for two hours at least before re-tightening the cylinder-head.
Proceed screw after screw according to the tightening sequence.
1) Slacken and tighten to **2 m.daN.**
2) Apply a torque by a **120°** angle.

Tighten engine mounting screw (11) to **2.3 m.daN.**

Check and top up the levels.

With engine running, check the distributor setting (See Op. XB 16 210-1).

REMOVING AND FITTING A TIMING BELT

REMOVAL.

Remove, Fig. I :

- The alternator and HP pump belts.
- Upper cover (1).

Fig. II :

Rotate the engine clockwise by means of the crankshaft pulley to bring orifices **« a »** and **« b »** in position.

Remove the screw maintaining the crankshaft pulley by holding the pulley in position using tool **6016-T.**

Never use the control pin to hold the pulley in position, it would, without fail, break positioning rib (4) (see Fig. IV).

Fig. III :

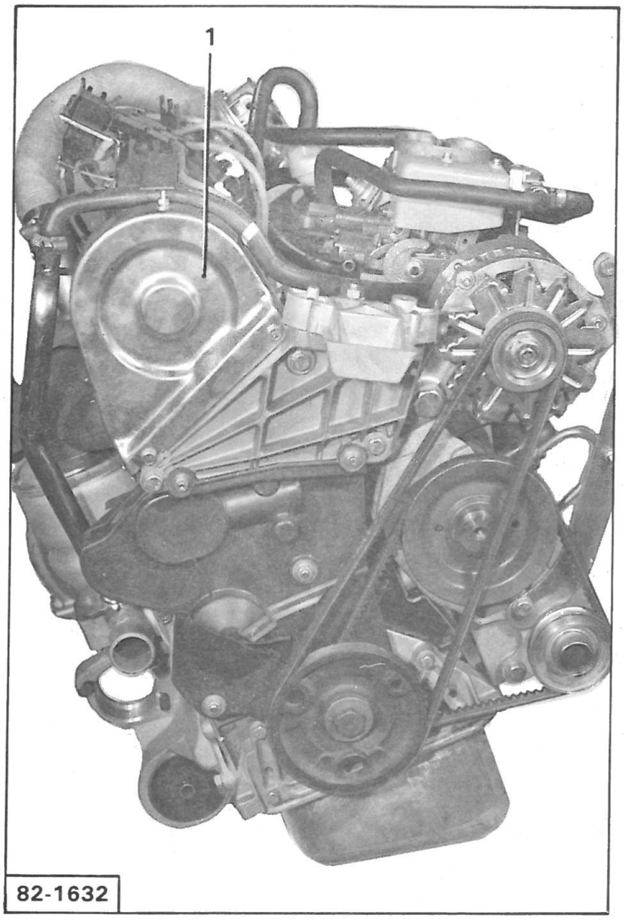
Position the crankshaft using pin **7004-T.G,** then remove the pulley **without rotating the crankshaft.**

Remove the covers (2).

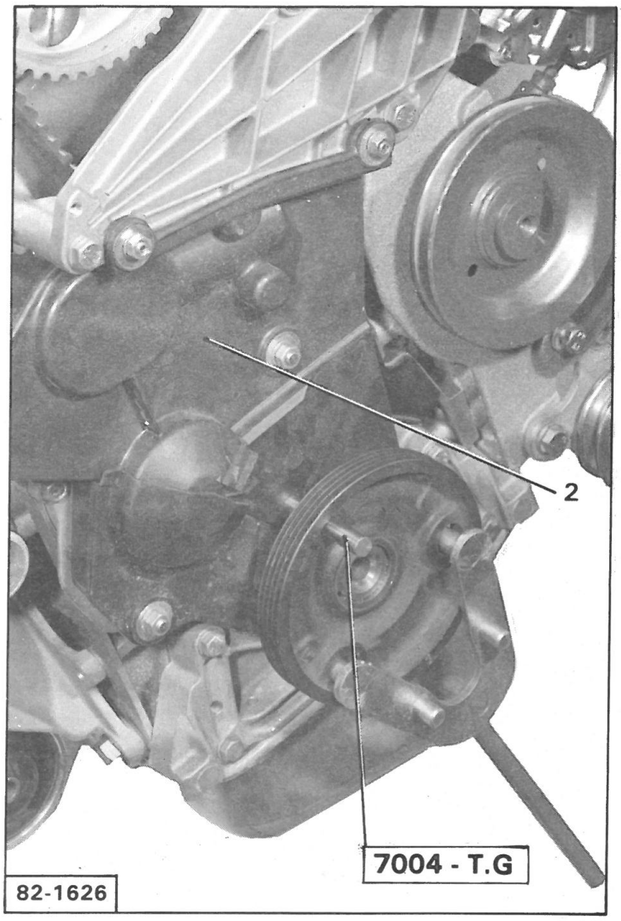
Fig. IV :

Loosen the nuts (3) of the tensioner roller and locknut (17 mm across flats) of interlock (5).
Move back the tensioner roller back using the interlock.

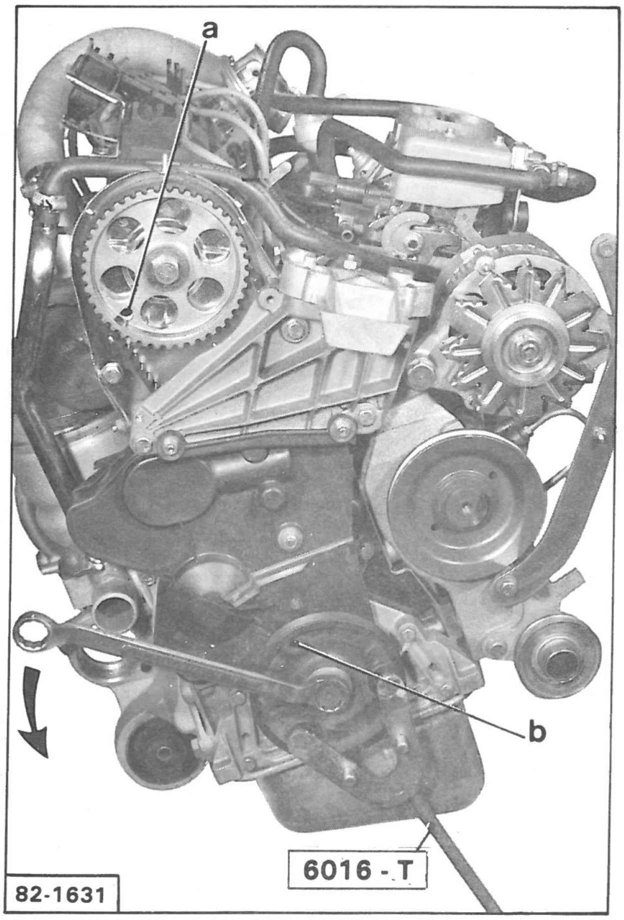
Remove the notched belt.



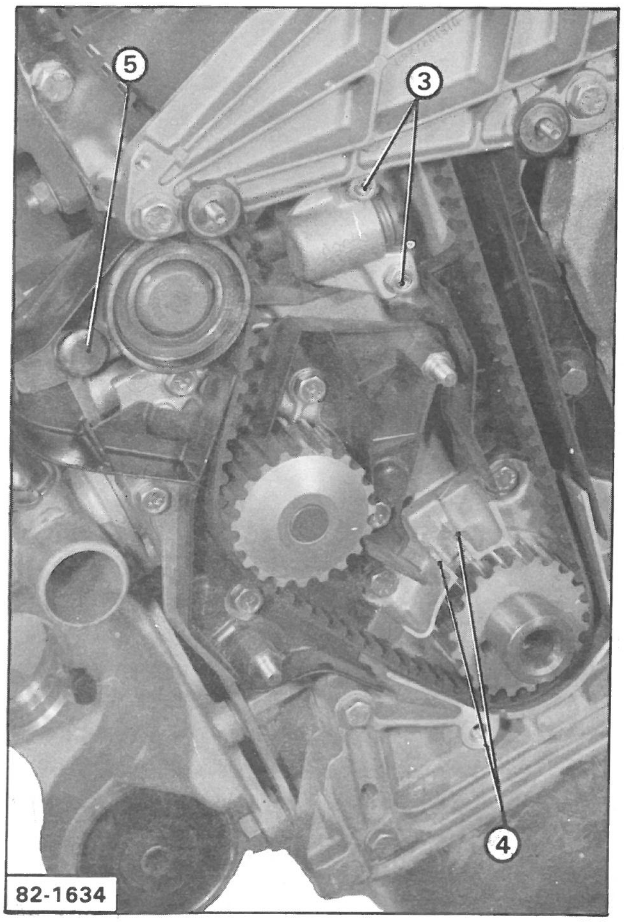
I



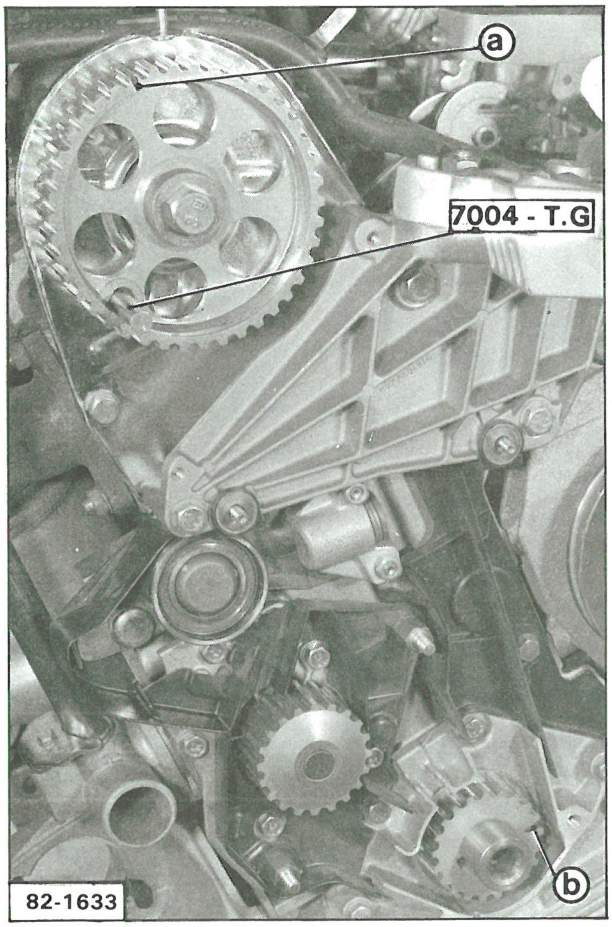
III



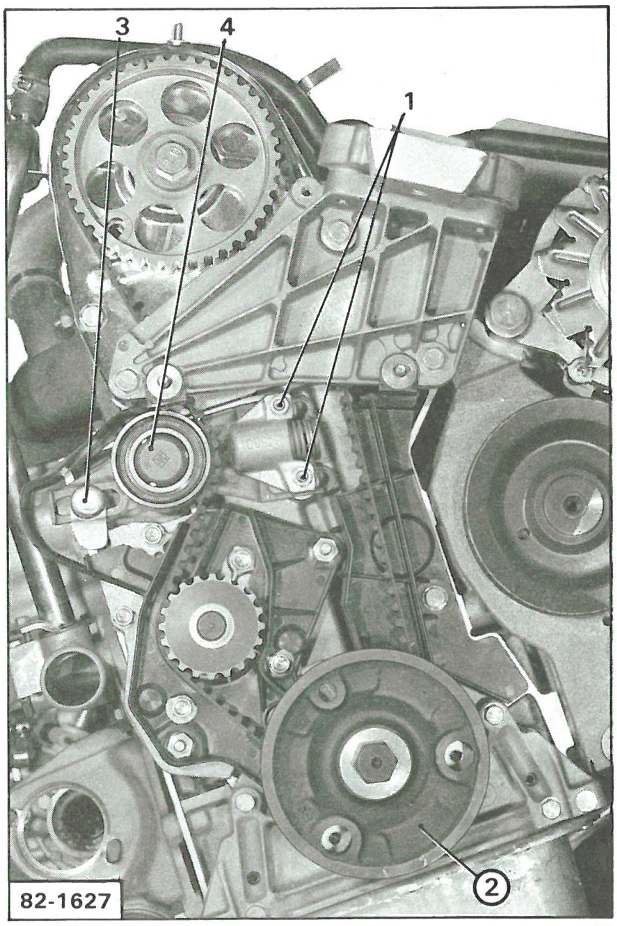
II



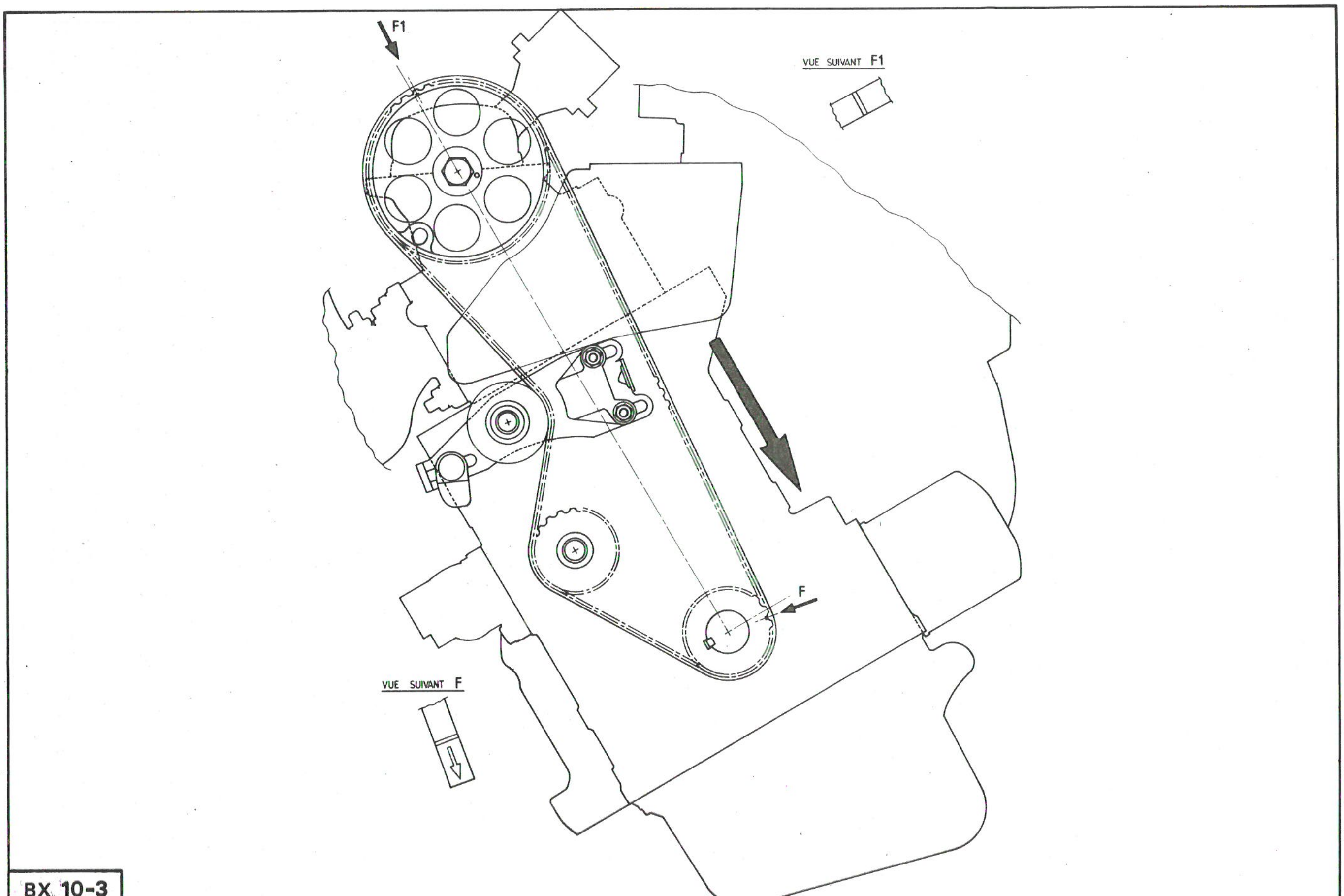
IV


a
7004 - T.G
b
82-1633

I


3
4
1
2
82-1627

II


F1
VUE SUIVANT F1
F
VUE SUIVANT F
BX 10-3

III

FITTING.

Position the camshaft pulley using pin **7004-T.G, Fig. I.**

Fit the notched belt. Marks **« a »** and **« b »** on pinions should face the marks on belt, **Fig. III.**

Remove pin 7004-T.G.

Fig. II :

Position crankshaft pulley (2) without tightening.

Free tensioner roller (4) and temporarily tighten its securing nuts (1).

> Rotate the crankshaft by two turns min. **Observe the direction of rotation → to ensure a correct position of the belt.**
> Stop the engine at the TDC of cylinder No. 1.
> *The engine flywheel identification mark should face the «O ».*

Loosen nuts (1) of the tensioner roller and retighten them to **1.6 m.daN.**

Tighten interlock plunger (3) locknut to **1.5 m.daN.**

Remove the crankshaft pulley.

Fit the covers.

Fit the crankshaft pulley, tighten the screw to **11 m.daN.**

Fit the upper cover as well as the HP pump and the alternator belts.

CHECKING AND ADJUSTING THE CLEARANCE BETWEEN THE CAM AND THE VALVE TAPPET

I. CHECKING THE CLEARANCE BETWEEN THE CAM AND THE VALVE TAPPET.

Raise one wheel and engage the 5th gear to rotate the engine.

Remove the cylinder-head cover.

Running clearance
Inlet = **0.20 ± 0.05 mm** **Exhaust** = **0.40 ± 0.05 mm**

Establish a table of the various valve positions, **Fig. II.**

Measure the clearance between the back of the cam and the tappet *(cam extremity upwards)* **Fig. I.**

Note down the distance measured at each valve.

Calculate the difference between the running clearance and the measured clearance.
Example : **Fig. II.**

3 : running clearance = *0.40 mm*
1 : measured clearance = *0.27 mm*

2 : difference = *0.13 mm*

Since the difference between the measured and the running clearances is *0.13 mm* below the tolerance, it is necessary to **reduce** the thickness of the shim by 0.13 mm.

If the difference between the running and the measured clearances is above the tolerance, the clearance should be adjusted.

II. ADJUSTING THE CLEARANCE BETWEEN THE CAM AND THE VALVE TAPPET.

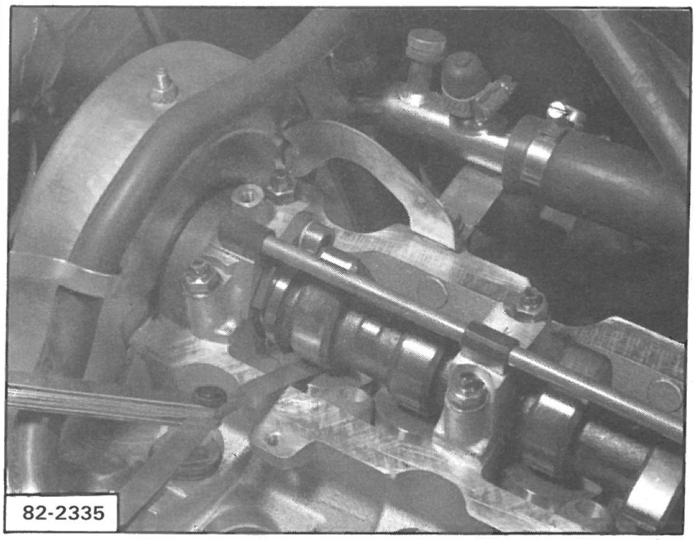
Remove the camshaft :
Remove the covers (1) and (2), **Fig. IV.**

Remove the lower protector and position pin **7004-T.G** on the crankshaft pulley for timing adjustment, **Fig. III.**

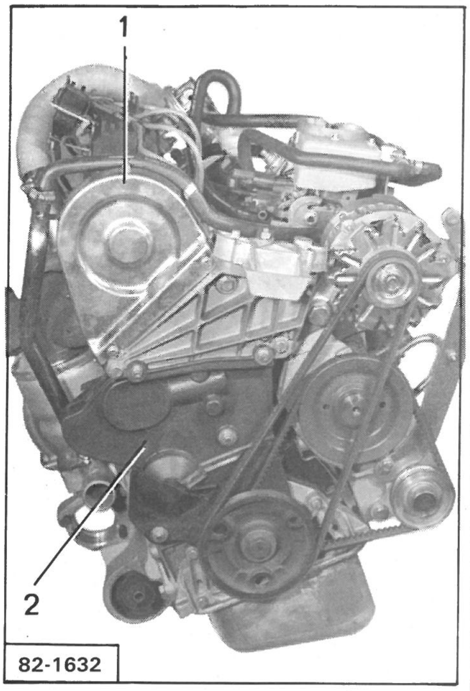
Loosen screws (3) of the belt tensioner.

Rotate cam (4) by a quarter of a turn to loosen the timing belt, **Fig. V** *(17 mm A/F lock-nut and 6 mm square drive).*

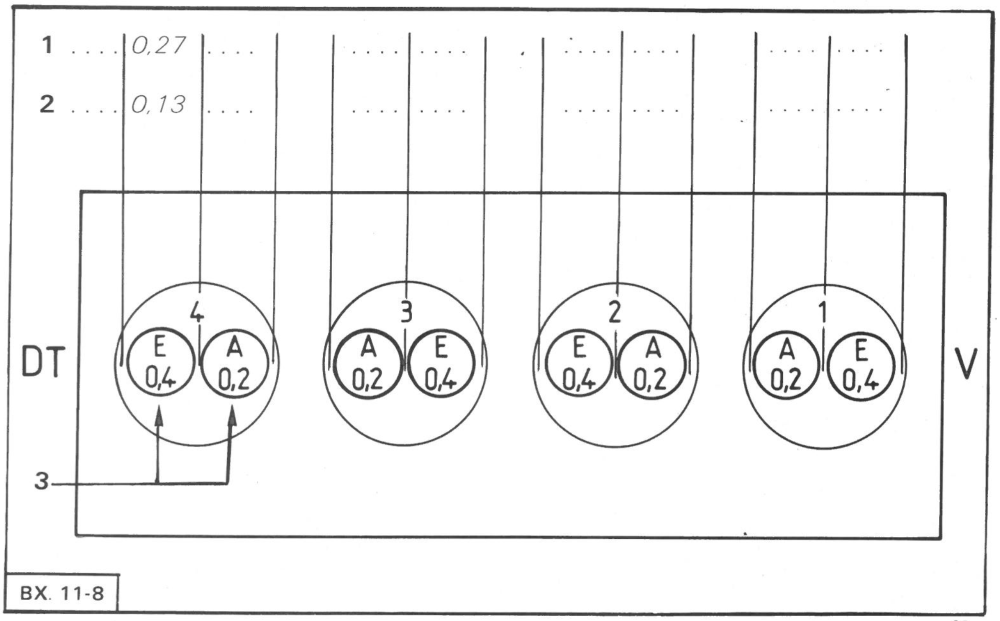
Release the timing belt of the camshaft pulley (protect the timing from possible drop of parts).


82-2335

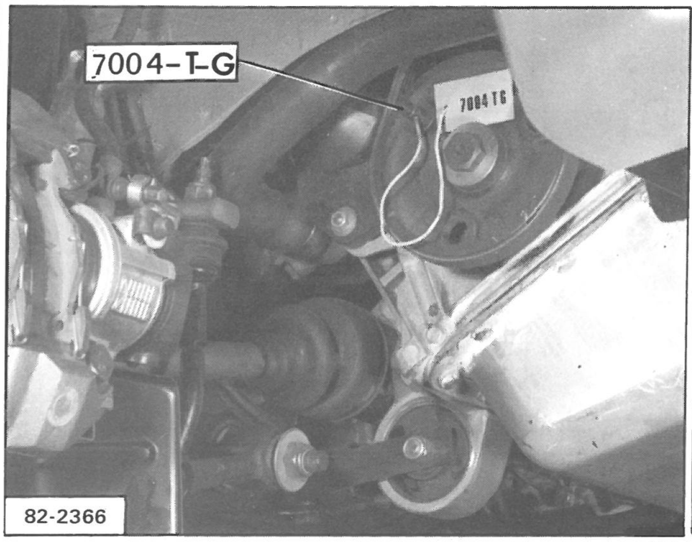
I


1
2
82-1632

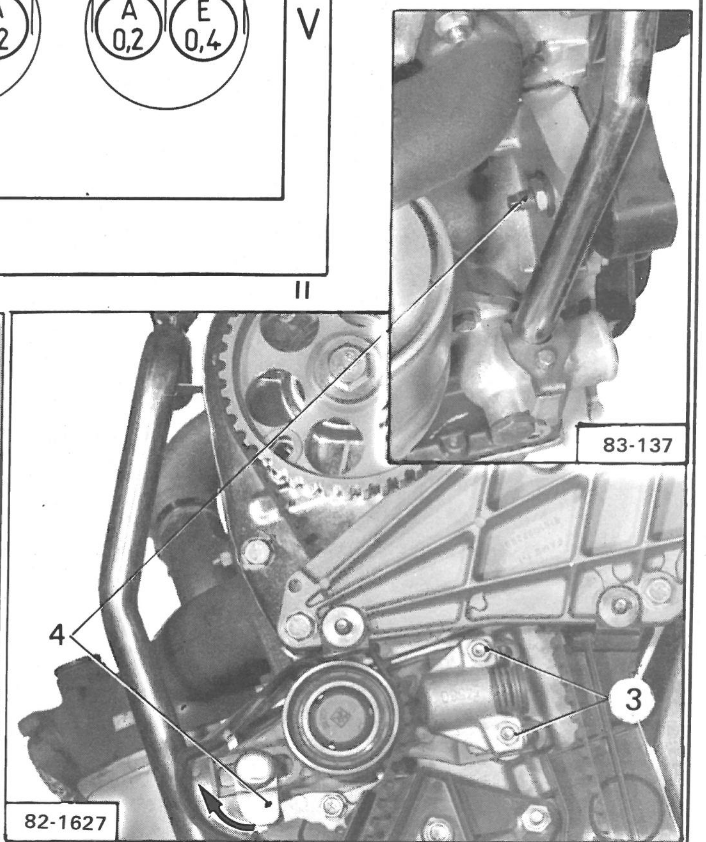
IV


1 .... 0,27 ....
2 .... 0,13 ....
4
3
2
1
DT
E 0,4
A 0,2
A 0,2
E 0,4
E 0,4
A 0,2
A 0,2
E 0,4
V
3
BX. 11-8

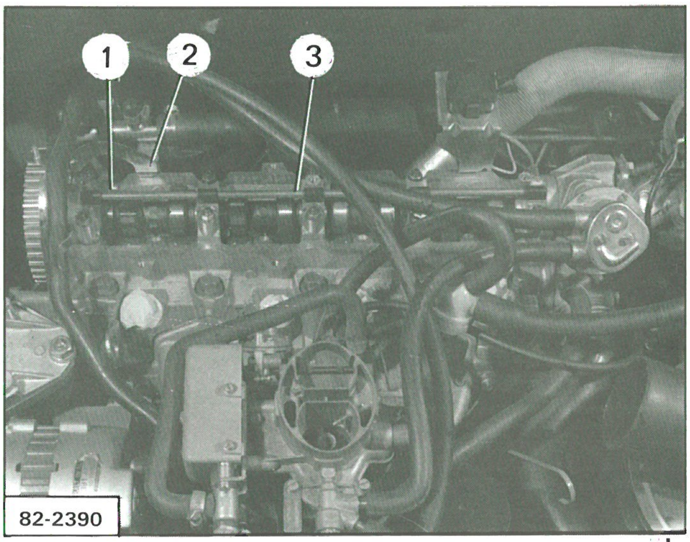
II


7004-T-G
7004 TG
82-2366

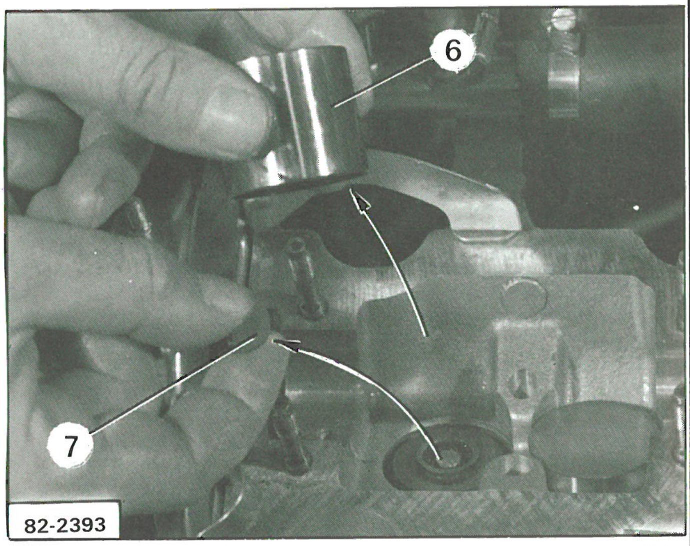
III


83-137
4
3
82-1627

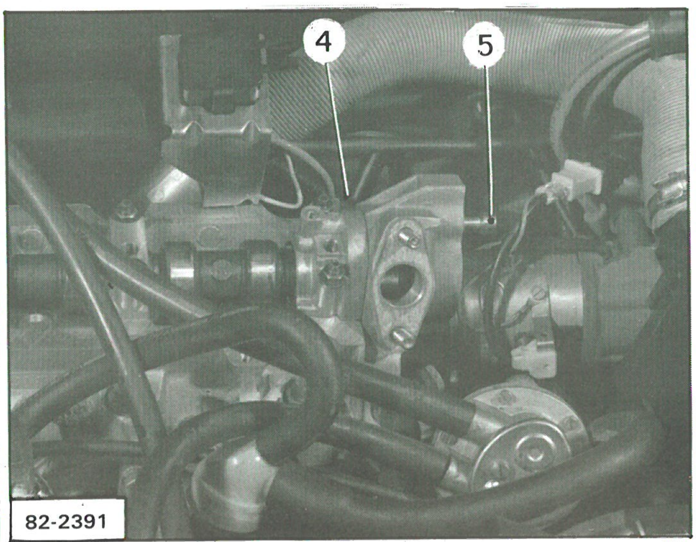
V



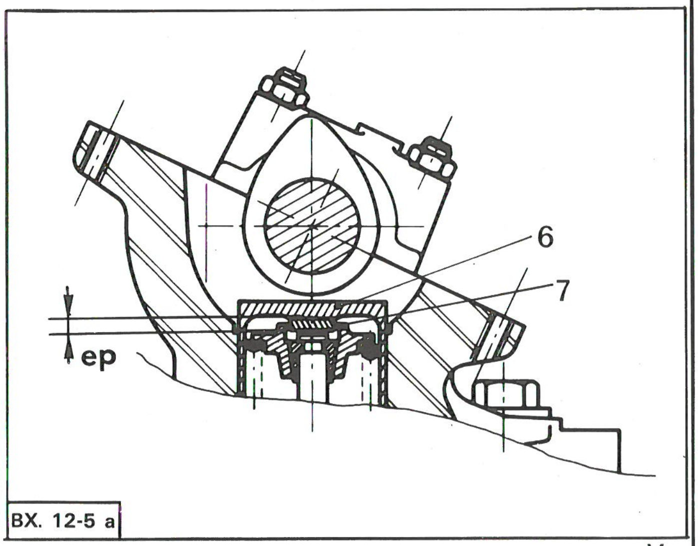
I



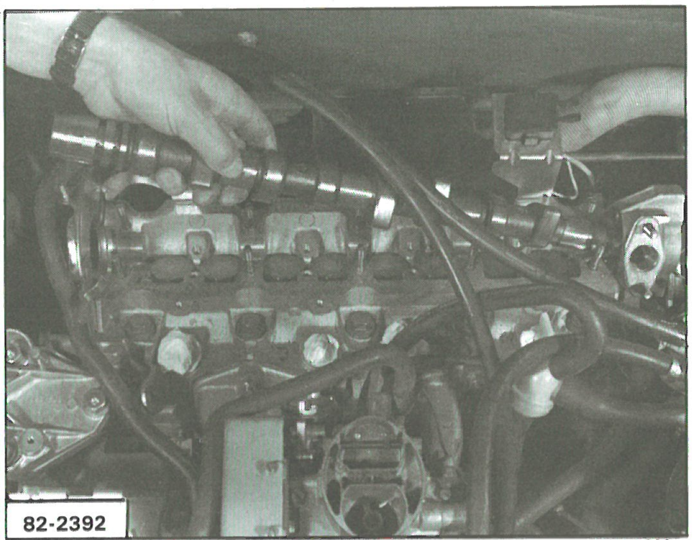
IV



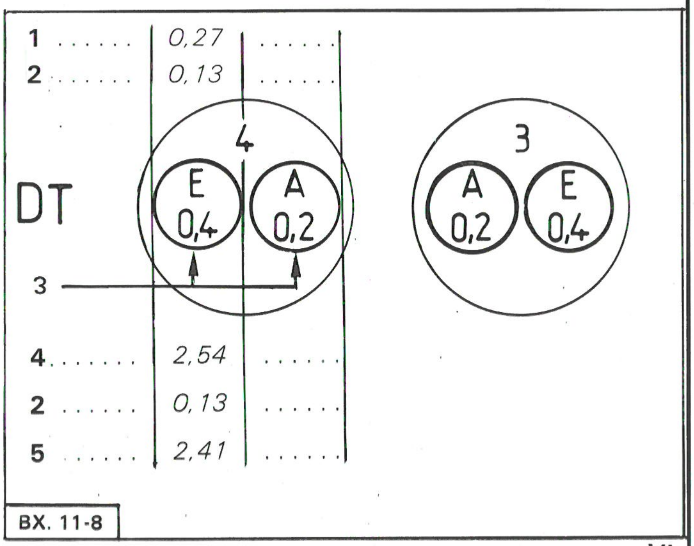
II



V



III



VI

Remove the distributor, the fuel pump and the oil gallery (3), **Fig. I.**

Remove :
- the shim (1) for camshaft end-float,
- the camshaft pulley (use tool **6016-T** for loosening it).

Loosen the screw of lug (2).

Remove the camshaft bearings, beginning with bearing (4) at distributor end, **Fig. II.** *(screw (5) is inside the distributor support).*
When removing bearing (4), be careful not to damage the seal between the bearing and the distributor support.

Remove the camshaft as indicated on **Fig. III.**

Adjust the clearance between the cam and the valve tappet :

Remove first tappet (6) and shim (7), **Fig. IV and V.**

Carefully clean and measure the thickness of shim (7), note down the value on the table below the corresponding valve, line 4, **Fig. VI.**

> If the value of the measured clearance is **below the tolerance, reduce** the thickness of the shim.
> If the value of the measured clearance is **above the tolerance, increase** the thickness of the shim.

Example **Fig. VI**

4 : Thickness of the removed shim = *2.54*
2 : Difference between the theoretical and the measured clearances $ 0.13

5 : Thickness of the shim to be fitted = *2.41*

Fit the shim nearest to value **5.**
The various thicknesses of the shims are comprised between **2.225 mm and 3.025 mm** (in steps of 0.025 mm).
and between **3.100 mm and 3.550 mm** (in steps of 0.075 mm).

NOTE : Clean the new shim before measuring or fitting it.

Fit the camshaft.

First, oil and fit the shim in its housing, on the valve stem, then oil and fit the tappet, Fig. I.
If the tappet should be raised, even slightly, it may cause the shim to slip.
In that case, remove the tappet and fit the shim back in its housing before refitting the tappet.

Oil the bearings and fit the camshaft, fourth cam (3) and sixth cam (1) resting upon the tappets, **Fig. II.**

Fit center bearing (2) *(oil hole* **« a »** *towards the front)* and position the camshaft.

Fit bearings two (6) and four (5), **Fig. III,** bearing (4) without camshaft stop, bearing (7) and coat seal bearing surface with LOCTITE FRENETANCH.

If the seal has been damaged during the removal, level it at the cylinder-head cover joint face, and replace it with a new seal.
Fit it with sealing compound.

Tightening torque : 1.5 m.daN.

Fit screw (8) in the distributor support.

Tightening torque : 1.3 m.daN.

Oil and fit the seal using tool **7004-T.E, Fig. IV,** position it by means of the camshaft pulley screw, using spanner **8.0129 ZZ** from the C 25 petrol engine kit.

Fit the camshaft pulley. Tighten using tool **6016-T.**

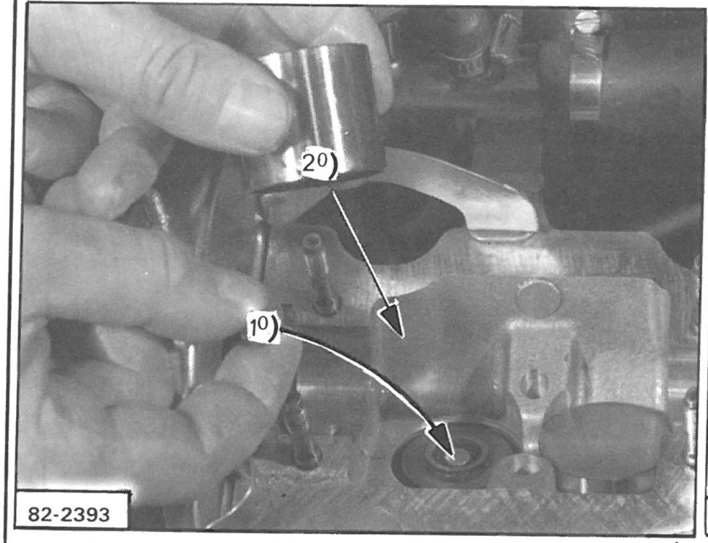
Tightening torque = 8 m.daN

Fig. V : using tool **6016-T,** position the camshaft laterally.
Fit camshaft stop (9).

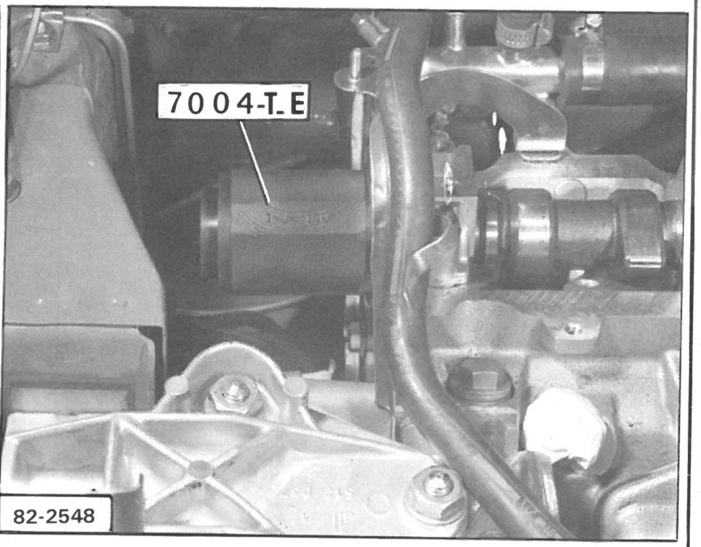
Tightening torque = 1.5 m.daN

Check the **clearances** between the cam and the valve tappet.

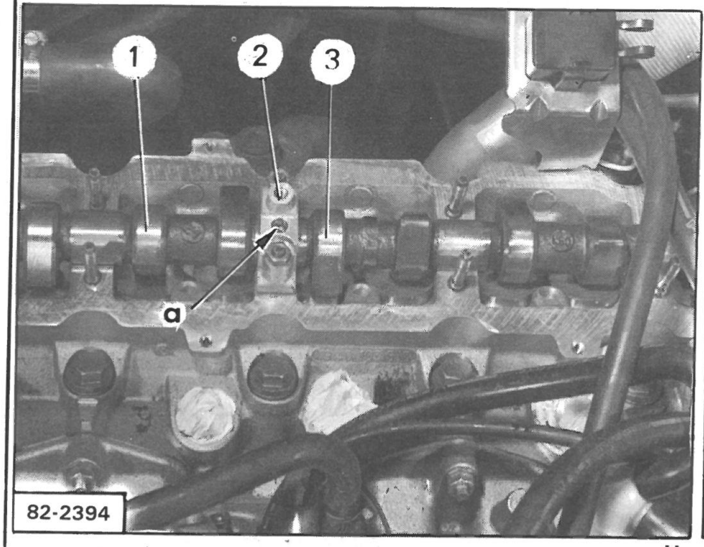
Fit the timing belt.
Fit pin **7004-T.G** on the camshaft pulley, **Fig. VI,** so as to carry out the timing adjustment.



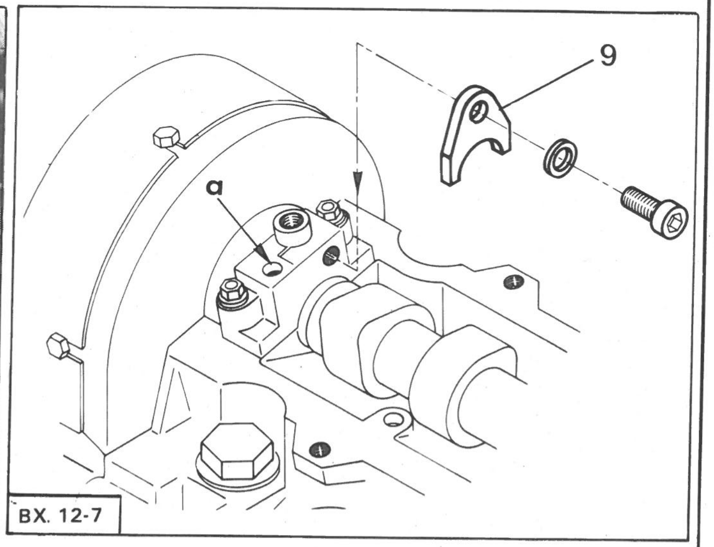
I



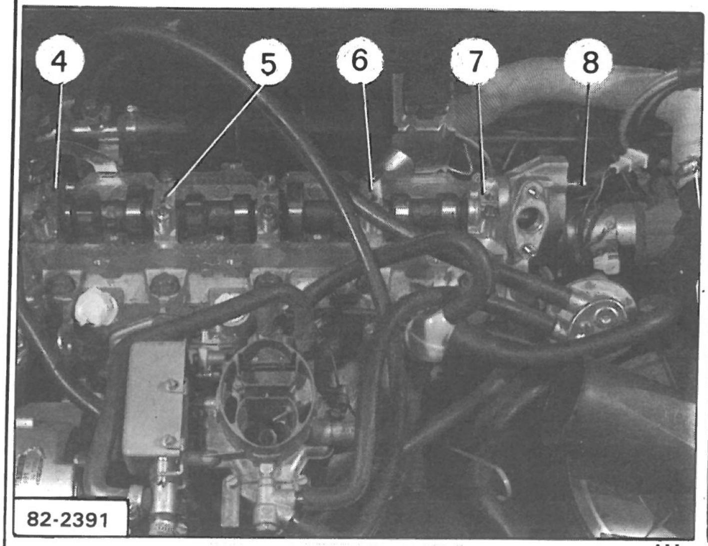
IV



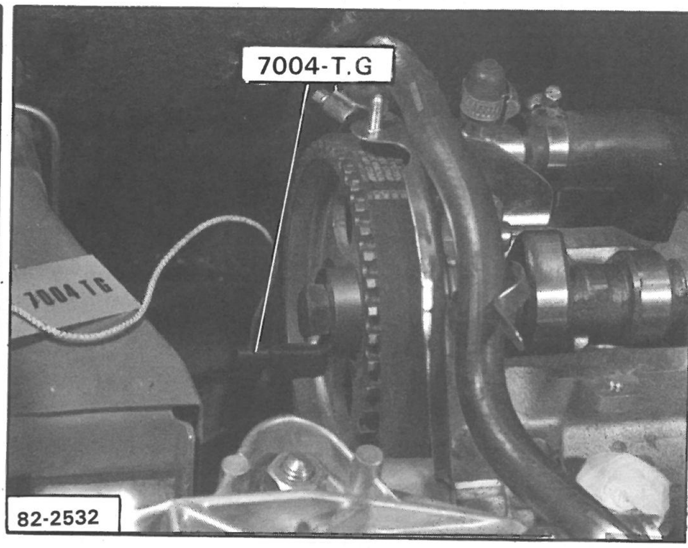
II



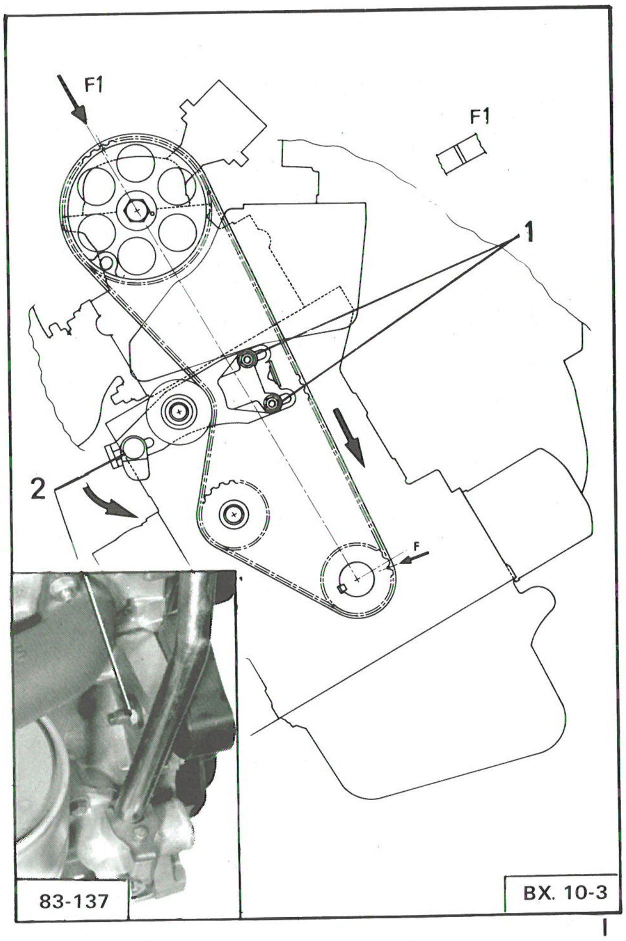
V



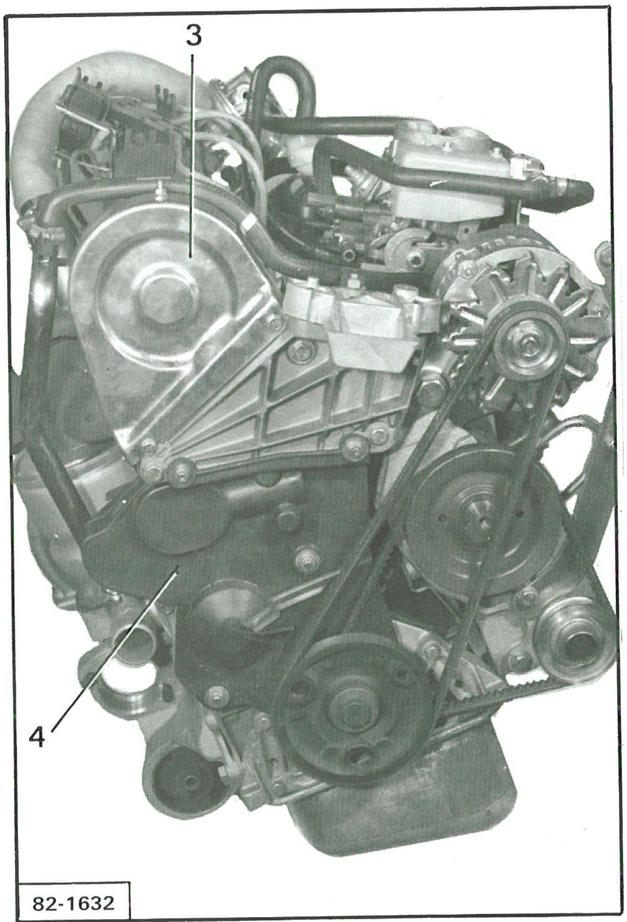
III



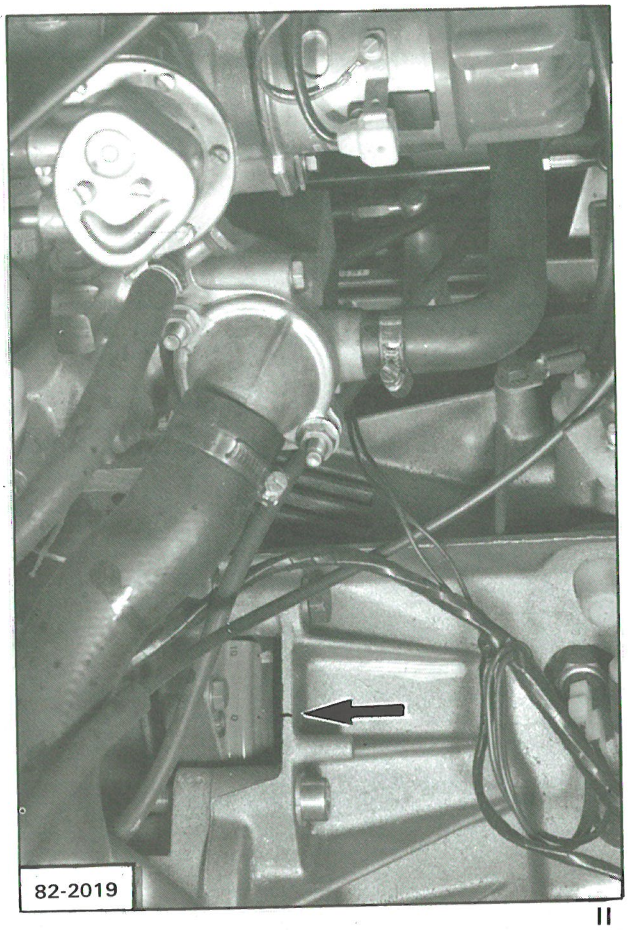
VI



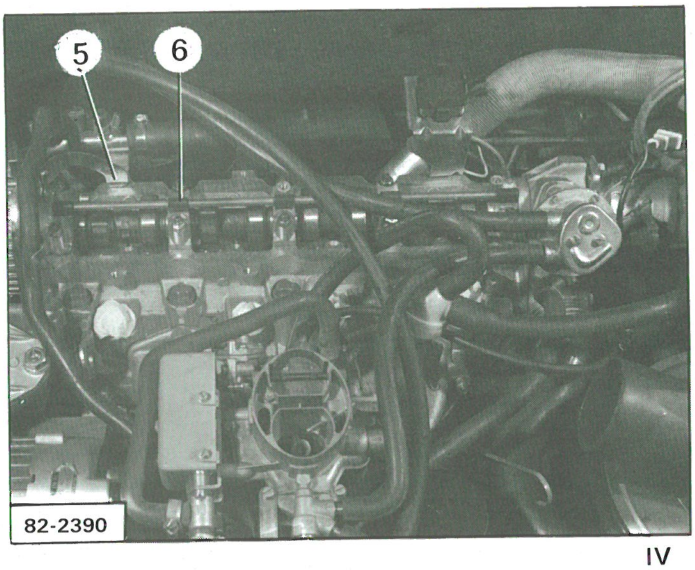
I



III



II



IV

With the crankshaft in position for timing adjustment, fit the belt on the camshaft pulley, rotate the cam (2) by 1/4 of a turn to free the belt tensioner, **Fig. I.**
Pre-tighten the securing nuts (1).

Rotate the crankshaft by two turns min. to position the belt, observe the direction of rotation ⟶
Stop the engine at cylinder No. 1 TDC, Fig. II.
(Flywheel ident. mark facing "0").

Loosen nuts (1) of the tensioner roller then tighten them.
Tightening torque : **1.6 m.daN.**
Tighten locking cam to **1.5 m.daN.**

Fit : **Fig. III and IV**
- protectors (3) and (4) and tighten lug (5),
- the petrol pump.

Tightening torque : 1.8 m.daN

Fit the distributor.

Lower the vehicle to the ground.

Set the distributor with the engine running *(see Op. XB. 16. 210-1).*

CHECKING THE OIL PRESSURE

If necessary, fill up the engine with oil.

Remove oil pressure switch (1) : **Fig. II.**

Position union **7001-T** fitted with a copper seal : **Fig. I**

Connect pressure gauge **2279-T bis** graduated from 0 to 10 bars : **Fig. II and III.**

Connect a tachometer.

Checking the oil pressure :
- rotate the engine until the oil temperature reaches **80° C.**
- bring the engine speed to **4000 rpm.**

The oil pressure should be **3.5 bars min.**

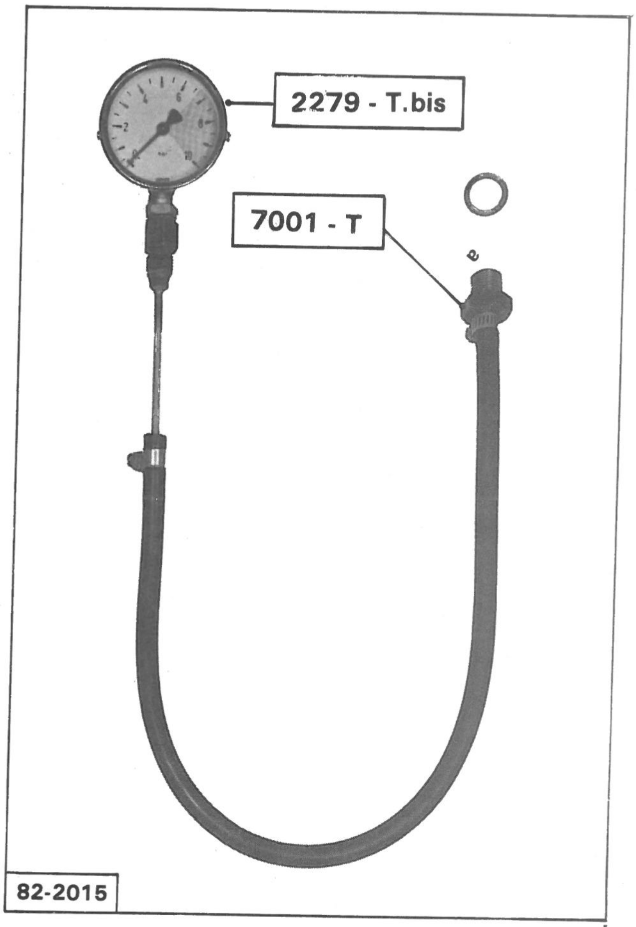
Remove the pressure gauge and the union.

Disconnect the tachometer.

Fit the pressure gauge equipped with a new copper seal, tighten **to 2.2 m.daN.**

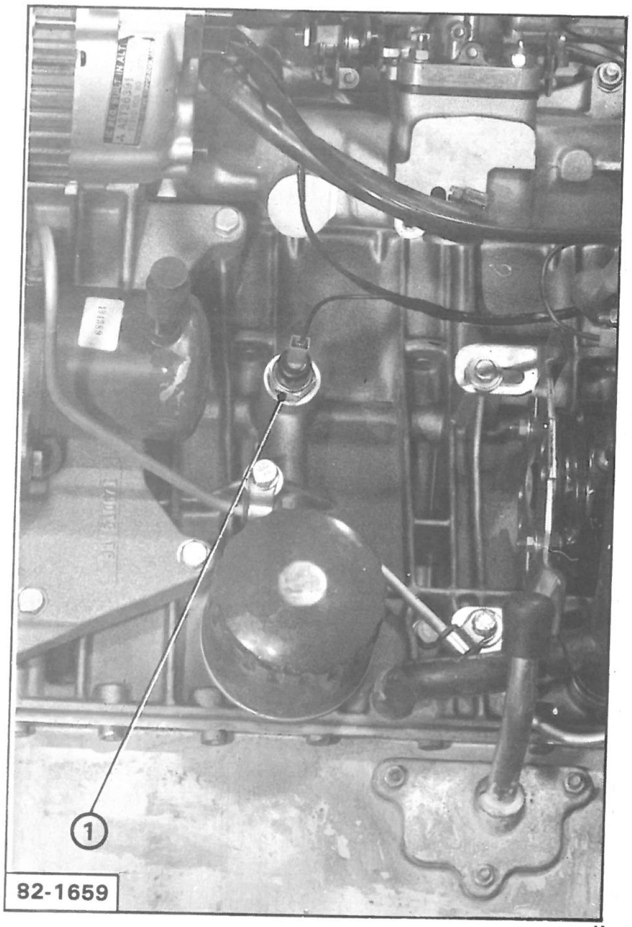
Connect the lead of the pressure gauge.

Check the oil level.



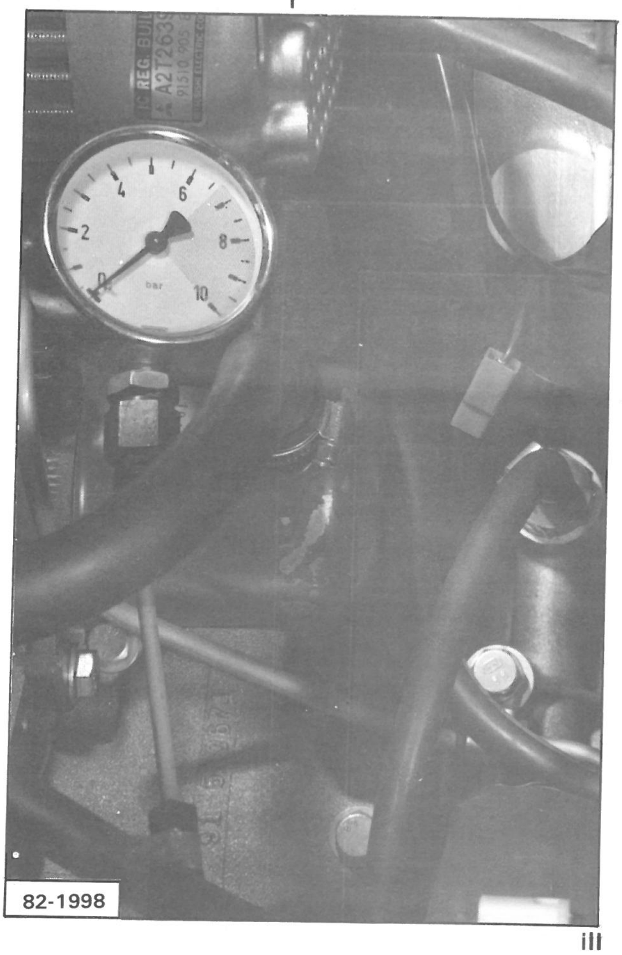
82-2015

I



82-1659

II



82-1998

III

2

Operation number	DESCRIPTION
XB.142-000	General features of the carburation
XB.142-1	Removing and fitting the carburettor
XB.175-1	Characteristics of petrol and air supply systems Removing and fitting the petrol tank
	BX and BX.14 (1360 cc engines)
XB.14 142-00	Characteristics of the carburettors
XB.14 142-0	Adjusting the carburettors
	BX.16 (1580 cc engines)
XB.16 142-00	Characteristics of the carburettor
XB.16 142-0	Adjusting the carburettor

GENERAL FEATURES OF THE CARBURATION

SOLEX and WEBER carburettors are fitted with tamper-proof devices for the mixture adjustment screws.
The SOLEX carburettor is fitted with protective caps for the throttle spindle stop-screw of 2nd choke and butterfly adjustment screw.

If the carburettor is not properly adjusted, the original protective plug *(white on WEBER carburettors, black on SOLEX carburettors)* will be removed, and after adjustment of the carburettor, will be replaced by a « REPAIR » protective plug *(black on WEBER carburettors, and white on SOLEX carburettors).*

The Replacement Parts Department supplies under Reference number **4029-T** a kit for removing and refitting the protective plugs on SOLEX and WEBER carburettors.

TOOLS INCLUDED IN KIT 4029-T, Fig. I and II :

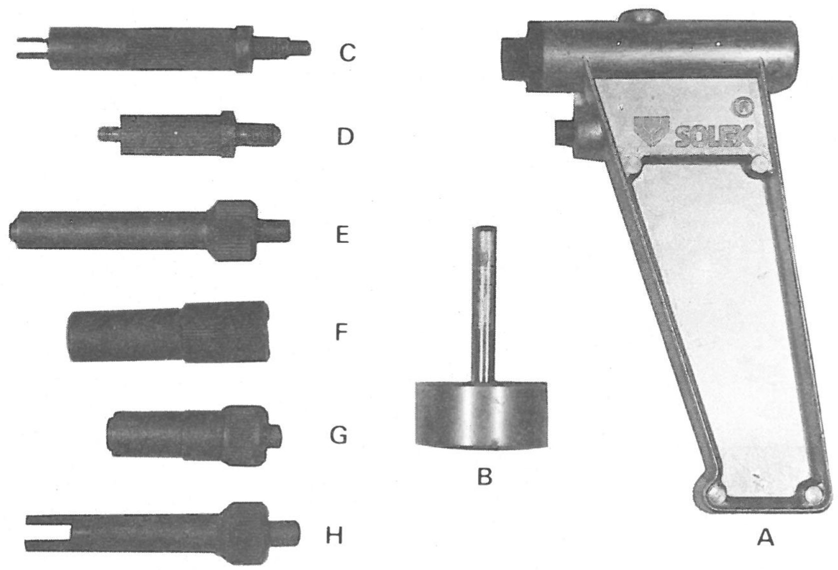
A. Gun
B. Tool for loading the gun
C. Tool for extracting the plug **(a)** protecting the sunken mixture adjustment screw (SOLEX)
D. Tool for extracting the plug **(a)** protecting the sunken mixture adjustment screw (WEBER)
E. Tool for fitting plug **(a)** and cap **(b)** (SOLEX and WEBER)
F. Tool for breaking the head of cap **(b)** of the sunken mixture screw with collar (SOLEX)
G. Tool for extracting cap **(b)** (SOLEX)
H. Tool for fitting cap **(c)** protecting the stop-screw for the throttle spindle (SOLEX)
This kit also contains a set of plugs for SOLEX carburettors :
- **a)** Protective plug for mixture adjustment screw
- **b)** Protective cap for mixture adjustment screw with collar
- **c)** Protective cap for throttle spindle stop-screw

The Replacement Parts Department supplies caps in packets of 10, under the following reference numbers :
- **Protective plug for sunken mixture adjustment screw**
  SOLEX carburettor .... No. 5 489 718 Y (white)
  WEBER carburettor .... No. 5 489 716 B (black)
- **Protective cap for mixture adjustment screw with collar**
  SOLEX carburettor .... No. 5 501 075 U (white)
- **Protective cap for throttle spindle stop-screw and butterfly opening adjusting screw**
  SOLEX carburettor .... No. 5 507 643 K (white)

UTILIZATION

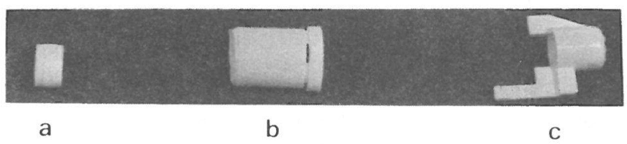
I. REMOVING AND FITTING A PROTECTIVE PLUG FOR SUNKEN MIXTURE ADJUSTMENT SCREW ON A SOLEX CARBURETTOR.

REMOVAL, **Fig. III, IV and V :**
1. Load gun **A** on tool **B**.
2. Pierce plug **(a)** :
   - position tool **C** and hold it against gun **A**,
   - position the gun and tool assembly against plug **(a)** making sure that the nozzle of gun **A** is properly centred against the plug, and that the assembly is aligned as precisely as possible in the axis of the plug.
   - actuate the gun, and remove it, leaving tool **C** on the carburettor.
3. Remove plug **(a)** :
   - load gun **A**,
   - screw tool **C** *into the back* of gun **A**,
   - actuate the gun to remove the plug.
4. Adjust the level of pollution.



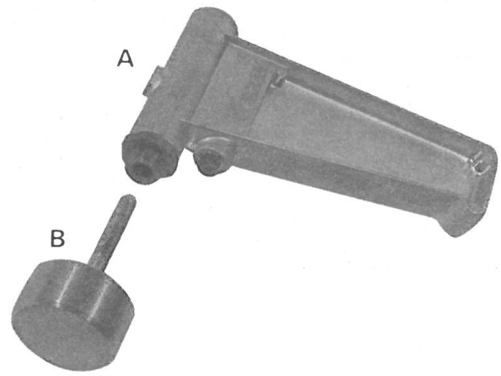
77-212

I



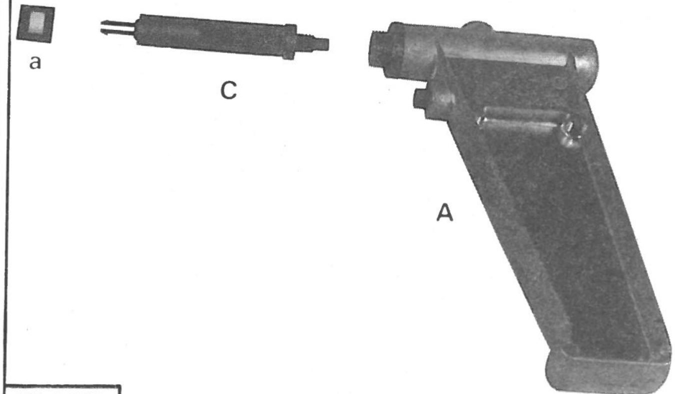
76-1186

II



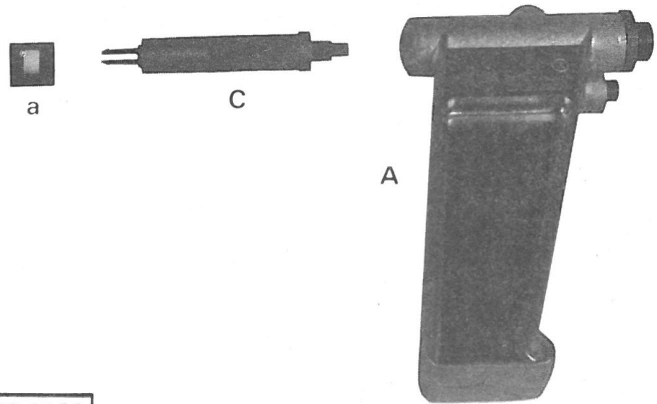
76-1195

III



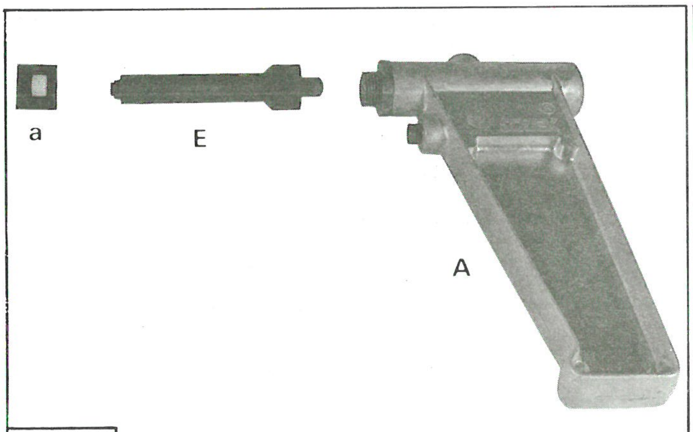
76-1189

IV



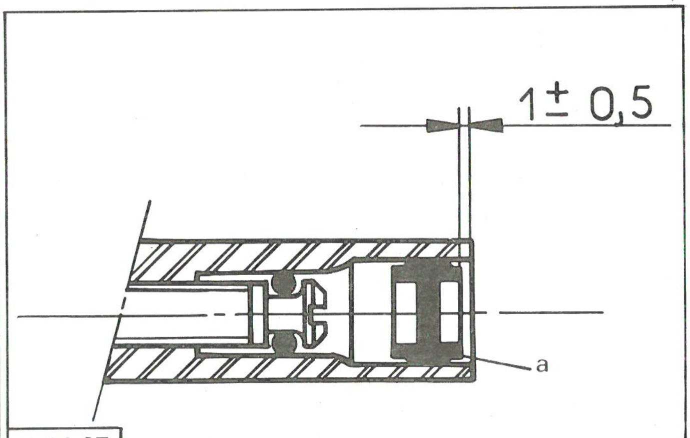
76-1191

V



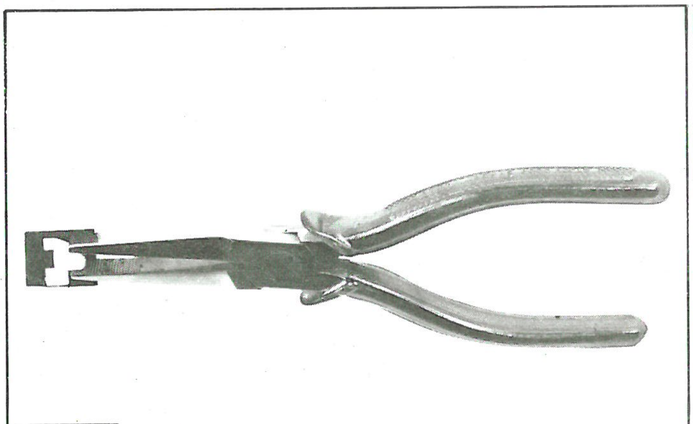
76-1193

I



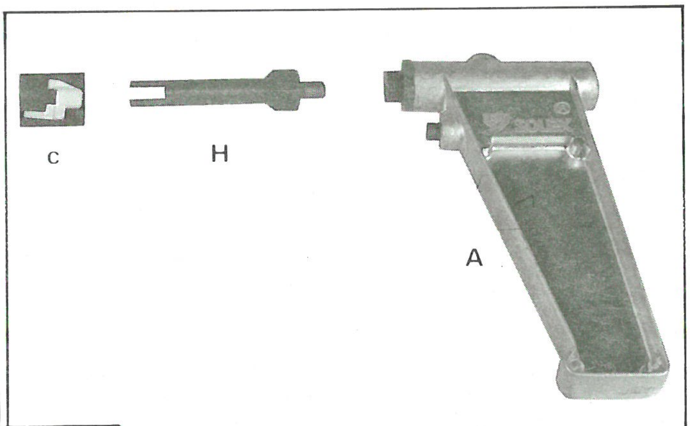
G 14-27

II



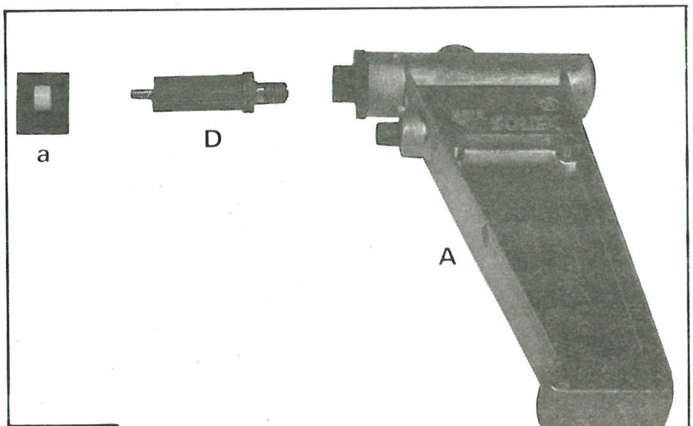
76-1188

III



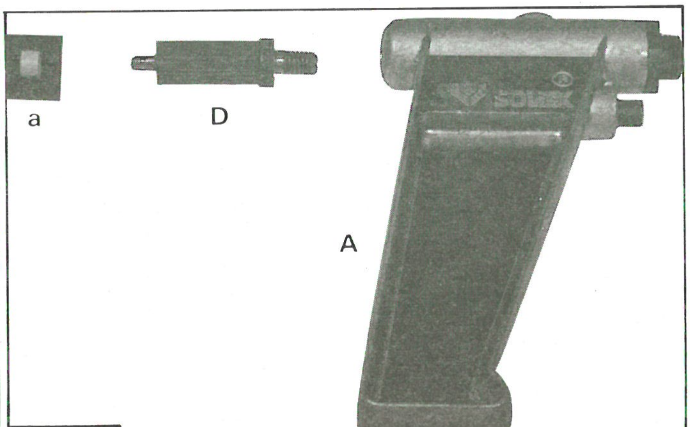
76-1192

IV



76-1351

V



76-1352

VI

FITTING, **Fig. I and II :**

5. Fit the tamper-proof protective plug **(a)** :
- load gun **A**,
- screw tool **E** onto gun **A**,
- position plug **(a)** in its housing on the carburettors,
- actuate the gun until the plug is properly located.

II. SOLEX CARBURETTOR.

REMOVING AND FITTING THE PROTECTIVE CAP FOR THROTTLE SPINDLE STOP-SCREW OF 2nd CHOKE (cap c).

This operation is to be carried out only in the case of a check and adjustment on a carburettor test bench (L'POLLU 2000 type).

REMOVING AND FITTING THE PROTECTIVE CAP FOR OPENING ADJUSTING SCREW OF BUTTERFLY UNDER OPERATION OF COLD START DEVICE.

REMOVAL, **Fig. III :**

1. Remove cap **(c)** using flat-nose pliers.
2. Adjust the butterfly opening :
Adjust the butterfly opening using the test bench according to the Norms Laid down in the « Etudes Equipment » bulletins Nos. : 14-116 ter and 14-1/16 quater *(sent on request to the users of carburettor test benches).*

FITTING, **Fig. IV :**
3. Fit cap **(c) :**
- load gun **A**,
- screw tool **H** onto the gun,
- fit cap **(c)** onto the throttle spindle stop-screw,
- place the tool and gun assembly against the cap **(c)** and actuate the gun.

III. REMOVING AND FITTING A PROTECTIVE PLUG FOR SUNKEN MIXTURE ADJUSTMENT SCREW ON A WEBER CARBURETTOR.

REMOVAL, **Fig. V :**
1. Load gun **A** on tool **B.**
2. Pierce plug **(a) :**
- position and hold tool **D** against gun **A**,
- position the gun and tool assembly against plug **(a)**, making sure that the nozzle of the gun is properly centred against the plug, and that the assembly is aligned as precisely as possible in the axis of the plug,
- actuate the gun, and screw the tool into the plug (L.H thread),
- remove the gun leaving tool **D** on the carburettor.

3. Remove plug **(a), Fig. VI :**
- load gun **A**,
- screw tool **D** into the back of gun **A**,
- actuate the gun to remove the plug.

4. Adjust the level of pollution.

FITTING, **Fig. I :**

5. Fit the tamper-proof protective plug **(a) :**
   - load gun **A**,
   - screw tool **E** onto gun **A**,
   - position plug **(a)** in its housing on the carburettor *(make sure it is fitted the right way round,* **Fig. II** *)*,
   - actuate the gun until the plug is properly located.

EXHAUST EMISSION CONTROL

In order to comply with current regulations, the checking and adjustment of the exhaust emission from vehicles with a petrol engine must without fail be performed after the following operations :

I. ENGINE REPLACEMENT.

II. CARBURETTOR REPLACEMENT.

III. WORK ON THE CARBURETTOR.
Replacement of parts of the carburettor.
Carburettor adjustment.
Work on the carburettor controls.

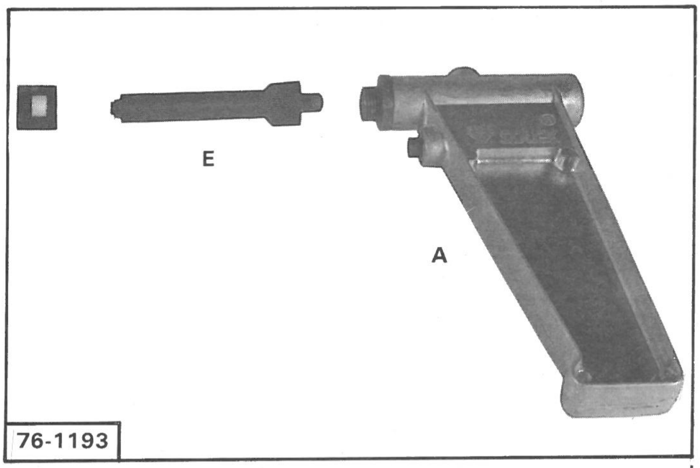
IV. WORK ON THE INLET MANIFOLD.
Replacement or removal of :
- the inlet manifold,
- the air filter,
- crankcase gas recirculation system.

V .WORK ON THE ENGINE.
Rocker adjustment.
Replacement or removal of :
- the cylinder head,
- the camshaft,
- the rockers,
- the valves,
- the liners and pistons.

VI. WORK ON THE IGNITION.
Replacement or reconditioning of the distributor (wholly or partially).
Adjustment or replacement of the sparking plugs.
Adjustment of the ignition timing.

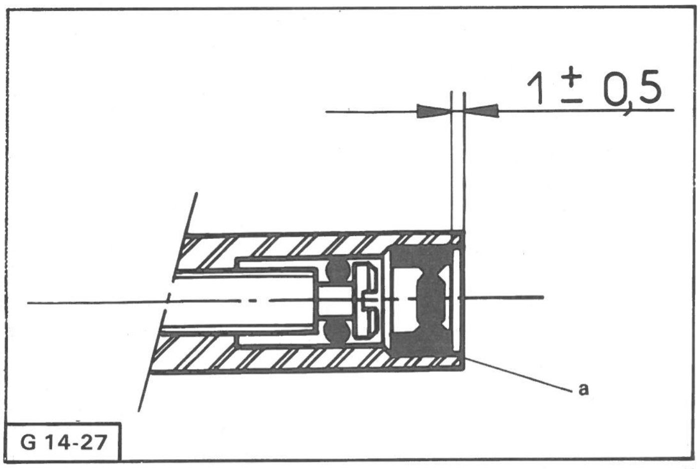
VII. WORK ON THE EXHAUST SYSTEM.
Replacement ore removal of :
- the exhaust manifold,
- the exhaust pipe or any other part of the exhaust.

VIII. WORK ON THE EMISSION CONTROL SYSTEM.
When the vehicle is fitted with a specific equipment *(e.g. on vehicles of SWEDEN type)*.



76-1193

I



G 14-27

II

REMOVING AND FITTING THE CARBURETTOR

150 A and 150 C engines (SOLEX 30-30 Z 2 and 32-34 Z 2).

REMOVAL, **Fig. I and II :**

Note : *This operation does not require the cooling circuit to be bled.*

- Disconnect the cables for choke (8) and accelerator.
- Disconnect the wire (7) of the idle cut-off.
- Disconnect the pipes for petrol inlet (3) and return.
- Remove screw (6) and space flange (5) apart from the carburettor body.
- Remove clip (2) and push away air filter-carburettor duct (1).
- Remove the four fixing nuts (4) from the carburettor base.

FITTING.

Reverse the removal procedure with the exception of :

Push the choke control rod on dashboard fully home, then slightly pull it back so as to obtain a clearance of about 1 mm between knob and dashboard. Actuate the carburettor choke lever to set the strangler flap fully open. Connect the choke cable and tighten it.

171-5 Engine (WEBER 32-34 DRTC carburettor).

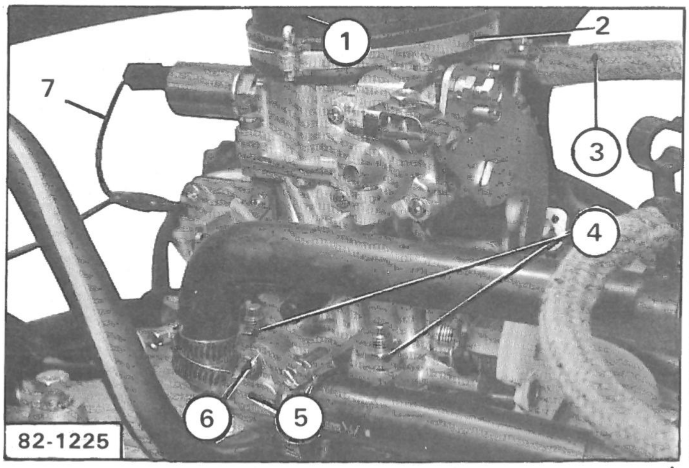
REMOVAL, **Fig. III and IV :**

- Disconnect the accelerator cable.
- Disconnect the wire (14) of the idle cut-off.
- Disconnect the petrol inlet pipe (10) and petrol return pipe (11).
- Remove screws (16) and space flange (15) apart from the carburettor body.
- Pinch with clamps at **« a »** and **« b »** so as to cut off the water supply to the automatic choke. Loosen clamps (12) and (13). Disconnect the water pipes.
- Remove air filter-carburettor duct (9).
- Remove the four fixing nuts from the carburettor base.

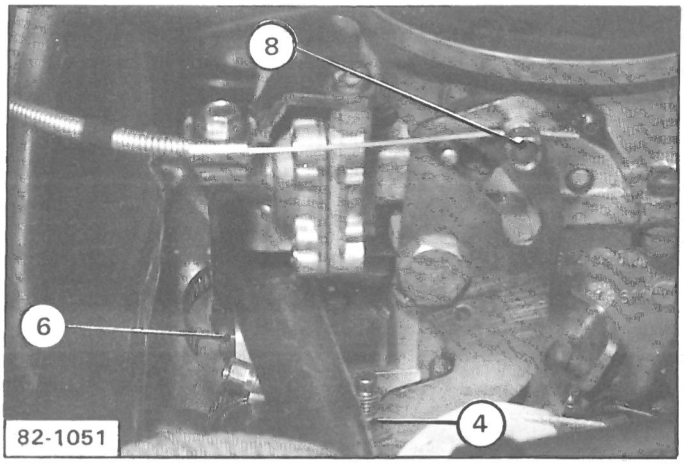
FITTING.

Reverse the removal procedure.

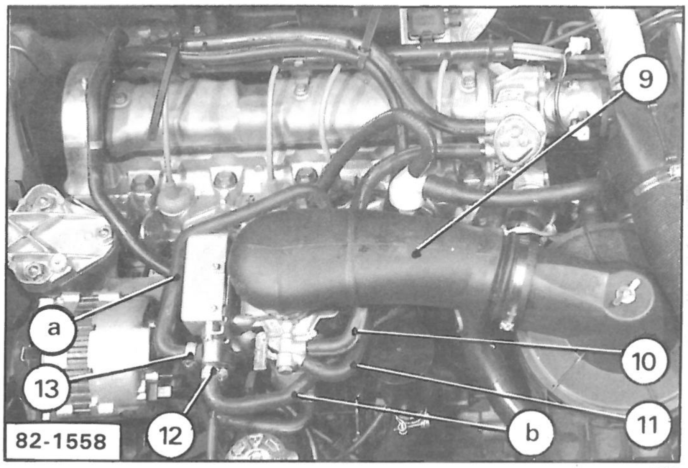
Top up the water level in the cooling system if necessary.


1
2
3
4
5
6
7
82-1225

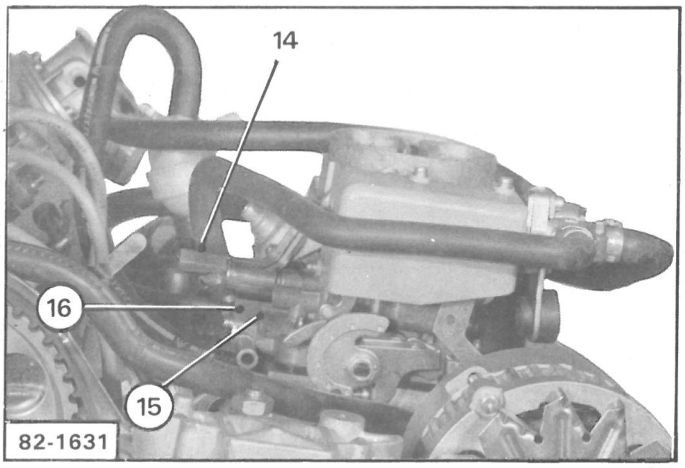
I


8
6
4
82-1051

II


9
a
10
13
11
12
b
82-1558

III


14
16
15
82-1631

IV

CHARACTERISTICS OF PETROL AND AIR SUPPLY SYSTEMS.
REMOVING AND FITTING THE PETROL TANK

CHARACTERISTICS OF THE PETROL SUPPLY SYSTEM

Filling up :

- Fuel filler cap : integral with the flap. **No venting orifice.**
- (5) Plastic filler pipe,
- (4) Air vent box with one-way valve.

Tank in high density polyethylene :

Capacity :
- **BX 14 : 44 litres**
- **BX 16 : 52 litres**

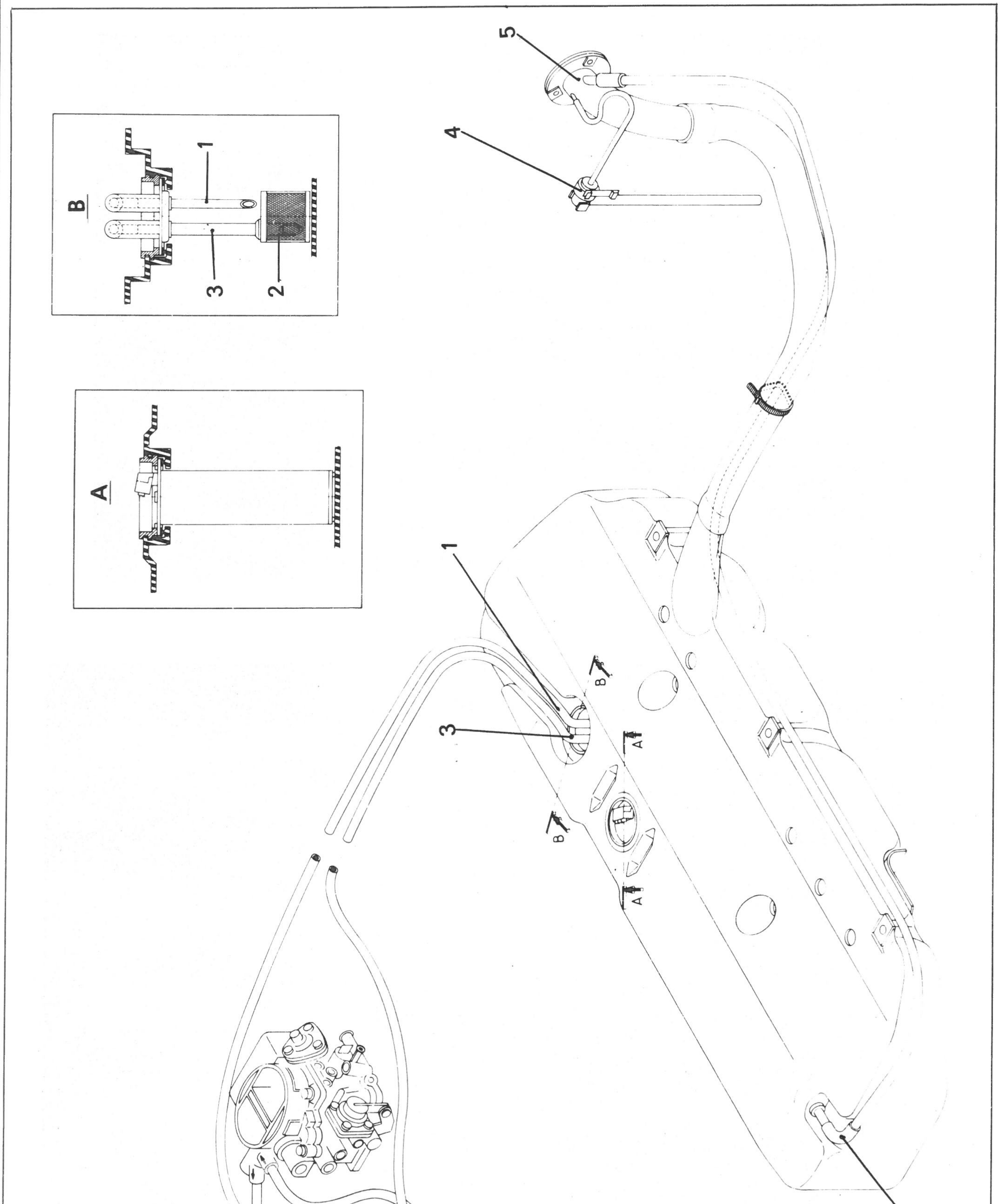
- (6) Fuel tank vent pipe, located on **LH side** for BX 16 vehicle and on **RH side** for BX 14 vehicle.

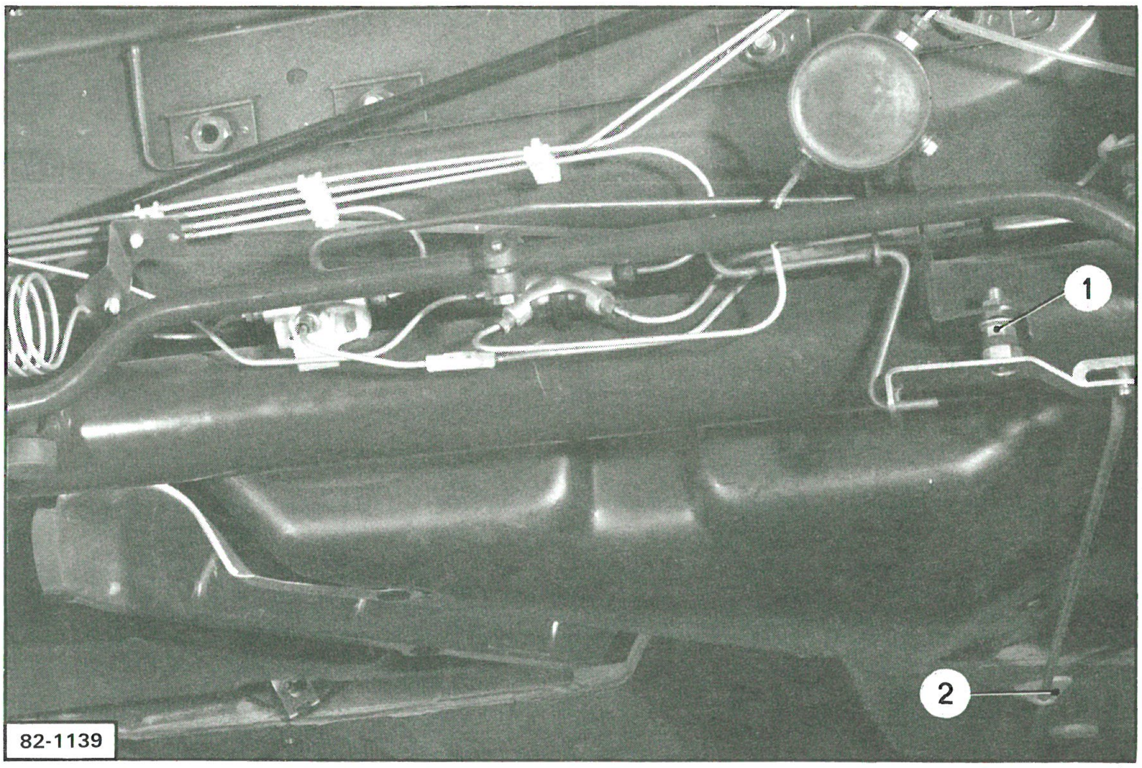
Section A : Rheostat for fuel gauge unit
Section B : Orifice for supply to carburettor
(1) Return pipe *(no mark on hose)*
(2) Filter on suction pipe
(3) Suction pipe *(yellow paint mark on hose).*

Petrol pump : mechanically-operated with built-in filter.

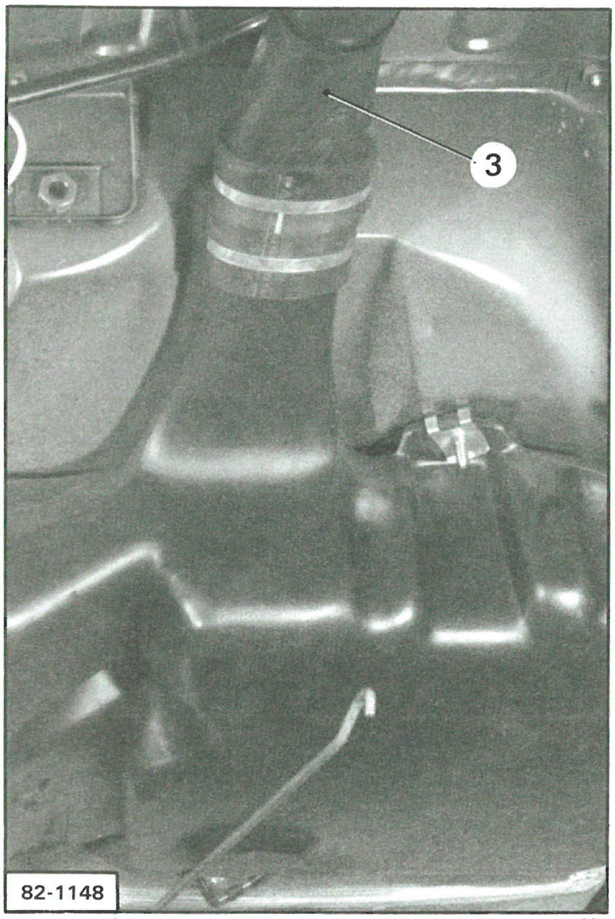
BX 14 :
Make : GUIOT or SOFABEX
Maximum static pressure : 250 mbars

BX 16 :
Make : SOFABEX or AC DELCO
Maximum static pressure : 270 mbars.

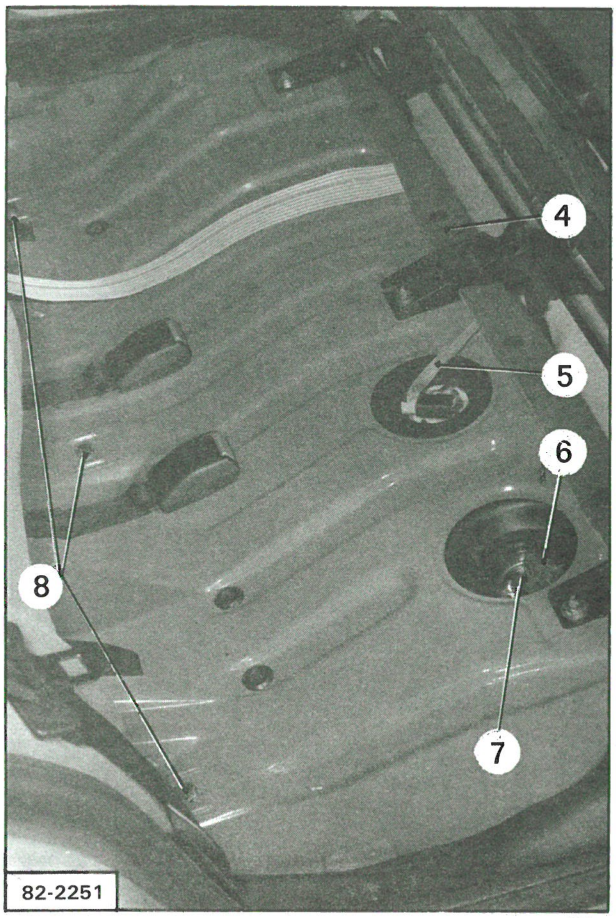

A
B
1
2
3
4
5
6
A
B



I



II



III

REMOVING AND FITTING THE PETROL TANK

REMOVAL.

Raise the rear of the vehicle and place on stands, the height of which should allow for the tank to be cleared.

Remove the exhaust :
(See Op. BX. 181-1)

Remove height control linkage (1) together with intermediate bearing (2) : **Fig. I.**

Disconnect filler pipe (3) : **Fig. II.**

Raise the rear bench-seat.

Disconnect the wiring harness (5) of the gauge unit and the suction (6) and return (7) pipes : **Fig. III.**

Using a pump, drain the tank through the orifice for supply to carburettor if necessary.

Unfasten the carpeting (4) to allow removal of the **two front fixing screws.**

Remove the three rear fixing screws (8).

Remove the tank after disconnecting the vent pipe.

FITTING.

Connect the air vent pipe, fit and fasten the tank.

Connect the gauge unit wiring harness and **couple up suction pipe (6)** *(yellow mark)* and **return pipe (7)** *(no mark).*

Connect the filler pipe and the height control.

Fit the exhaust.

Lower the vehicle onto its wheels.

CHARACTERISTICS OF THE AIR SUPPLY SYSTEM

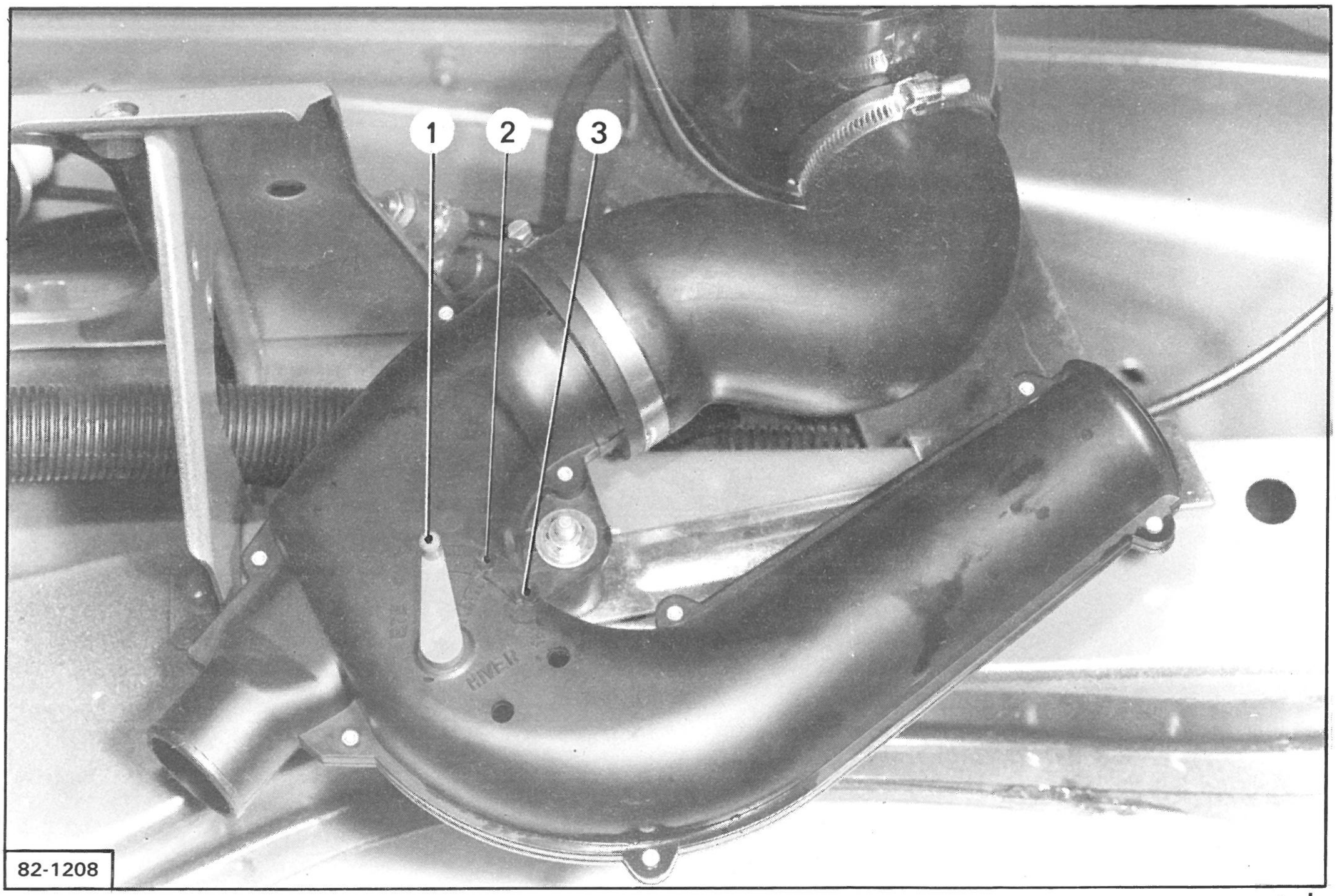
BX 14

Dry-type air filter, with filter cartridge.
Heating of the intake air is obtained by means of a 3-position, manually-operated air distribution box : **Fig. I and II.**

"ETE" :	**SUMMER :**	**Position 1 :**	Intake of air at ambient temperature
"MIXTE" :	**MIXTURE :**	**Position 2 :**	Intake of mixture air : one half is at ambient temperature and the other half is heated around the exhaust manifold.
"HIVER" :	**WINTER :**	**Position 3 :**	Intake of the air which is heated around the exhaust manifold.

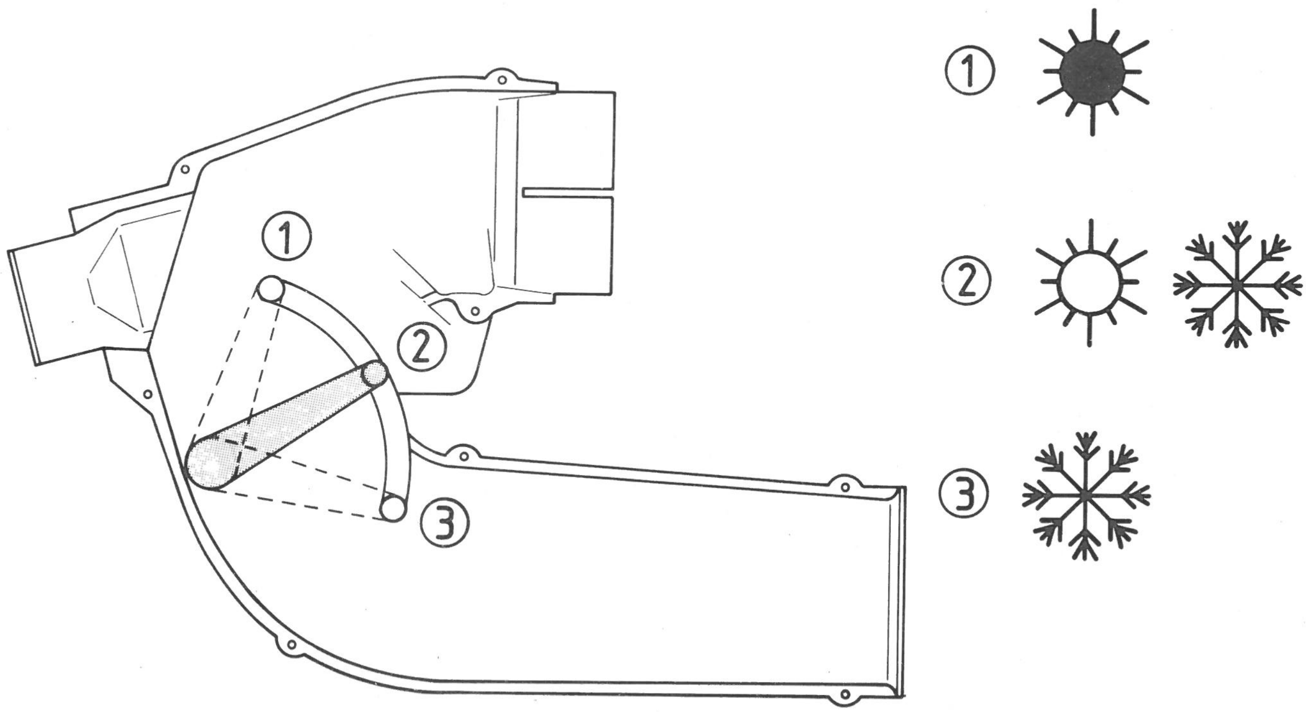
BX 16

Dry-type air filter, with filter cartridge.
Automatic regulation unit for heating of intake air.



82-1208

I



BX. 14-1

II

CHARACTERISTICS OF THE CARBURETTORS

SOLEX CARBURETTORS

CHARACTERISTICS

	150 A engine	150 C engine
Type	30-30 Z2	32-34 Z2
Mark	CIT 329	CIT 348

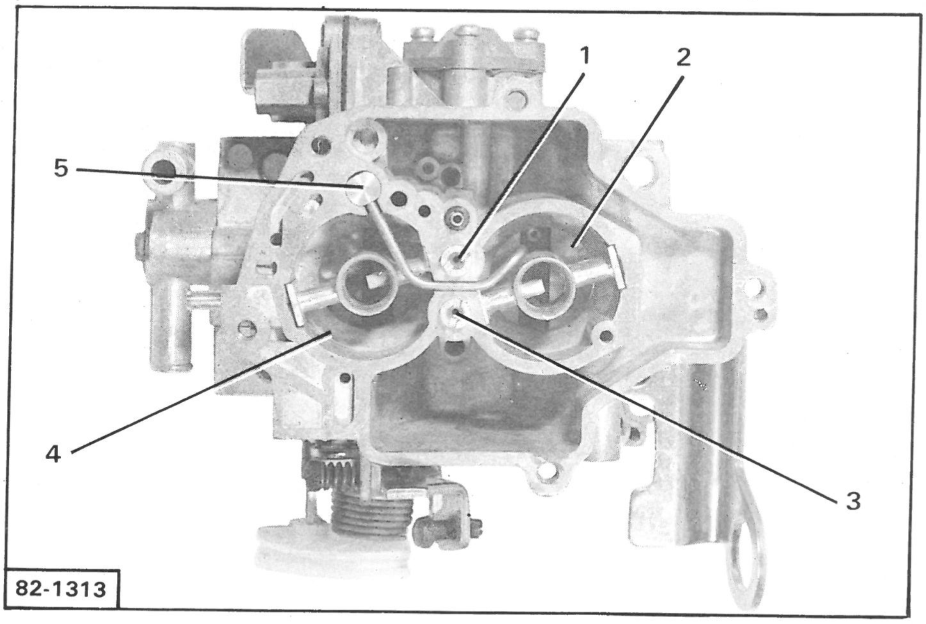
Dual choke « Compound » type with mechanically-controlled second choke butterfly.
Strangler flap on the first choke with anti-flooding capsule.
Idle cut-off.
Fuel return to tank on cover (shown by arrow).
Tamper-proof devices on mixture adjustment screw and on throttle spindle stop-screw for 2nd choke and on the opening adjusting screw for 1st choke butterfly under operation of cold start device.
Original part : black - Replacement part : white.

DESCRIPTION Type : Mark :	*	30-30 Z2 CIT 329 1st choke	 2nd choke	32-34 Z2 CIT 348 1st choke	 2nd choke
Venturi bore	K	24 (4)	25 (2)	24 (4)	25 (2)
Main jet	Gg	112,5 under (1)	125 under (3)	115 under (1)	120 under (3)
Air correction jet and emulsion tube	a	165 ZD (1)	180 ZC (3)	155 ZE (1)	160 ZC (3)
Idle jet	g	40 (6)		40 (6)	
By-pass jet	Cbp		50 (9)		50 (9)
Pneumatic enrichment device...	Ce	50 (7)		45 (7)	
Pump injector	i	35 (5)	35 (5)	35 (5)	35 (5)
Econostat petrol jet	CE		80 (8)		80 (8)
Needle valve	P	1.6 mm		1.6 mm	
Positive butterfly opening on 1st choke (strangler flap fully closed)		0.90 mm		0.75 mm	
Opening of strangler flap under vacuum of 350 mbar		3.2 ± 0.5 mm		3.7 ± 0.5 mm	

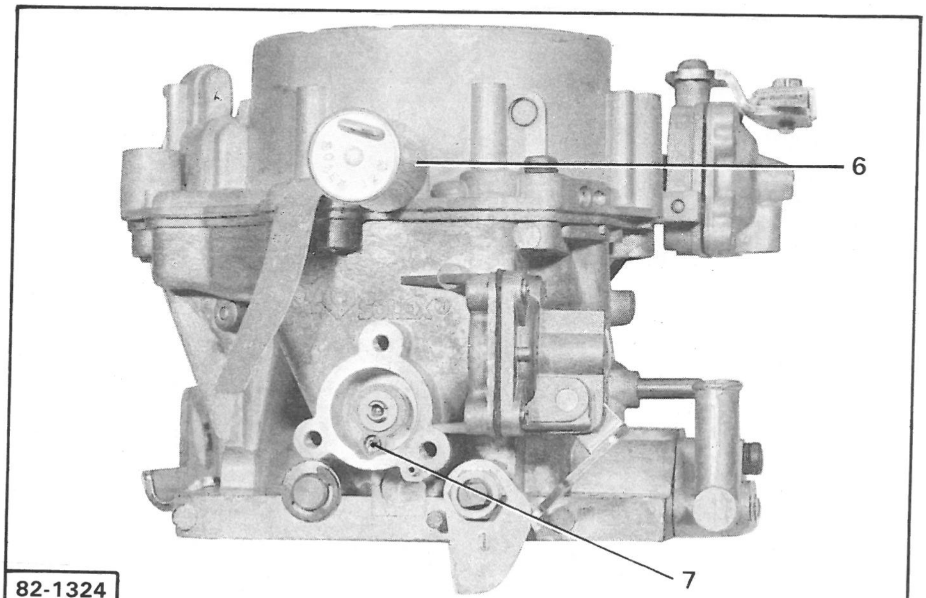
* See page 4

ADJUSTMENT ON « L'POLLU » TEST BENCH

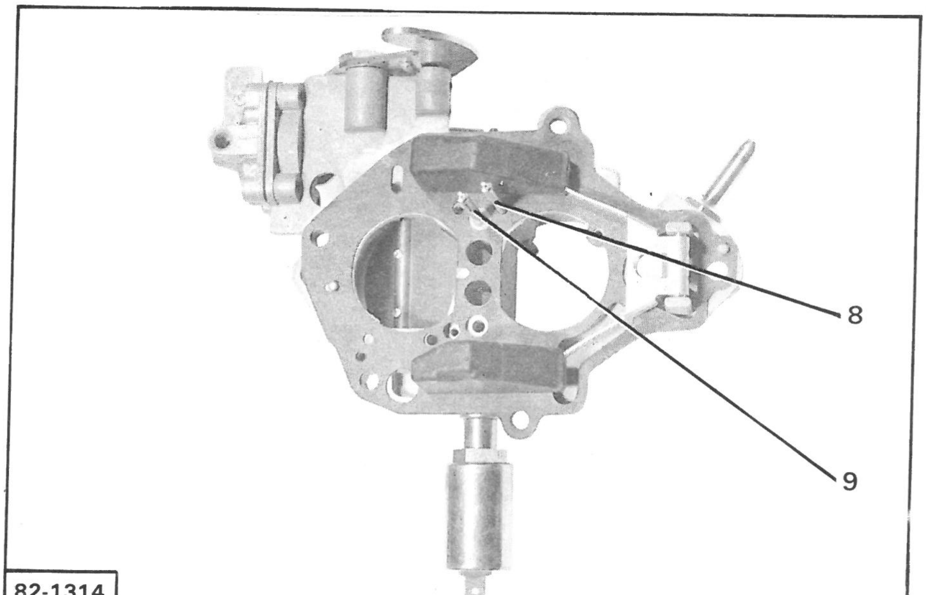
CARBURETTOR	BUTTERFLY OPENING		IDLING PREADJUSTMENT		
	1st Choke **W** closed	2nd Choke	1st Choke **W** open	2nd Choke	Total
30-30 Z2 CIT 329	N 315	K 195	N 325	K 195	N 355
32-34 Z2 CIT 348	N 305	K 315	N 320	K 315	N 380



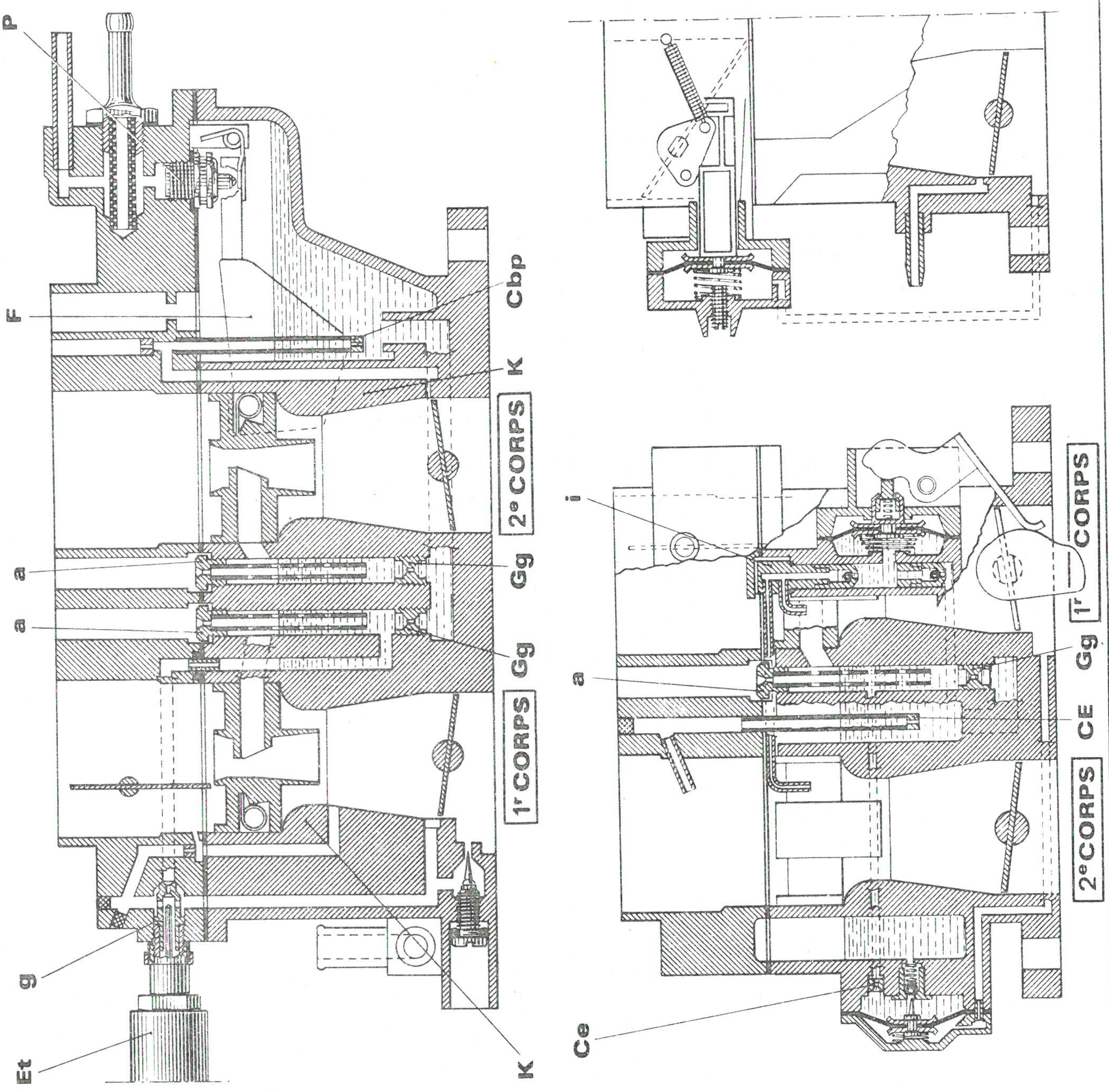
82-1313



82-1324



82-1314


P
F
Cbp
K
2e CORPS
a
a
Gg
Gg
1r CORPS
g
Et
K
i
1r CORPS
a
Gg
CE
2e CORPS
Ce

ADJUSTING THE CARBURETTORS

CHECKING AND ADJUSTING THE SOLEX CARBURETTORS : MARK 130-30 Z2 CIT 329 and 32-34 Z2 CIT 348

IMPORTANT NOTE : Do not tamper with the setting of the second choke butterfly stop-screw. It has been adjusted by the manufacturer with a micrometer.
(This note does not apply to an adjustment carried out on a carburation test bench).

ADJUSTING THE CARBURETTOR.

Checking the float, Fig. I and II :
Turn the float chamber cover upside-down.
With the float chamber gasket in position, dimension **A** from float chamber upper joint face to the top of the floats should be : **A = 33 ± 1 mm.** If otherwise, work on tongue (2).
Measurement between the floats : **1 mm.** if not, work on link (1).
- This check can also be carried out by means of gauge 71 644 82.

Adjusting the opening of the strangler flap, Fig. III and IV :
Pull the choke lever fully and hold it. The anti-flooding capsule is subjected to a vacuum of 350 mbar and it should bring the strangler flap to open by a dimension **B** as follows :

30-30 Z2 CIT 329 **B** = 3.2 ± **0.5 mm**
32-34 Z2 CIT 348 **B** = 3.7 ± **0.5 mm.**

If not, turn screw (3) in the proper direction so as to meet requirement.

Adjusting the opening of the throttle butterfly with choke on, Fig. V and VI :
Fully close the strangler flap and hold it.
Check the butterfly opening **C**, using a checking rod.

30-30 Z2 CIT 329 **C** = 0.90 mm
32-34 Z2 CIT 348 **C** = 0.75 mm.

If the opening is not correct, turn screw (5) in the proper direction so as to meet requirement.
If an adjustment has been carried out, put a tamper-proof cap over screw (5) *(See Op. XB 142-000).*

ADJUSTING THE IDLING SPEED, Fig. IV and VII :

ENGINE	Idling speed	CO content	CO_2 content
150 A	**700 to 800 rpm**	**0.8% to 1.5%**	**> 10%**
150 C	**800 to 850 rpm**		

Adjustment conditions : Engine cleared from unburnt gases, sparking plugs in conformity to requirement and in good condition, rocker clearances and ignition correctly set, air filter cleaned, choke control rod fully pushed in, butterfly correct return, ambient air temperature from 15° C to 30° C, engine at normal running temperature*(wait for the electric fan to cut in and to stop).*

Adjusting the idling speed on 30-30 Z2 CIT 329 carburettor (150 A engine).

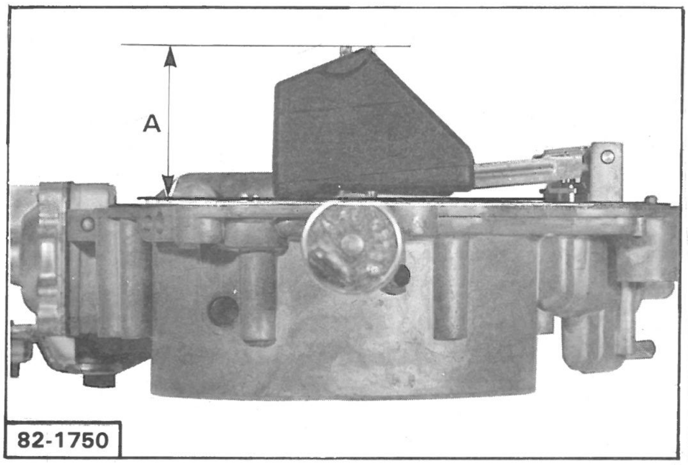
Adjustments, using an analyzer :
a) Remove the tamper-proof plug of mixture adjustment screw *(see XB. 142-000).*
b) Bring the speed to 750 ± 50 rpm by turning butterfly stop-screw (4).
c) Adjust the mixture to 0.8 to 1.5% CO by turning mixture adjustment screw (7).
d) Bring the speed back to 750 ± 50 rpm by turning butterfly stop-screw (4).

If the CO reading is incorrect, carry out the adjustment again.

REMINDER : Take in the **CO** and **CO_2** readings on the analyzer, then transfer them to a **corrected CO** chart. The result should be **lower than 4.5%** *(French regulation).*

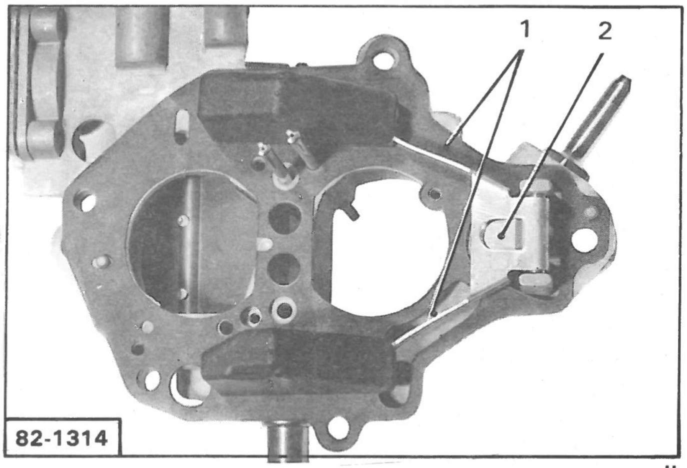
e) Fit a **white** tamper-proof device on mixture adjustment screw (7) *(see XB. 142-000).*

Adjusting the idling speed on 32-34 Z2 CIT 348 carburettor (150 C engine).
Proceed as per 150 A engine. Except engine speed : **$800\,^{+50}_{\;\,0}$ rpm.**



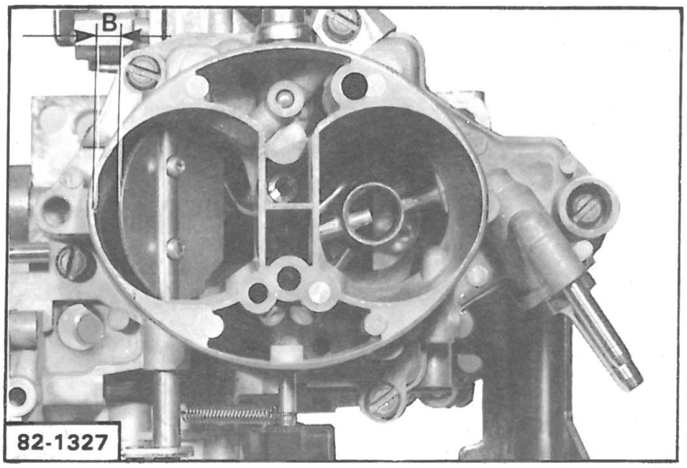
82-1750

I



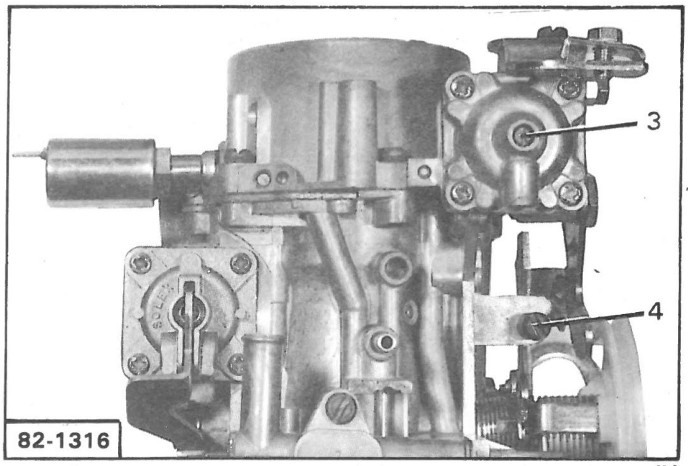
82-1314

II



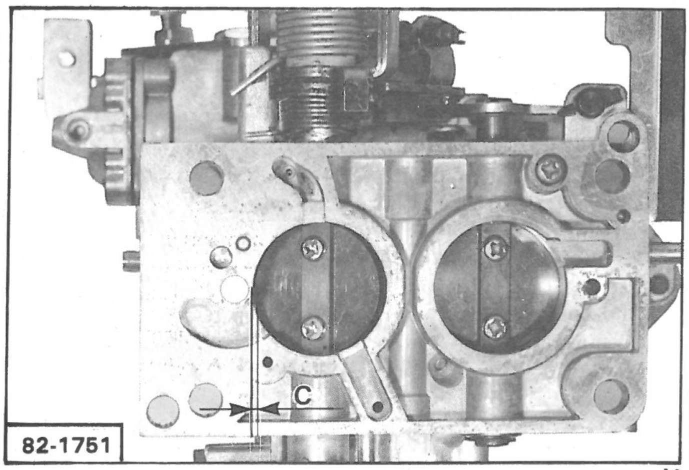
82-1327

III



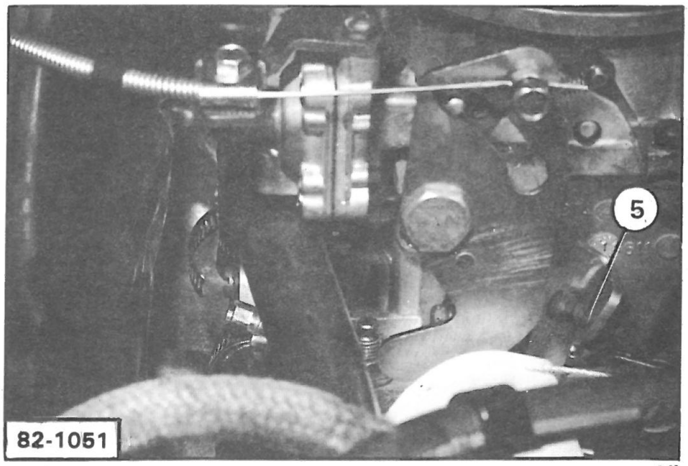
82-1316

IV



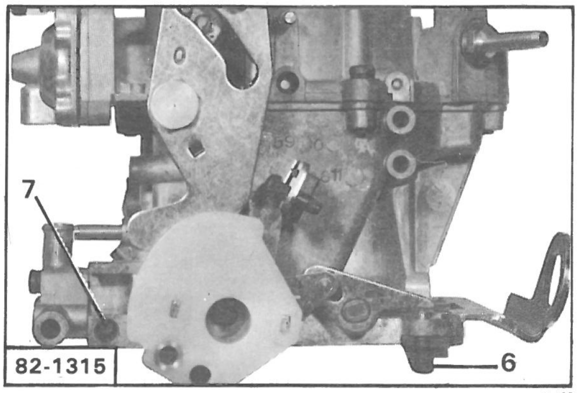
82-1751

V



82-1051

VI



82-1315

VII

CHARACTERISTICS OF THE CARBURETTOR

WEBER CARBURETTOR

CHARACTERISTICS.

Type : 32-34 DRTC/100.
Mark : W 121-50.
Dual choke « compound » type with mechanically-controlled second choke butterfly.
Automatic strangler flap on the first choke with pneumatic anti-flooding capsule.
Forced mechanical deflooding through second choke opening.
Pneumatically-controlled enrichment device on first choke.
Idle cut-off.
Fuel return to tank on cover (shown by arrow).
Tamper-proof device on mixture adjustment screw.
Original part colour : white - R.P. (Replacement Part) colour : black.

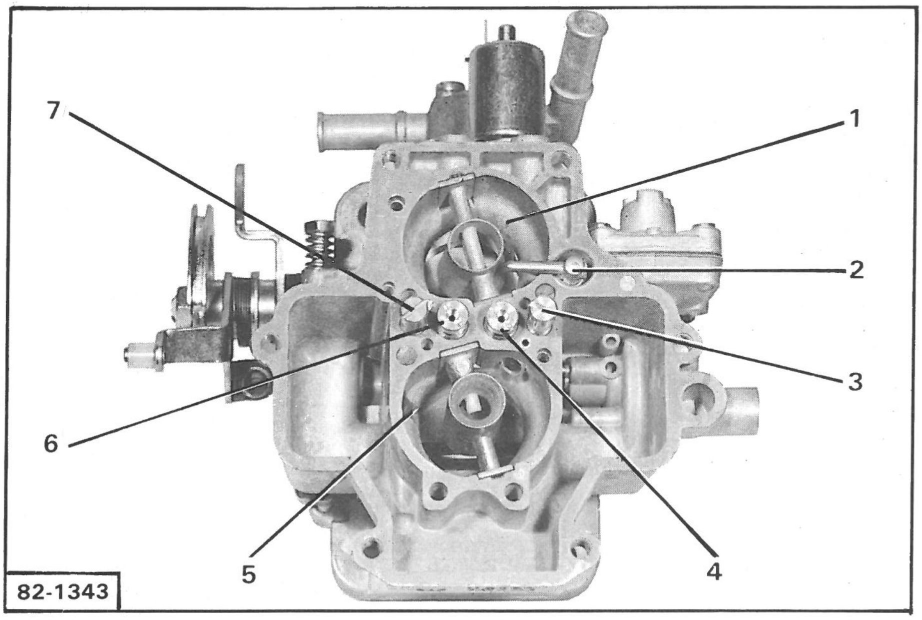
DESCRIPTION	*	1st CHOKE	2nd CHOKE
Venturi bore	K	24 (1)	26 (5)
Main jet	Gg	107 under (4)	115 under (6)
Air correction jet	a	165 (4)	160 (6)
Emulsion tube		F 27 under (4)	F 27 under (6)
Idling jet	g	45 (3)	
By-pass jet	Cbp		70 (7)
Pump injector	i	55 (2)	
Econostat petrol jet	CE		60
Needle valve	P	175	
Positive butterfly opening on 1st choke at 20° C		0.50 mm	
Opening of strangler flap under vacuum of 530 mbar		4.5 mm	

* See page 4

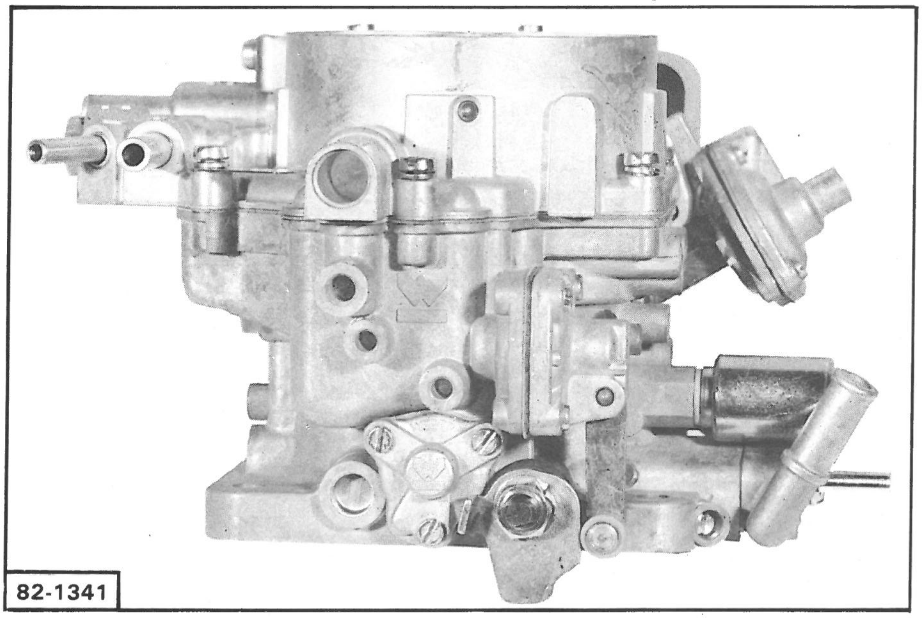
ADJUSTMENT ON « L'POLLU » TEST BENCH.

BUTTERFLY OPENING		IDLING PREADJUSTMENT		
1st Choke W closed	2nd Choke	1st Choke W open	2nd Choke	Total
K 410	K 70	K 440	K 70	K 450

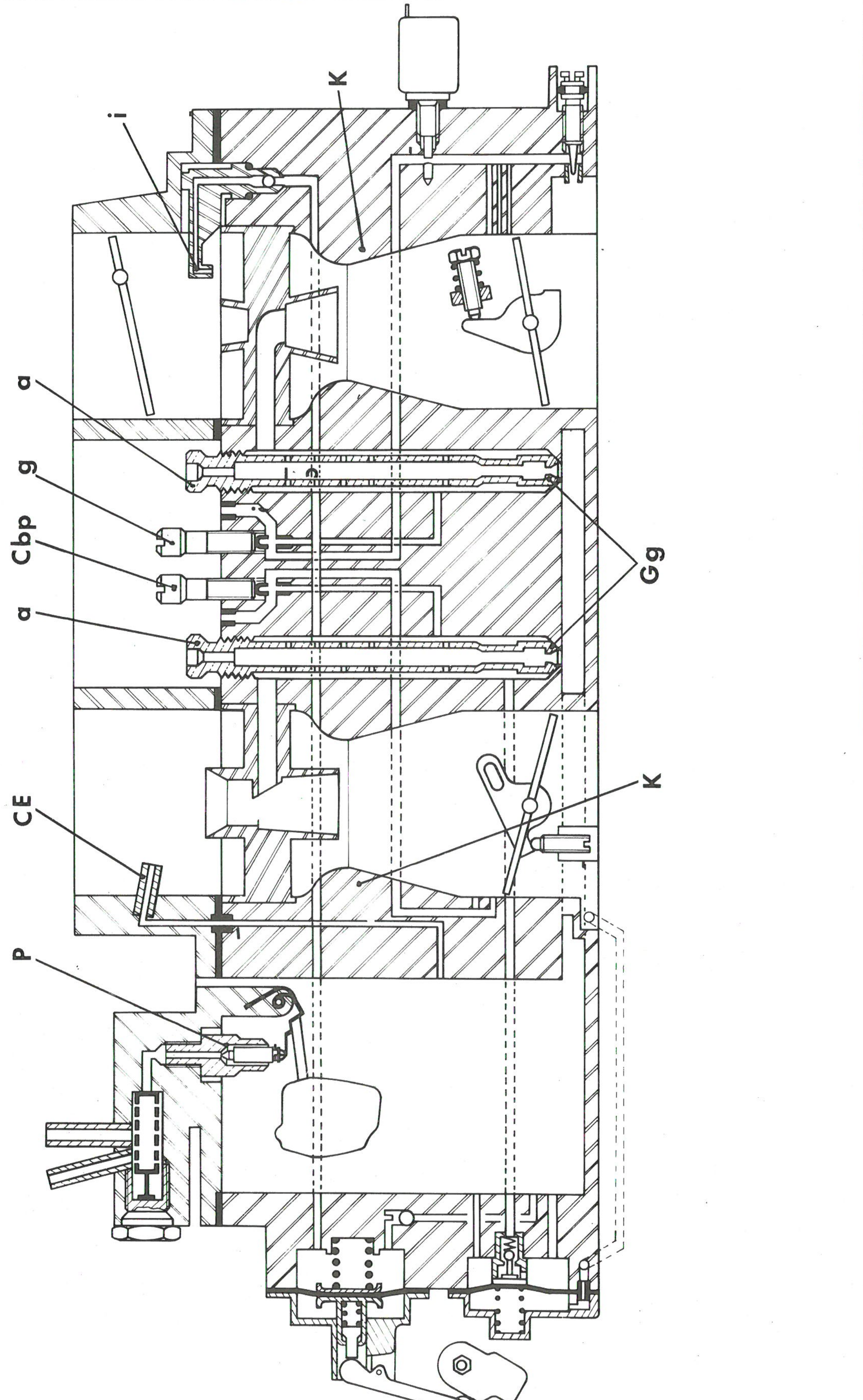
NOTE : Suppress the operation of the automatic choke to insure the return of the choke butterfly onto its idling stop.



82-1343



82-1341



BX. 14-4

ADJUSTING THE CARBURETTOR

CHECKING AND ADJUSTING 32-34 DRTC/100 W 121-50 WEBER CARBURETTOR

IMPORTANT NOTE : Do not tamper with the setting of the second choke butterfly stop-screw (5). It has been adjusted by the manufacturer with a micrometer.
(This note does not apply to an adjustment carried out on a carburation test bench).

ADJUSTING THE CARBURETTOR.

Checking the float Fig. I and II :
Remove the float chamber cover. Set it upright (ball of needle valve not pushed in).
Measure distance **« a »**, taken from the cover joint face *(gasket in position)* to the float.
This distance should be : **7.5 ± 0.25 mm.**
If not, work on tongue (1).
Measurement between the floats : **1 mm** approximately. If otherwise, work on link (2).

ADJUSTING THE CONTROLS.

To be checked prior to any adjustment of the cold start device.

Measure (**Fig. III**) the distance **« b »** from the end of lever (3) to roll (4).
Dimension **« b »** varies, depending on the temperature read about thermostatic capsule (7), **Fig. VI,** as on table below :

Temperature in C degrees	Dimension « b » in mm
5	22,7
10	23.7
15	24.7
20	25.6
25	26.4
30	27.2
35	28
40	29.1
45	30.2

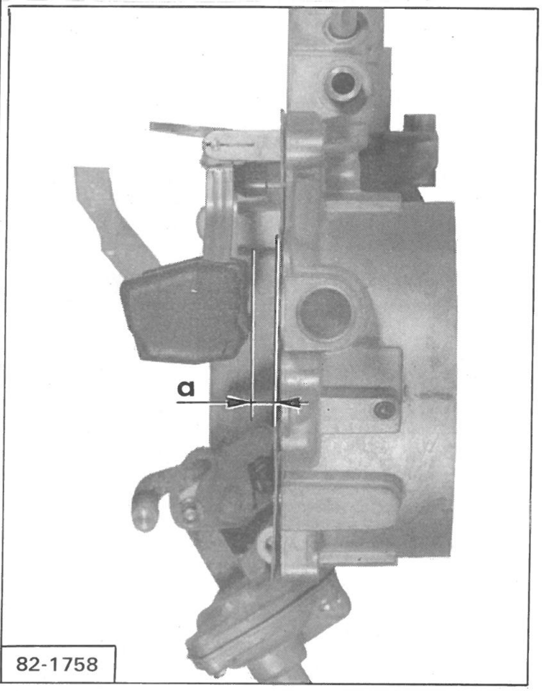
Dimension **« b »** must only be measured after the thermostatic capsule temperature has been stabilized for 30 minutes at least.

To modify the value of **« b »** turn screw (5) in the required direction **Fig. IV.**

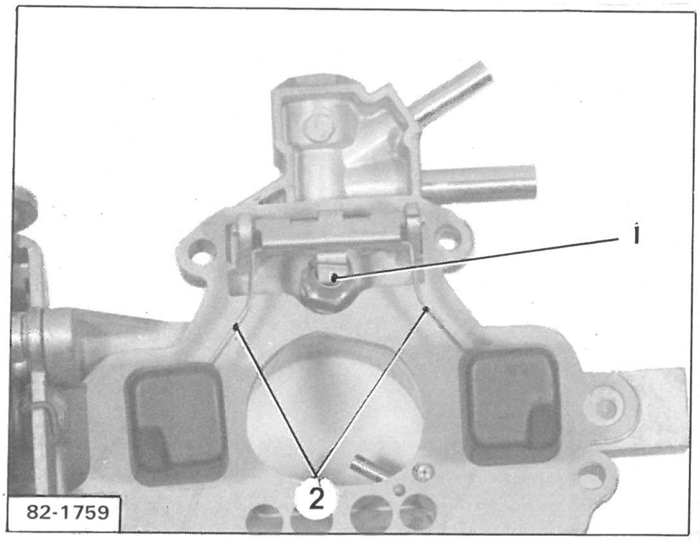
NOTE : An interpolation is necessary to estimate **« b »** value for any intermediate temperature not shown on the table above.
e.g. : temperature taken in : 22°C dimension **« b »** = 25.9 mm

ADJUSTING THE POSITIVE OPENING OF 1st CHOKE BUTTERFLY. Fig. V and VI

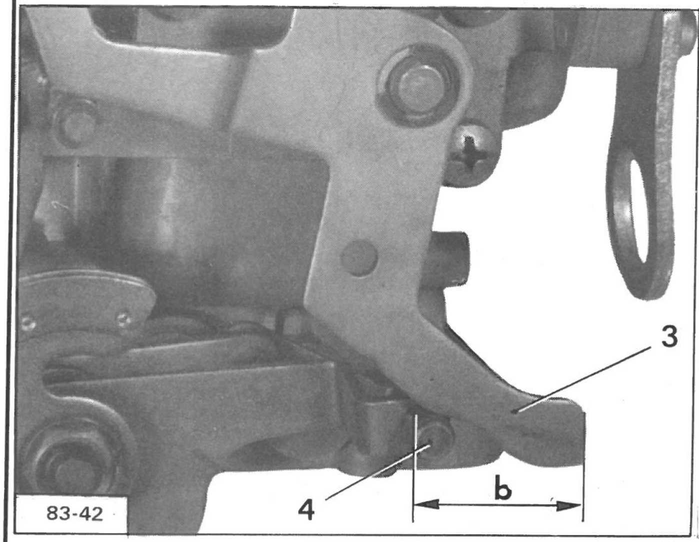
Prerequisite : ambient temperature and carburettor temperature : **20°C.**
Using a checking rod, check 1st choke opening **« c ».**
The opening should be : **c = 0.50 mm.**
If not, turn screw (6) to obtain dimension **« c ».**
NOTE : By turning screw (5) clockwise, opening **« c »** gets smaller.
By turning screw (6) anticlockwise, opening **« c »** gets larger.



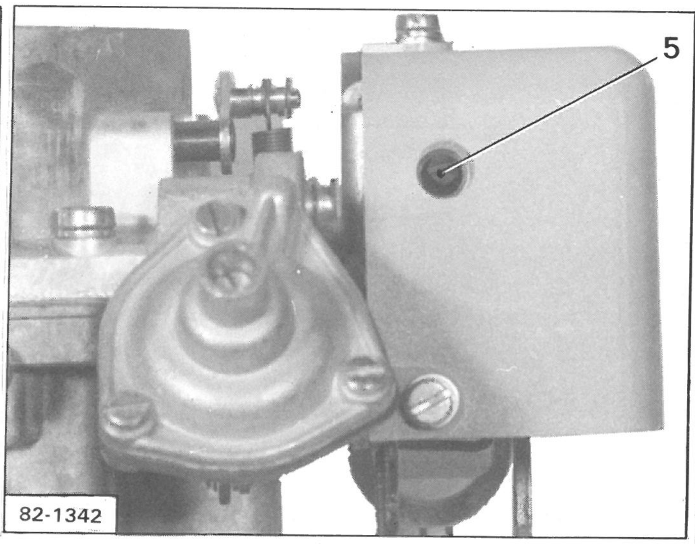
I



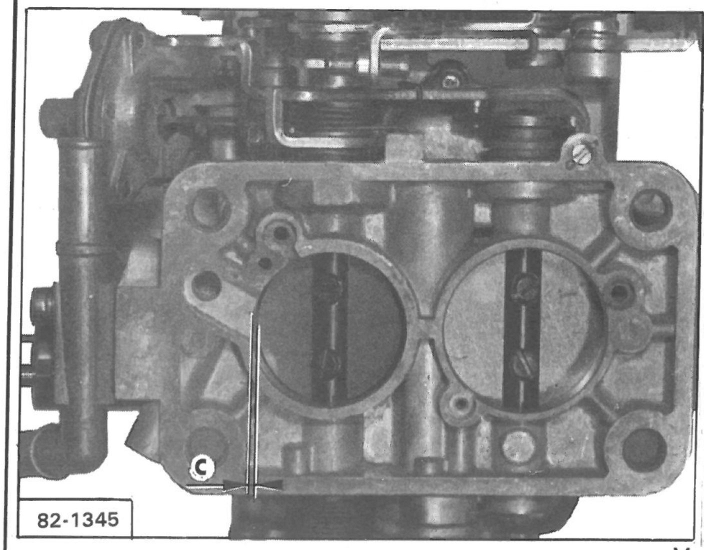
II



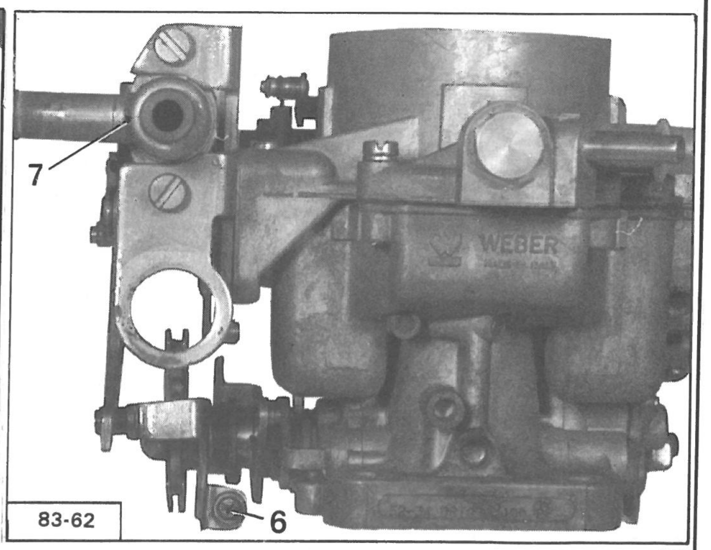
III



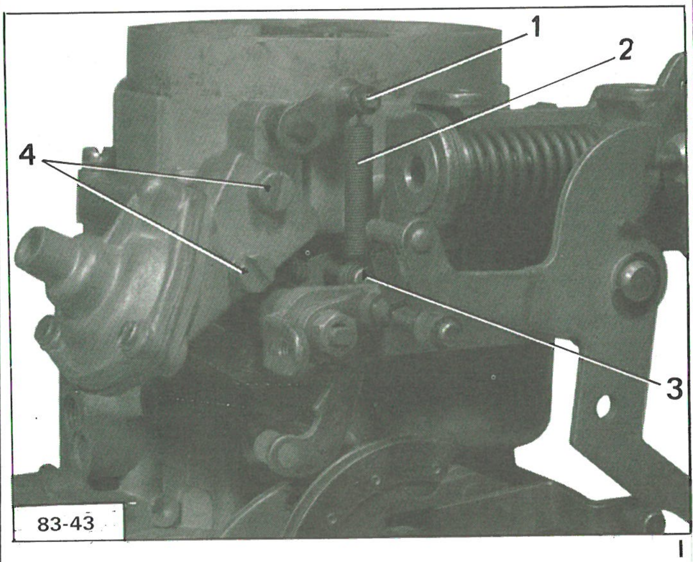
IV



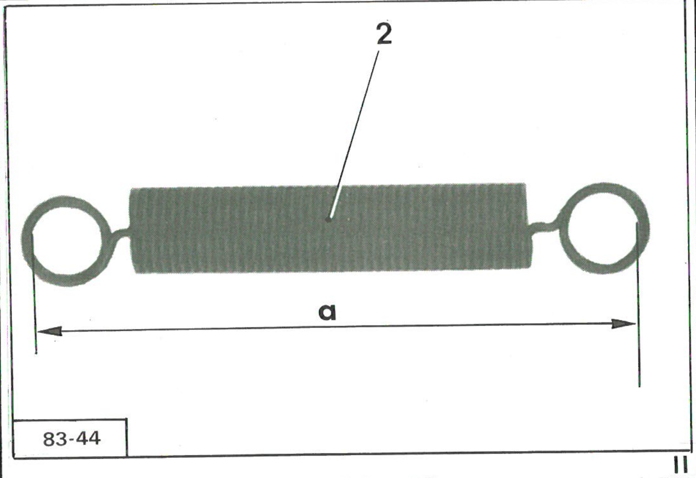
V



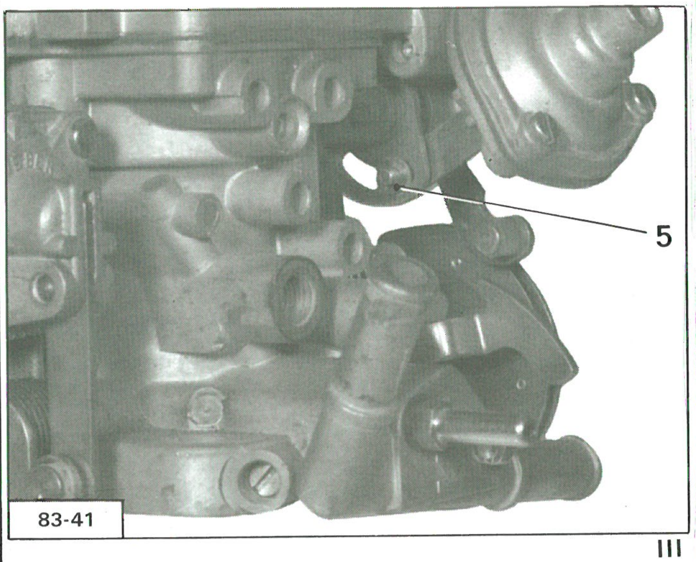
VI



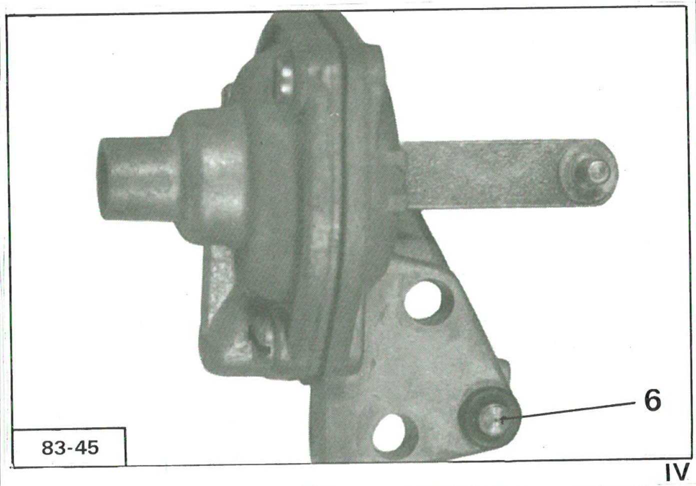
I



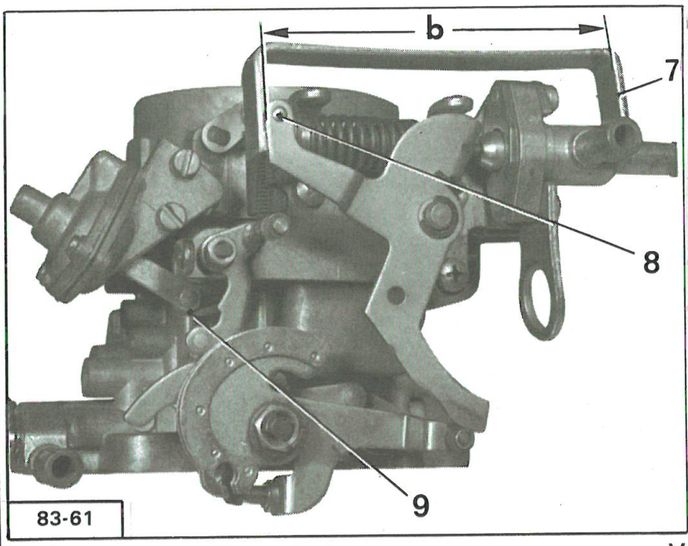
II



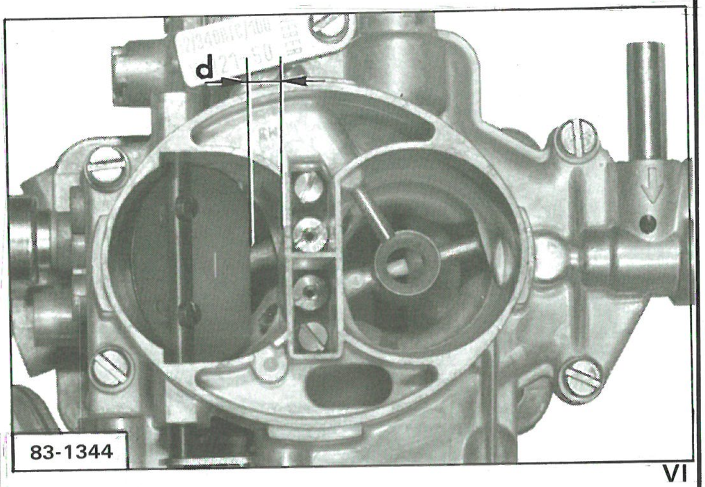
III



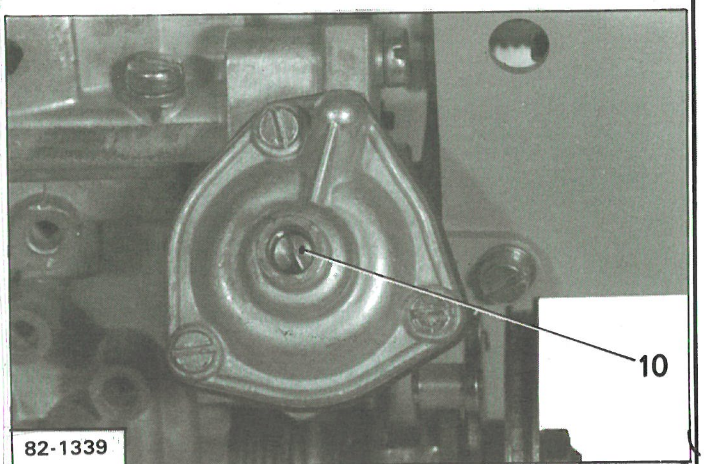
IV



V



VI



VII

Dimension **« c »** (page 3) varies, depending on the temperature read about the thermostatic capsule, as on table below :

Temperature in C degrees	Dimension « c » in mm
5	0.65
10	0.60
15	0.55
20	0.50
25	0.45
30	0.40
35	0.37
40	0.35
45	0.33

Dimension **« c »** must only be measured after the thermostatic capsule temperature has been stabilized for 30 minutes at least.

NOTE : An interpolation is necessary to estimate **« c »** value for any intermediate temperature not shown on the table above.
e.g. : temperature taken in : 22°C dimension **« c »** = 0.48 mm.

ADJUSTING THE OPENING OF THE STRANGLER FLAP.

Prerequisite checks :

Remove **Fig. I,** control spring (2) by taking off circlips (1) and (3).
Measure, **Fig. II,** dimension **« a »** taken inside the end rings :

« a » = 40.5 ± 0.2 mm

Remove **Fig. I** screws (4).
Remove **Fig. III** circlip (5) and washer behind it.
Check that orifice (6), **Fig. IV,** is not clogged.
Check that the gallery, opening in the carburettor base, is not clogged.
Refit the antiflooding capsule and the control spring.

Adjusting the opening :

Bring the choke to the very low temperature position so as to insure the full opening of the strangler flap.
To do that, fabricate a clamp (7), **Fig. V,** with dimension **« b »** = 103 mm approximately.
Fit it over shaft (8) and the heating pipe of the thermostatic capsule.
Push lever (9) fully.
Check, **Fig. VI,** the strangler flap opening **« d »** which should be **4.5 mm.**
If not, turn screw (10) in the appropriate direction so as to meet requirement, **Fig. VII.**

ADJUSTING THE IDLING SPEED : Fig. I

Idling speed $700\ ^{0}_{-50}$ rpm

CO content : 0.8 to 1.5 % **CO_2 content : ≥ 10%**

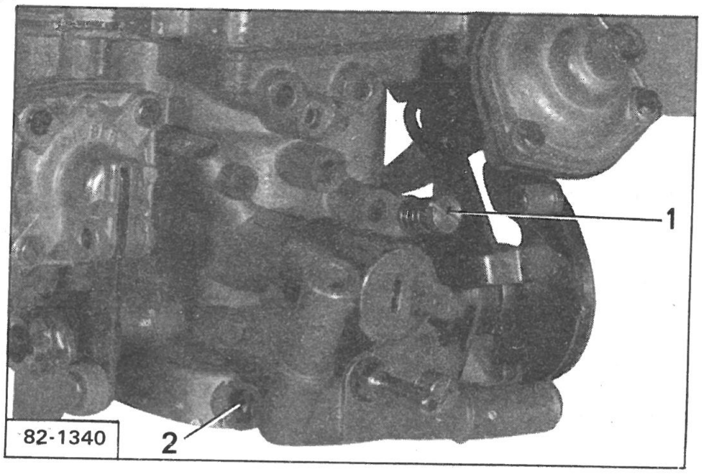
Adjusting conditions — Engine cleared from unburnt gases, sparking plugs in conformity to requirement and in good condition, rocker clearances and ignition correctly set, air filter cleaned, correct return of butterflies, ambient air temperature from 15° C to 30° C, engine at normal running temperature *(wait for the electric fan to cut in and to stop).*

Adjustments, using an analyzer :

a) Remove the tamper-proof plug of mixture adjustment screw *(see XB. 142-000).*
b) Bring the speed to between 650 and 700 rpm by turning butterfly stop-screw (7).
c) Adjust the mixture to between 0.8 and 1.5% CO by turning mixture adjustment screw (8).
d) Bring the speed back to between 650 and 700 rpm by turning butterfly stop-screw (7).
If the CO reading is incorrect, carry out the adjustment again.

REMINDER — Take in the **CO** and **CO_2** readings on the analyzer, then transfer them to a **corrected CO** chart. The result should be lower than **4.5%.**

e) Fit a **black** tamper-proof device on mixture adjustment screw (8) *(see XB. 142-000).*



82-1340

3

Operation number	DESCRIPTION
XB. 210-00	General features of the transistorized ignition system
	BX and BX.14 (1360 cc engines)
XB.14 210-00	Characteristics of the ignition system
	BX.16 (1580 cc engines)
XB.16 210-00	Characteristics of the ignition system
XB.16 210-1	Fitting the distributor

GENERAL FEATURES
OF THE TRANSISTORIZED IGNITION SYSTEM

TRANSISTORIZED IGNITION

PRINCIPLE OF OPERATION.
The plug spark is triggered by **the distributor** (4). The latter consists of a coil located inside the field of a magnetic circuit magnet. The magnetic circuit comprises four fixed branches and four mobile branches driven by the distributor shaft. When the mobile branches, in their rotation, come opposite the fixed ones, it brings about a flow variation and induces a current into the coil *(pick-up)*.
This current triggers the **electronic module** (5) which builds up the current in the **ignition coil** (3) primary winding and then cuts if off, thus creating a high tension in the secondary winding and triggering a spark from the plug selected by the distributor rotor arm.

DISTRIBUTOR.
The advance curves are specific, depending on the type of engine.
Pick-up coil resistance : 1100 Ω ± 10% *(990 to 1210 Ω).*
The distributor static timing on the engine is not possible, owing to design.
A revolution of the distributor is required to create a flow variation for the signal to the module.
Consequently, when fitting a distributor, set it in mid-slot and adjust it by means of a timing light or a diagnosis console.
The duration and amplitude of the signal vary, depending on the speed, therefore the DWELL ratio is not significant.
The air gap between the branches is non-adjustable and it cannot be measured.

ELECTRONIC MODULE.
BOSCH : 0227 100 111
DUCELLIER : 521 007
Intended to operate with the magnetically-triggered distributor.
Do not carry out a check with an ohmmeter since the results would not be significant.
Do not operate the module without cooling : thermal exchanger (aluminium plate).
The operation of the ignition system is possible with the engine stopped : - connect an earthed sparking plug to the coil HT lead ; short" +12 volts" pulses on module red lead (path 5) (with all leads connected, cap lifted) will generate a spark from the plug : simulation of a signal from the distributor pickup.
Do not operate the module and coil without a plug and HT lead. (It could result in the module being destroyed).

IGNITION COIL.

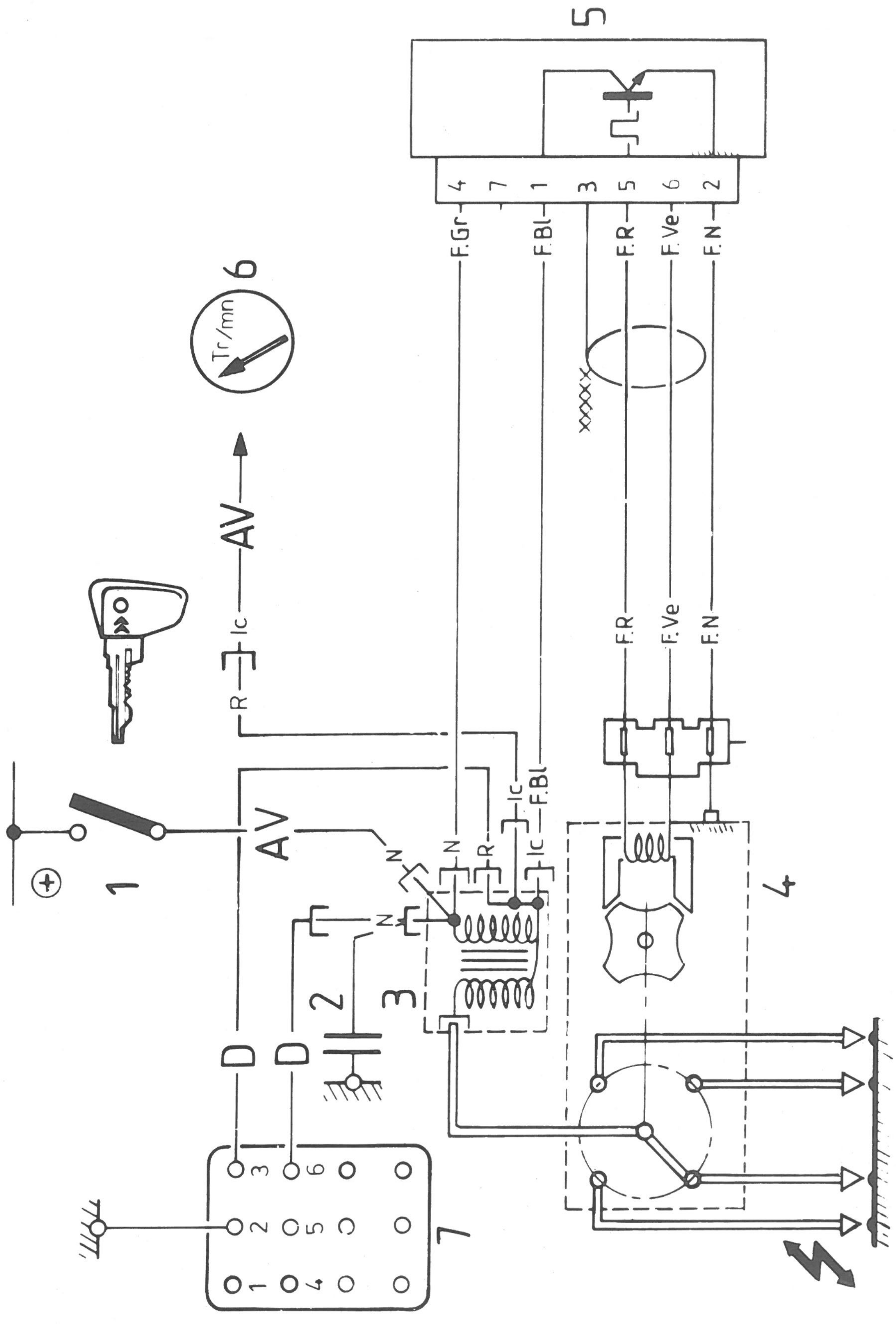
Reference	Primary resistance	Secondary resistance
BOSCH 0221 122 317	0.82 Ω ± 10%	8250 Ω ± 10%
DUCELLIER 520 015	0.8 Ω ± 5%	6000 Ω ± 5%

The coil must not be kept alive under 12 volts (without its module).

$$\textbf{I (intensity)} = \frac{\textbf{U (voltage)}}{\textbf{R (resistance)}} = \frac{\textbf{12 V}}{\textbf{0.8 }\Omega} = \textbf{15 A}$$

The coil filling current is generated by the module which then reduces it, prior to cutting it off when the engine ignition timing occurs.

Use only a rev counter with a HT induction clip.


5
4
7
1
3
5
6
2
F.Gr
F.Bl
F.R
F.Ve
F.N
6
Tr/mn
AV
Ic
R
F.R
F.Ve
F.N
Ic
F.Bl
Ic
N
R
N
N
AV
1
2
3
4
D
D
3
6
2
5
1
4
7

BX. 21-7

CHARACTERISTICS OF THE IGNITION SYSTEM

DISTRIBUTOR

150 A ENGINE(1360 cc - 62 CV)

Reference : DUCELLIER : 525 354

Centrifugal advance curve : **XA 1**
Vacuum advance curve : **XD 1**

A : Advance in distributor degrees
N : Distributor speed in rpm

D1 : Vacuum in mbar
D2 : Vacuum in mmHg

Strobe setting : 8° at 850 rpm *(with vacuum capsule disconnectesd).*

150 C ENGINE (1360 cc - 72 CV)

Reference : DUCELLIER : 525 388

Centrifugal advance curve : **XA 2**
Vacuum advance curve : **XD 2**

Strobe setting : 10° at 850 rpm *(with vacuum capsule disconnected).*

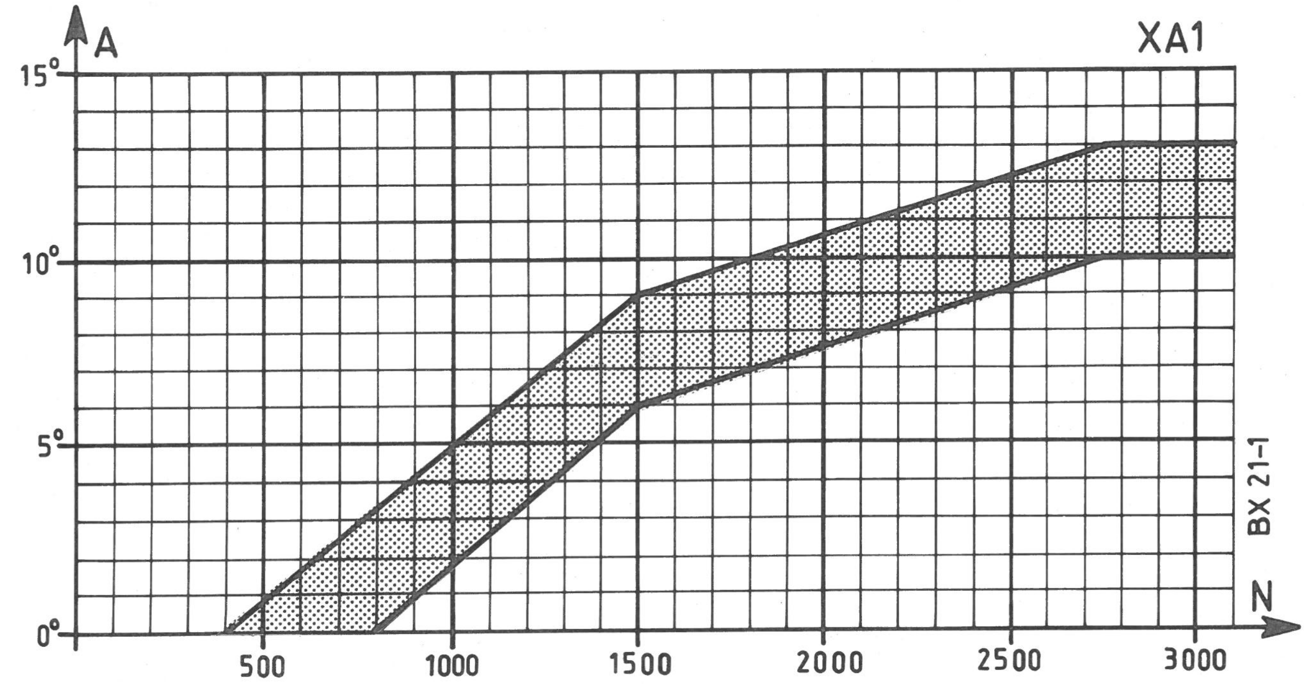
SPARKING PLUGS :

Tapered seat
Tightening torque : **1 to 1.3 m.daN** *(cylinder head cold)*
Plug gap : 0,6 to 0,7 mm

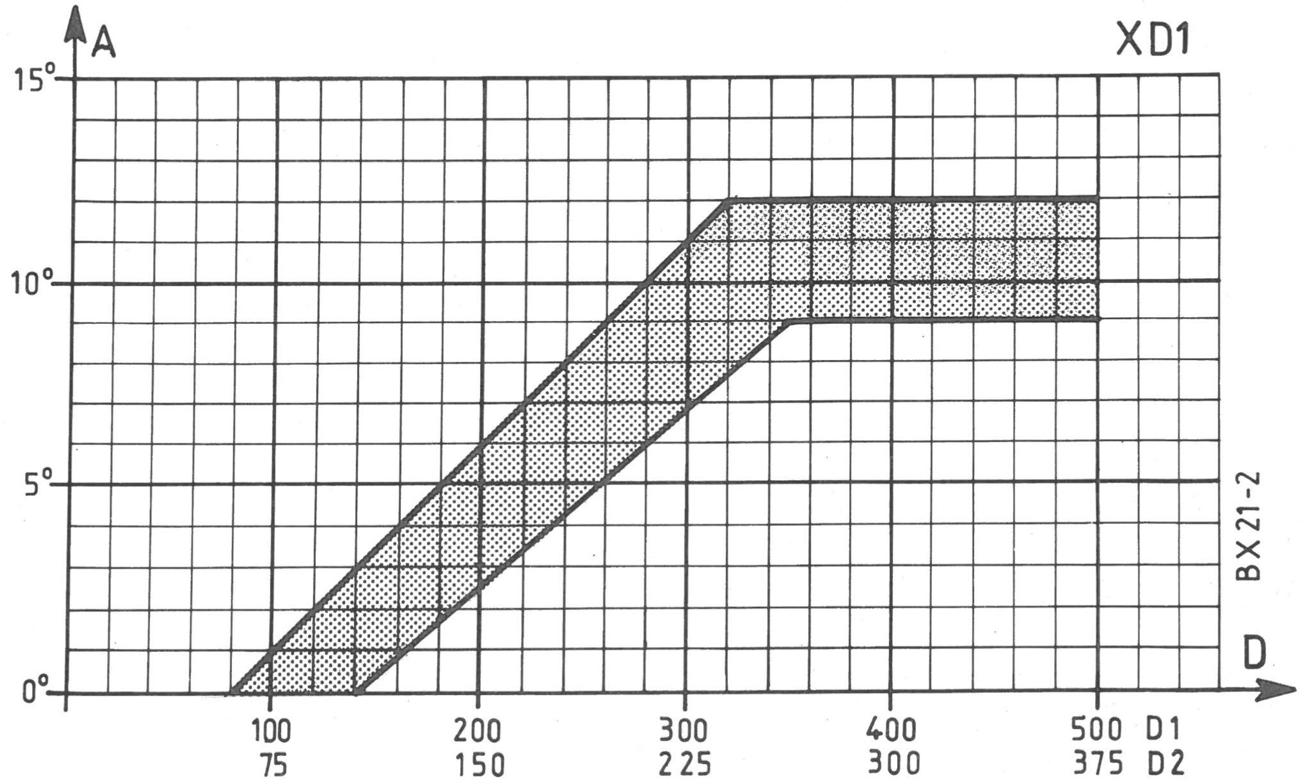
Reference : SCAMEA (MARCHAL)	: SCGT 34-5 H
AC (DELCO)	: C 42 LTS
BOSCH	: H 6 D 0
CHAMPION	: BN 9 Y

IGNITION WIRING:

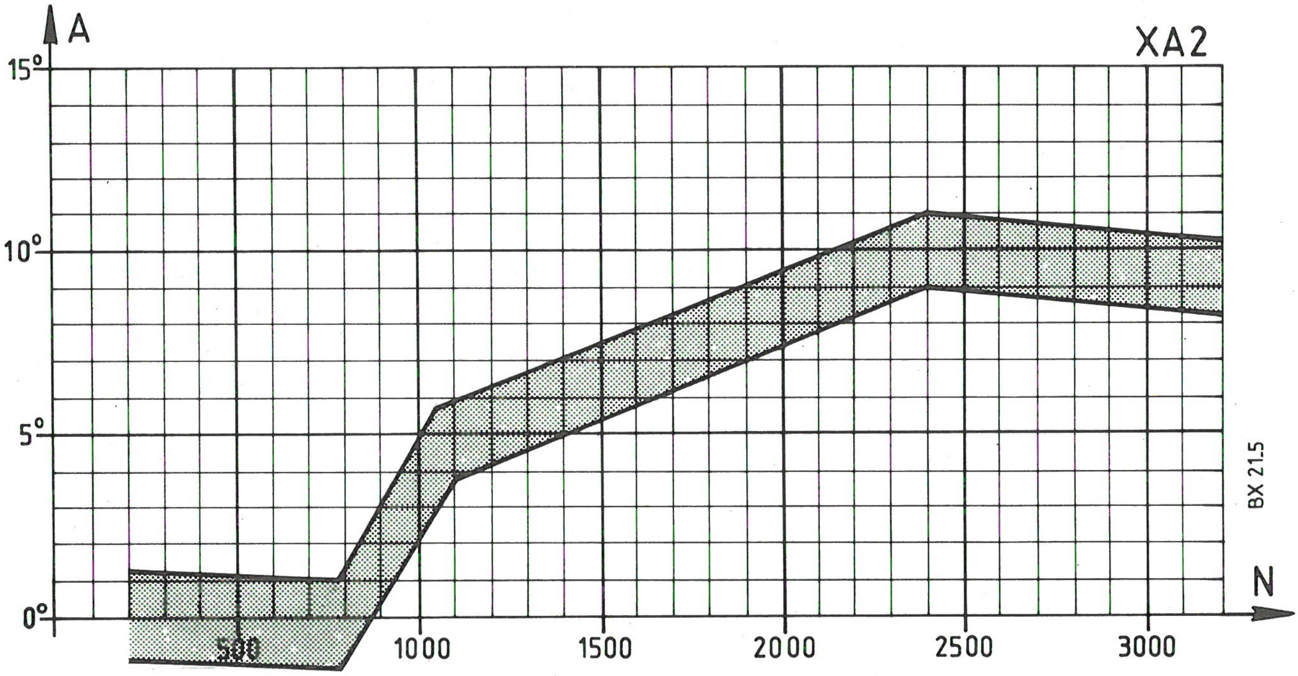
ELECTRICFIL : B 403
Resistance : 5000 Ω/m
GREGOIRE ET BARILLEAU : FLASH 2235 1B
Resistance : 6000 Ω/m


A
XA1
15°
10°
5°
0°
N
500
1000
1500
2000
2500
3000
BX 21-1

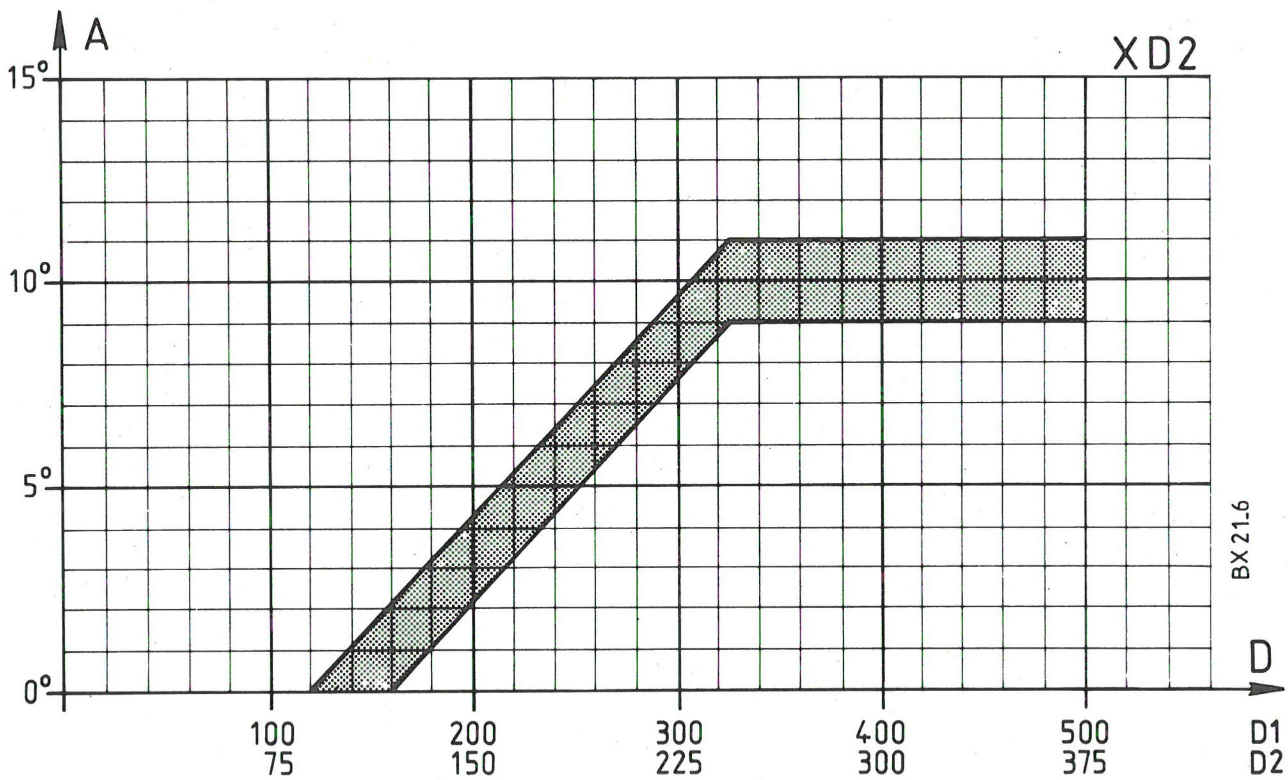
BX. 21-1


A
XD1
15°
10°
5°
0°
D
100 75
200 150
300 225
400 300
500 375
D1 D2
BX 21-2

BX. 21-2


A
XA2
15°
10°
5°
0°
N
500
1000
1500
2000
2500
3000
BX 21.5

BX. 21-5


A
XD2
15°
10°
5°
0°
D
100
75
200
150
300
225
400
300
500
375
D1
D2
BX 21.6

BX. 21-6

CHARACTERISTICS OF THE IGNITION SYSTEM

DISTRIBUTOR

171 A ENGINE (1580 cc)

Reference : DUCELLIER : 525 327
BOSCH : 0237 009 013

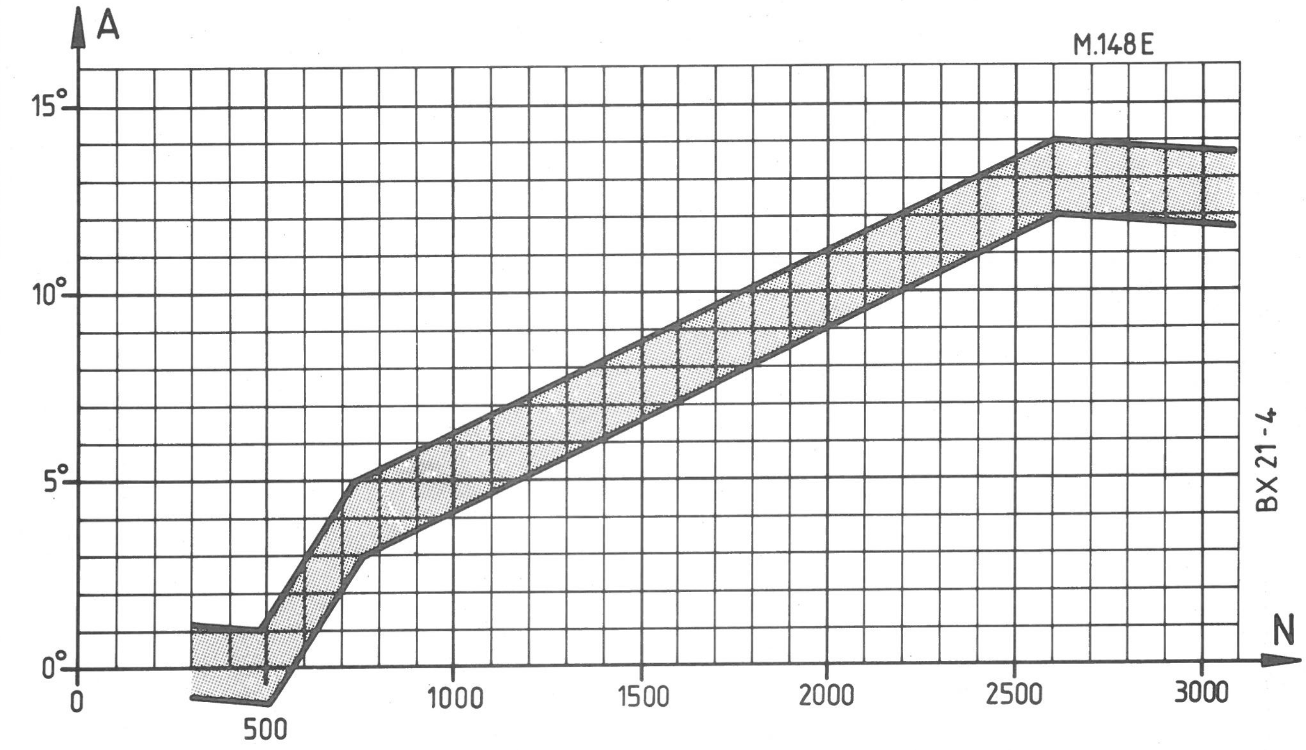
Curves for centrifugal advance and vacuum advance : **M 148 E**

A : Advance in distributor degrees
N : Distributor speed in rpm

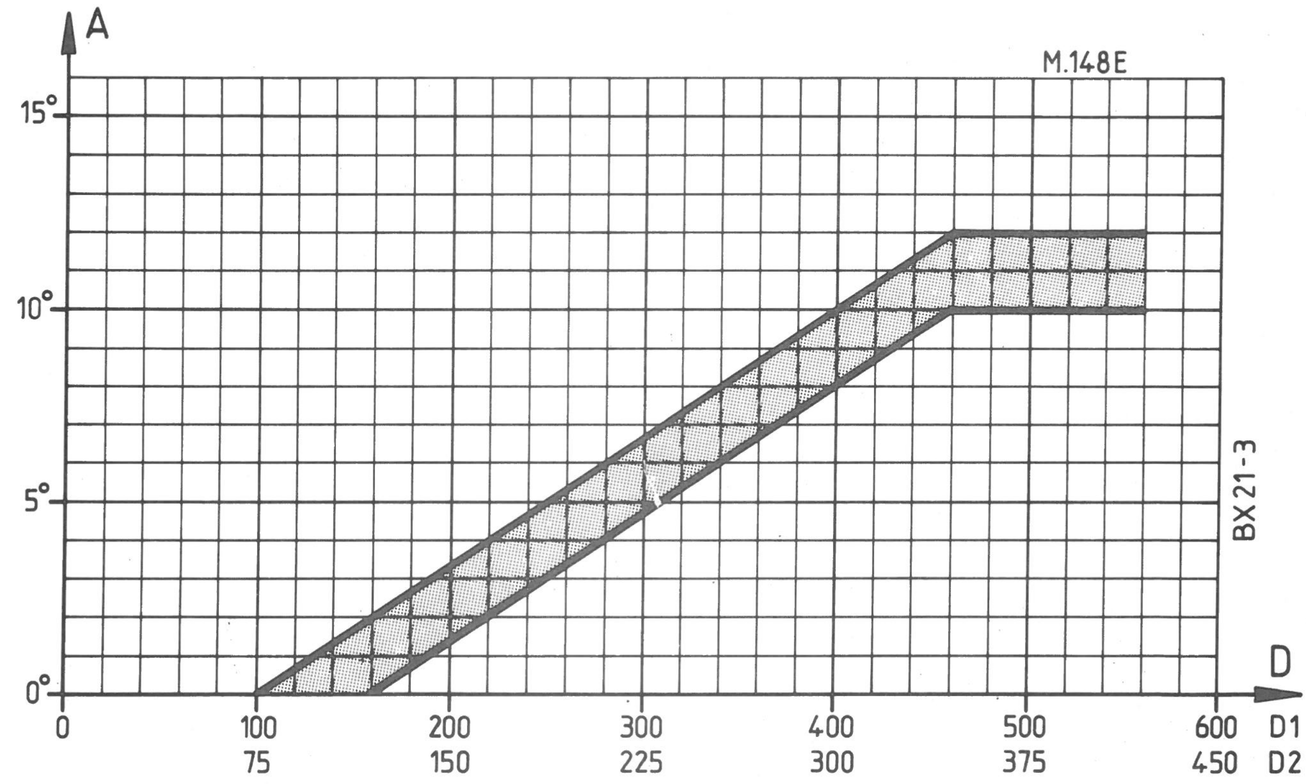
D1 : Vacuum in mbar
D2 : Vacuum in mmHg

Strobe setting : 10° at 850 rpm *(with vacuum capsule disconnected).*

SPARKING PLUGS :
Tapered seat
Tightening torque : **1 to 1.3 m.daN** *(cylinder head cold)*
Plug gap : 0.6 to 0.7 mm
AC (DELCO) : C 42 LTS
CHAMPION : BN 7 Y


A
M.148E
15°
10°
5°
0°
0
500
1000
1500
2000
2500
3000
N
BX 21-4

BX. 21-4


A
M.148E
15°
10°
5°
0°
0
100
75
200
150
300
225
400
300
500
375
600
450
D
D1
D2
BX 21-3

BX. 21-3

FITTING THE DISTRIBUTOR

FITTING THE DISTRIBUTOR

Remove the distributor cap.

Engage the distributor centring stem in its housing.

Position the driving end tenon in the groove by rotating the rotor by hand.

Fit the two fixing screws, tighten them moderately in mid-slot.

Fit the distributor cap, connect the HT leads to the sparking plugs and to the ignition coil in accordance with the marking rings.

Connect the pickup connector to the wiring harness and check the connection of the module and ignition coil.

Start the engine.

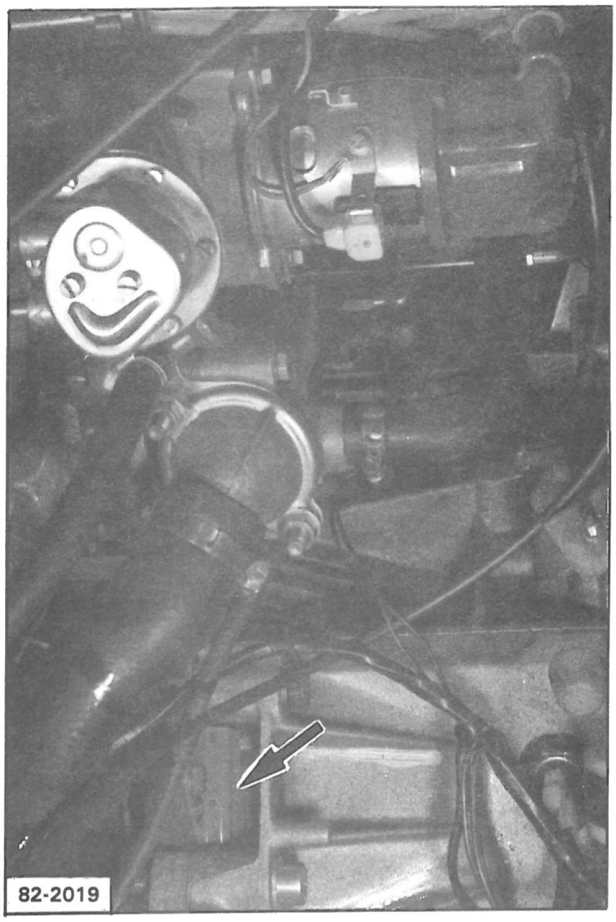
Using a timing light and a rev counter, or a diagnosis console, **set the distributor timing to 10° advance** (marks(➡) on the quadrant and the flywheel), **at 850 rpm** *(with vacuum advance disconnected).*

Tighten the two distributor fixing screws.

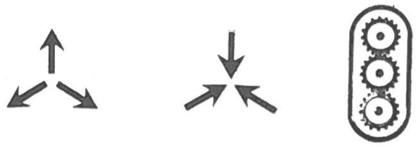
Check the evolution of the centrifugal advance curve (timing light or diagnosis console) :
- 16° to 20° before TDC at 1500 engine rpm,
- 23° to 27° before TDC at 3000 engine rpm,
- 34° to 38° before TDC at 5200 engine rpm.

Connect the capsule of vacuum advance correction.

NOTE :
- *Setting the distributor timing cannot be carried out with the engine stopped.*
- *Use only a H.T rev counter.*


82-2019

4

Operation number	DESCRIPTION
XB. 312-00	Characteristics and special features of the clutch
	BX and BX.14 (1360 cc engines)
XB.14 315-1	Removing and fitting the clutch
XB.14 315-4	Working on the transfer gears 

CLUTCH

CHARACTERISTICS AND SPECIAL FEATURES OF THE CLUTCH

BX 14 CHARACTERISTICS

Mechanism : Diaphragm type : .... VERTO 180 DBR 335.

Disc : Single dry plate, progressive type.

MAKE	NUMBER OF SPRINGS AND REFERENCE
VERTO	2 springs (brown) 2 springs (pink) 1 spring (green) 1 spring (black)

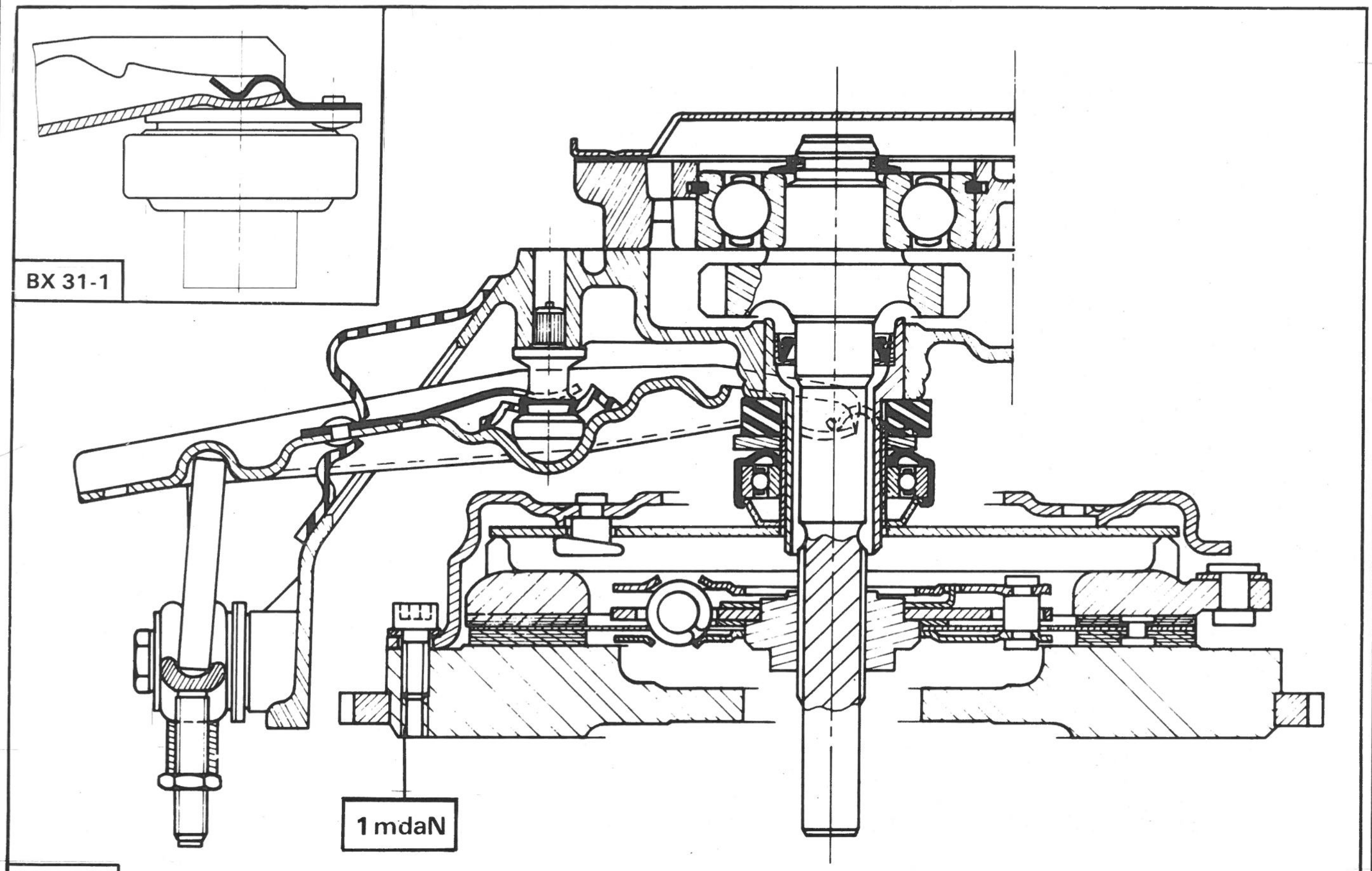
Grade of the lining .... A 3 S
Thickness of the lining .... 7.7 mm ± 0.3
Disc hub .... 20 splines
Self-centring **ball thrust bearing** permanently in contact with the mechanism.
No clutch pedal **clearance.**

SPECIAL FEATURES

The pedal free play must be nil and the thrust bearing must rest on the mechanism permanently. To obtain these conditions :

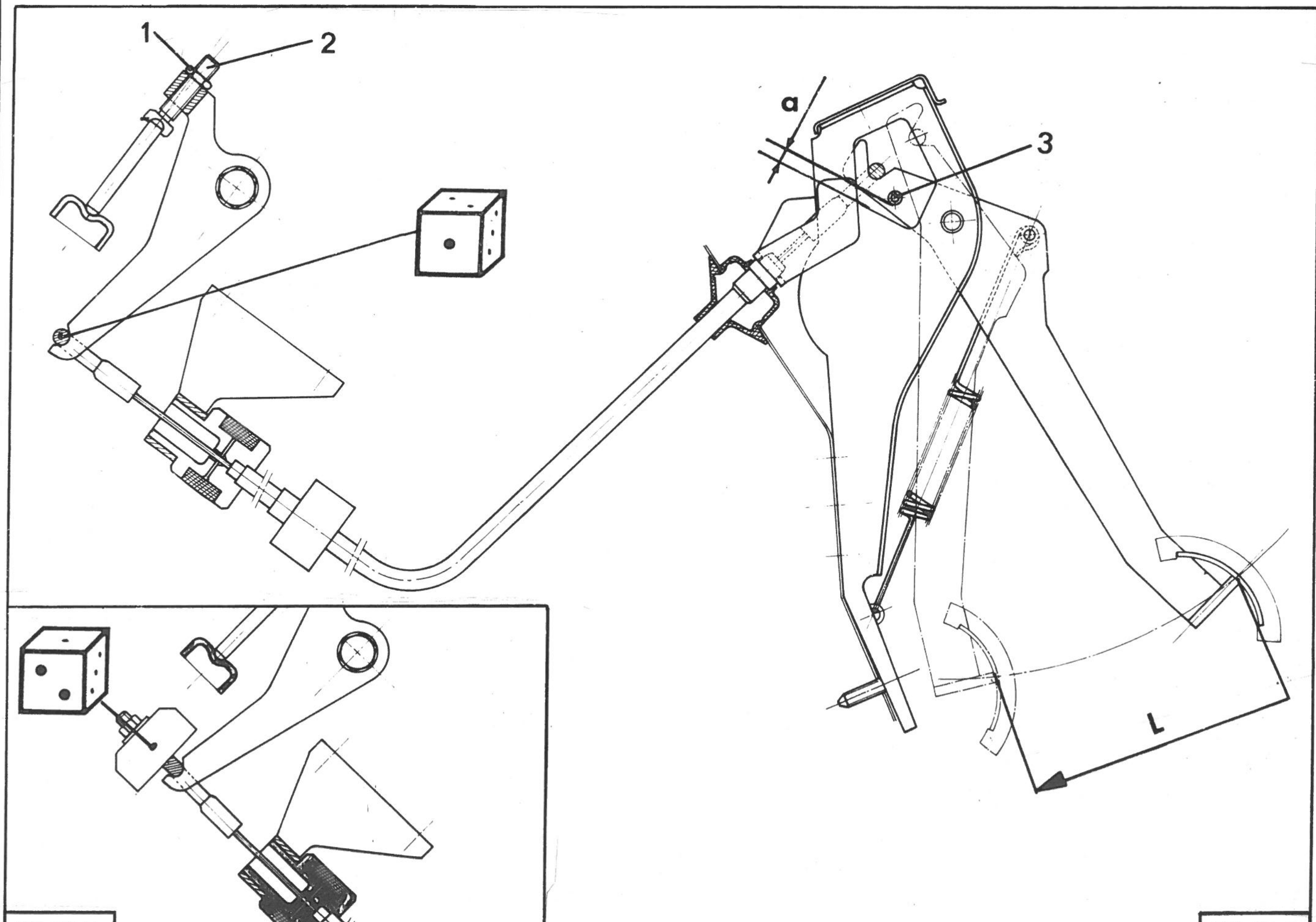
- Adjust screw (2) and nut (1) of the push-rod (located on the clutch casing), so as to obtain a distance **« a » = 8 mm min.** comprised between pin (3) and the lower limit of the aperture in the pedal gear support.

- Measure the clutch pedal travel : difference between the high and the low position of the pedal. The **travel L** must be **130 mm minimum.**



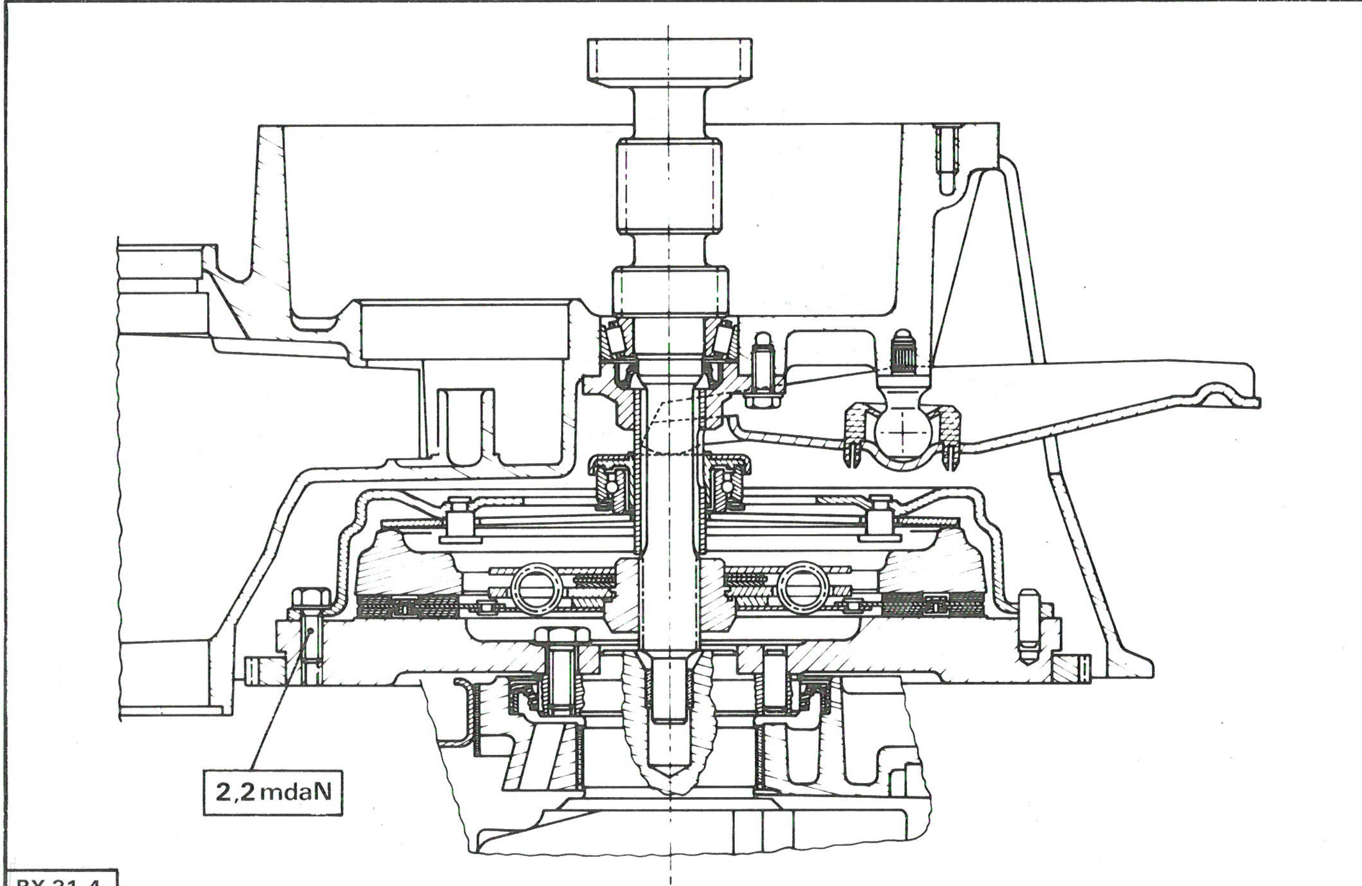
BX 31-1

BX 31-7

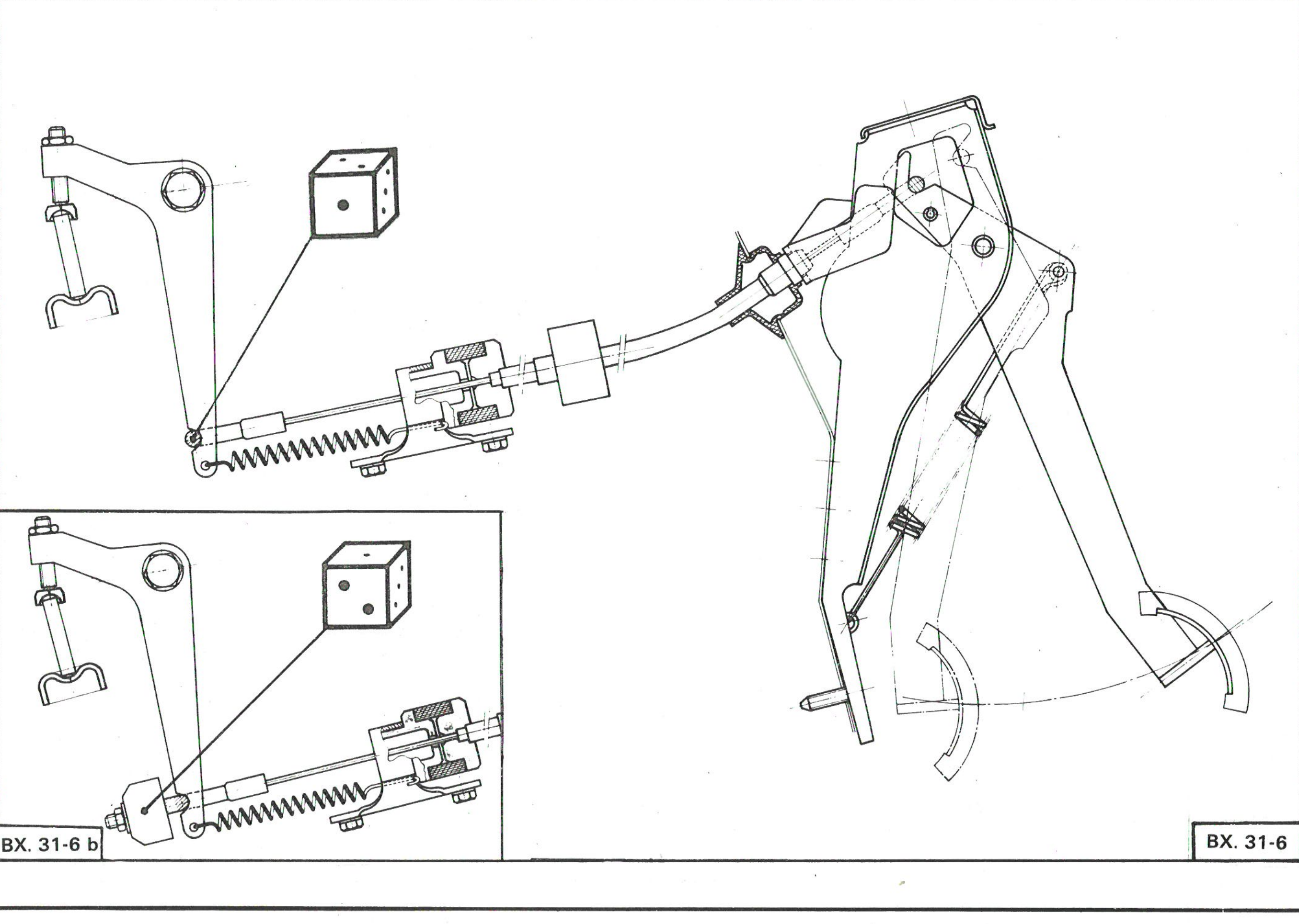


BX. 31-5 a

BX. 31-5



BX 31-4



BX. 31-6 b

BX. 31-6

BX 16 CHARACTERISTICS

Mechanism: Diaphragm type : .... VERTO 200 DBR 410.
: .... LUK A 102008800

Disc : Single dry plate, progressive type.

MAKE	NUMBER OF SPRINGS AND REFERENCE
VERTO LUK	6 springs (blue)

Grade of the lining .... FERODO 755
Thickness of the lining .... 7.7 ± 0.3 mm
Disc hub .... 18 splines
Self-centring **ball thrust bearing** permanently in contact with the mechanism.
No clutch pedal **clearance.**

SPECIAL FEATURES

Since the BX 16 pedal gear is identical with the one on BX 14 vehicles, **refer to page 2** for adjusting the clutch control.

RECOMMENDED TOOLS

6012-T.— R.P. reference : OUT 306012-T
Toothed sector for locking the flywheel

BX 14

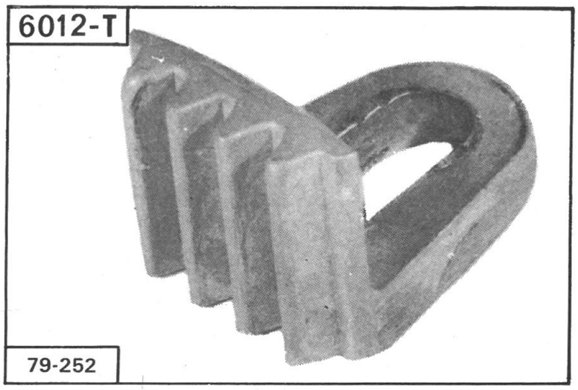
8 0209-T, R.P. reference : OUT 38 0209-T
A : Mandrel for centring clutch disc
B : Set of two guides for fitting the clutch casing
(These tools are included in engine kit OUT 38 1132-T).

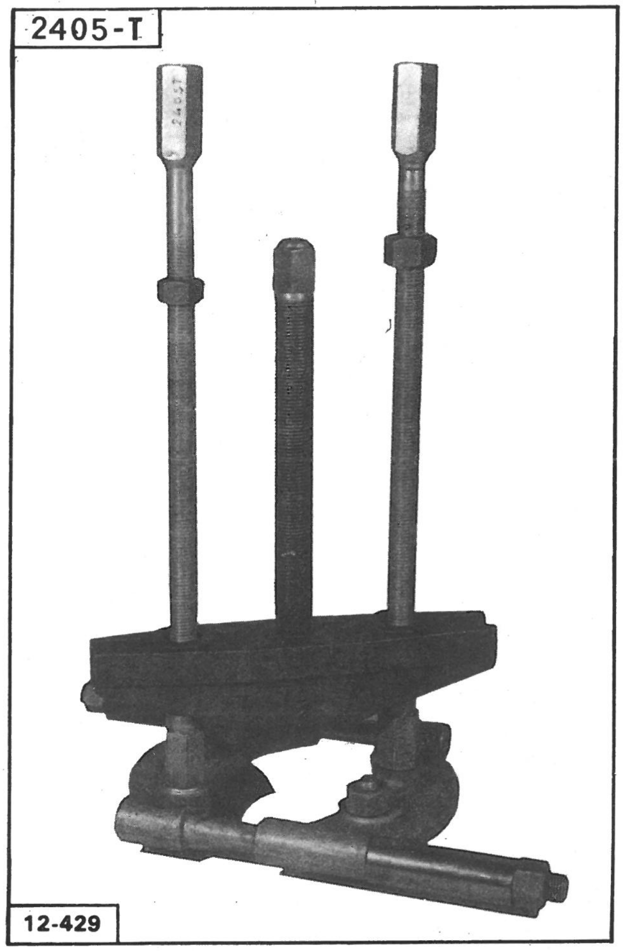
2405-T : Puller with separator

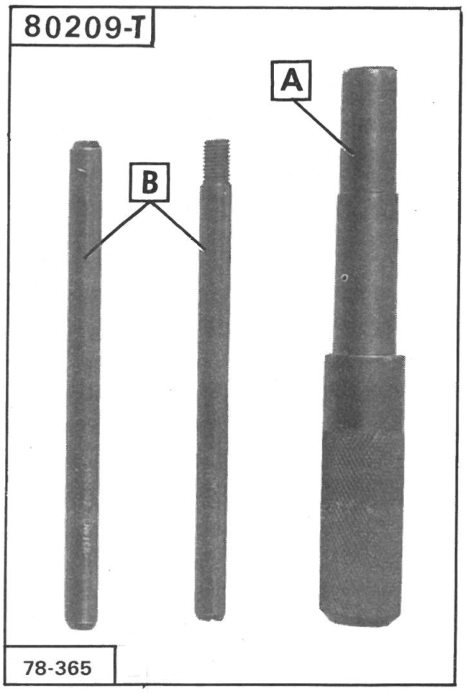
BX 16

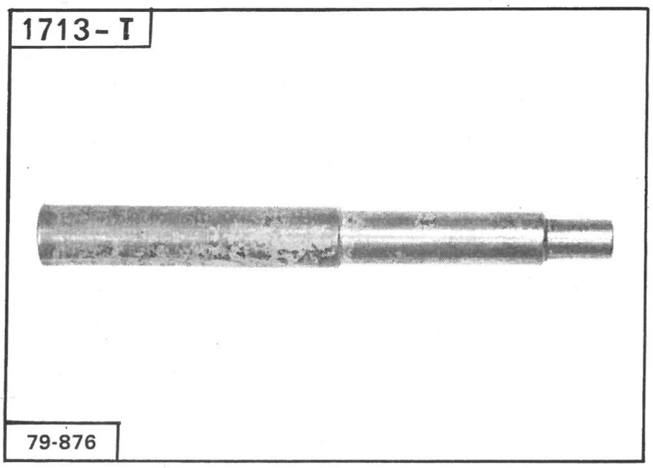
1713-T : Mandrel for centring clutch disc

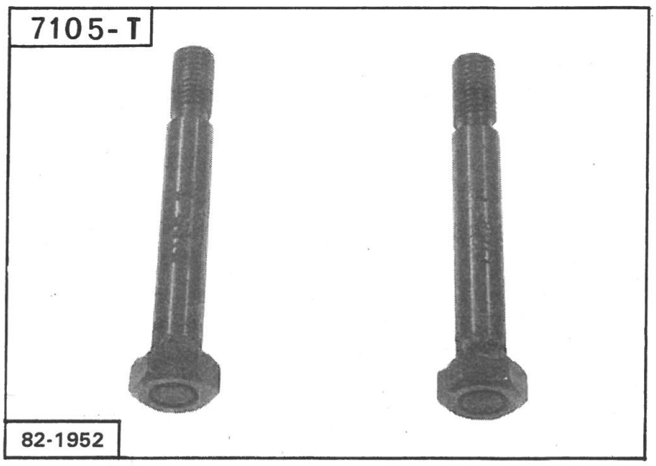
7105-T, R.P. reference : OUT 20 7105-T
Set of two guides for fitting the gearbox

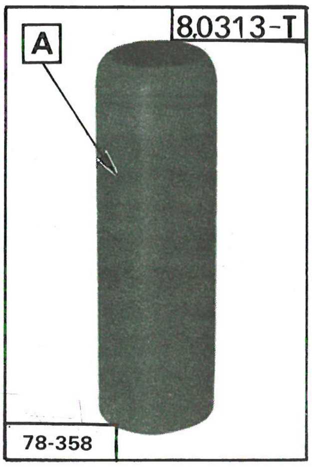

6012-T
79-252

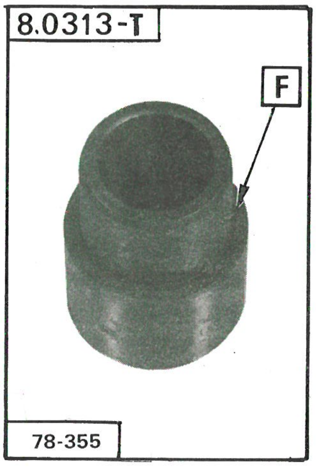

2405-T
12-429

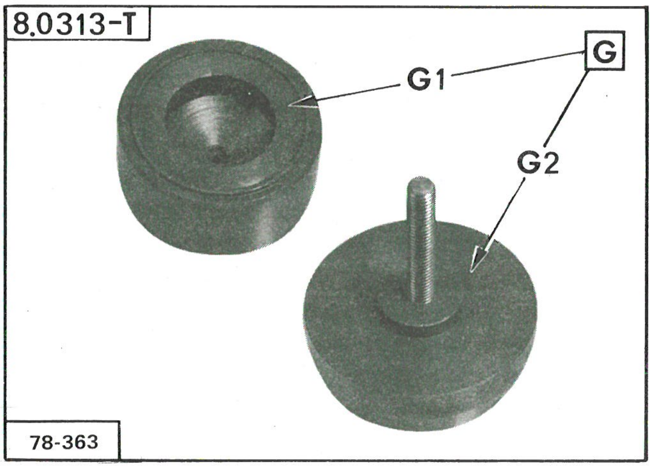

80209-T
A
B
78-365

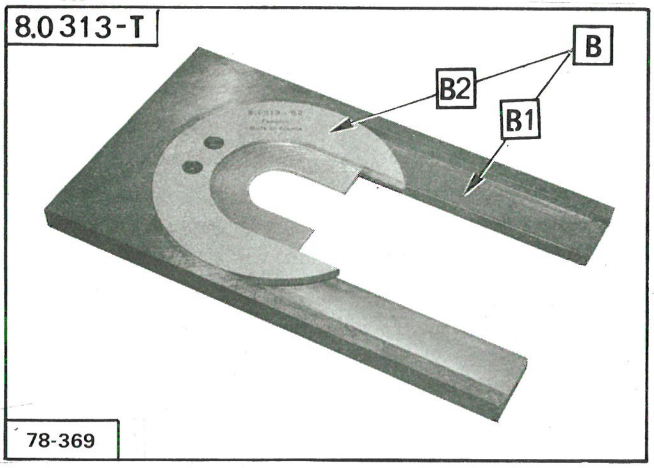

1713-T
79-876

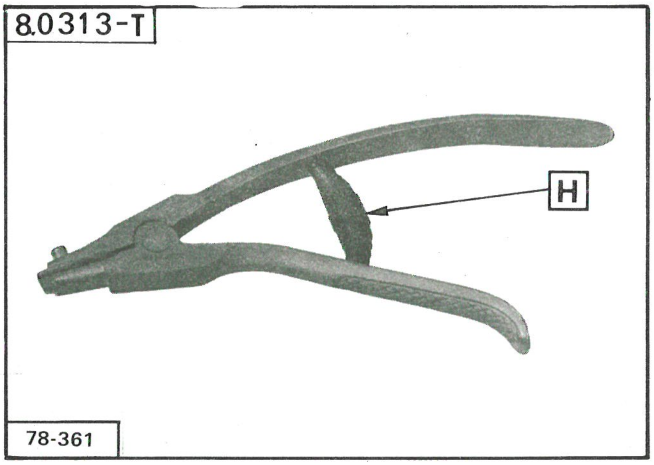

7105-T
82-1952

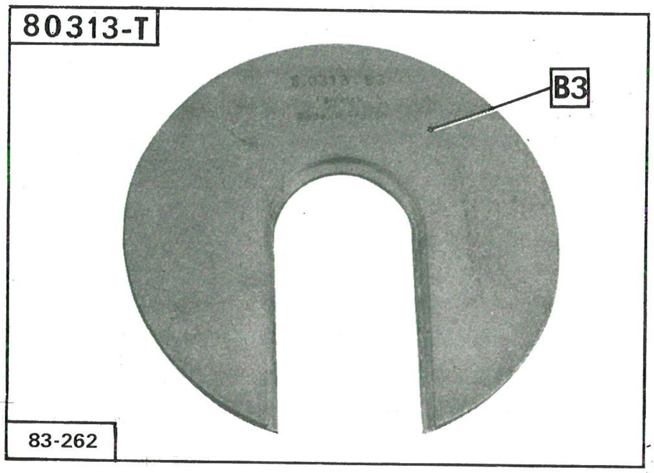

8.0313-T
A
78-358

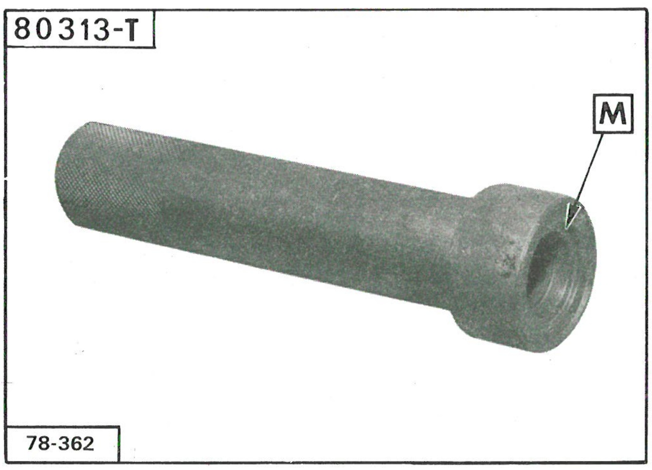

8.0313-T
F
78-355

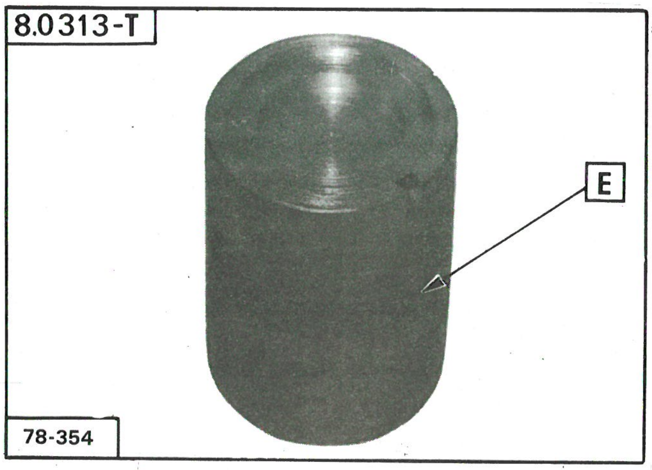

8.0313-T
G
G1
G2
78-363

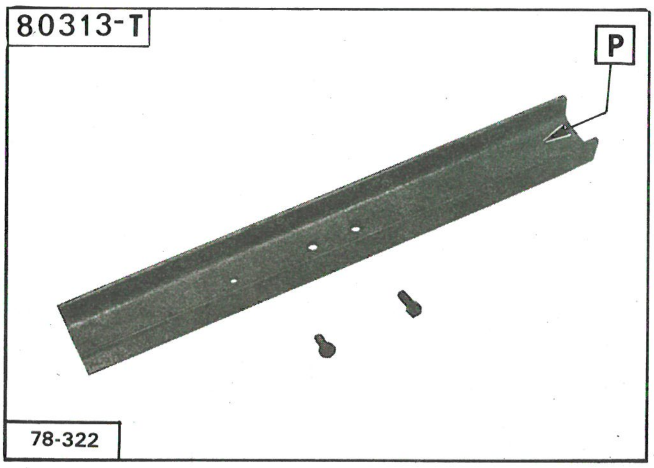

8.0313-T
B
B2
B1
78-369


8.0313-T
H
78-361


80313-T
B3
83-262


80313-T
M
78-362


8.0313-T
E
78-354


80313-T
P
78-322

BX 14

From kit 8.0313-T R.P. reference : OUT 380 313-T, use the following tools :

A : Protector for seal.

F : Tool for removing or fitting the bushes.

B : Press support plate comprising :
- **B1 :** Plate
- **B2 :** Washer
- **B3 :** Washer

E : Support tool for clutch casing or intermediate plate

G : Equipment for fitting the bearings, comprising :
- **G1 :** Ring
- **G2 :** Taper

H : Pliers for removing speedometer cable bush and lock-rings for bearings.

M : Drift for fitting the shaft lock-rings

P : Support for gearbox or clutch casing

REMOVING AND FITTING THE CLUTCH

REMOVE.

Drain the engine-gearbox unit.
Chock the front of the vehicle.

Disconnect :
- the battery negative and positive terminals.

Remove :
- the battery, its fixing clamp and the tray,
- the mud shield (6) in the wheelarch, **Fig. II.**

Disconnect :
- the connector for general feed,
- the connector for engine wiring harness.

Remove the air filter-to-carburettor air hose.

Disconnect :
- the WESTAFLEX intake air heating pipe from the heater unit,
- the clutch cable, **collect the pushrod.**

Remove the heater unit and the bracket for air filter.

Remove Fig. I and III :
- sheath stop bracket (2),
- lug (8) and diagnostic socket (7),
- nuts (4) and washers for engine mountings.

Raise the engine to free mountings (3) and (5) from the unit slotted holes, **Fig. I.**

Remove :
- screws (1),
- the two engine mountings (3) and (5), **Fig. I**
- the screws securing the clutch casing. **One screw is located under the rib, Fig. III.**
- sling attachment (9),
- the clutch casing. *Disengage it from the underside of the vehicle.*

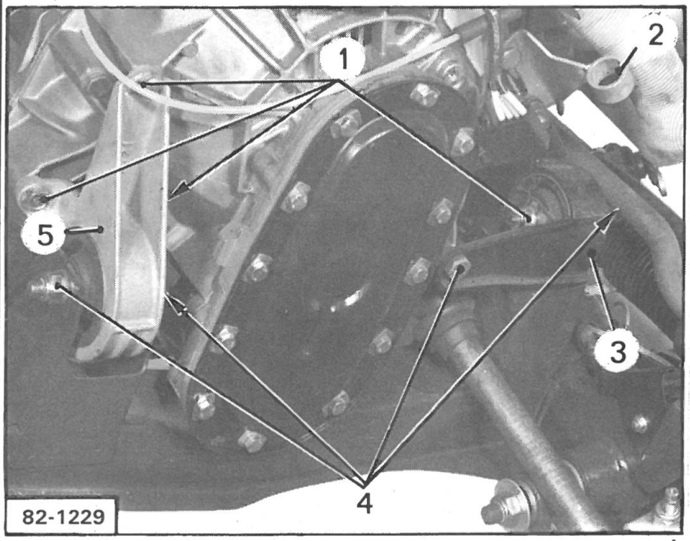
Remove :
- the gasket of the casings,
- mechanism (10) and clutch disc, **Fig. IV**
  (Use toothed sector (**6012-T**) for locking flywheel).

Clean the casing assembly.

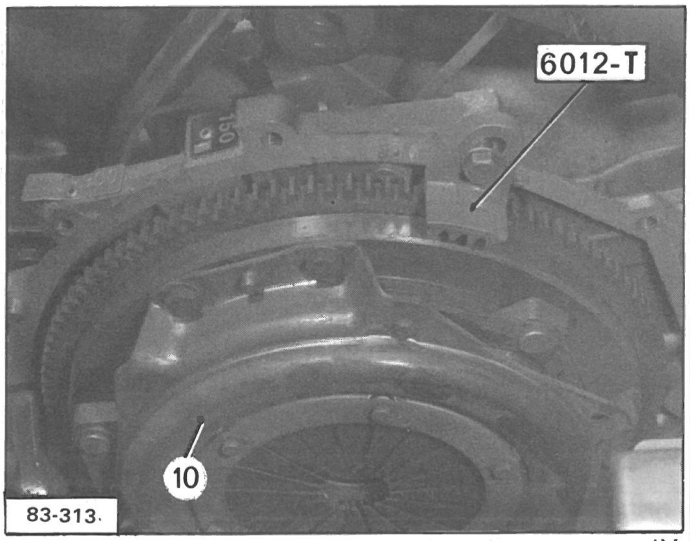
Prepare the clutch casing, Fig. V
Replace :
- thrust bearing (13),
- foam seal (12).

Grease the fork (11) articulating point at **« a »** and thrust bearing guide at **« b »**.
Couple the thrust bearing with the fork.

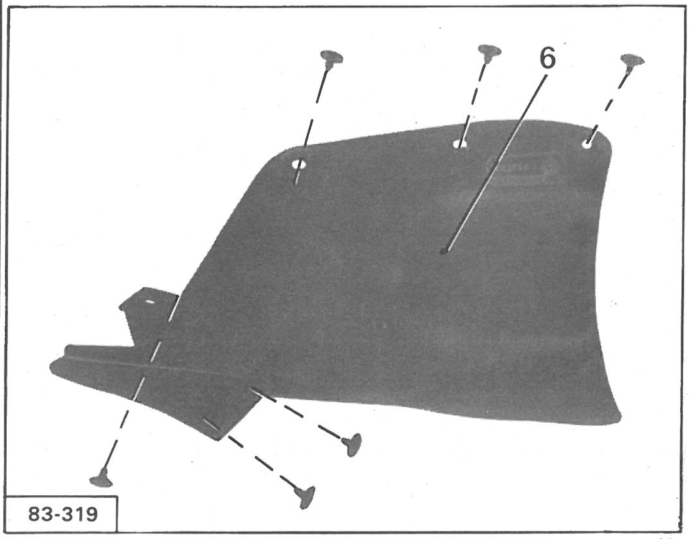
Block the fork so as to avoid its uncoupling from the thrust bearing when refitting the assembly. Fig. V.



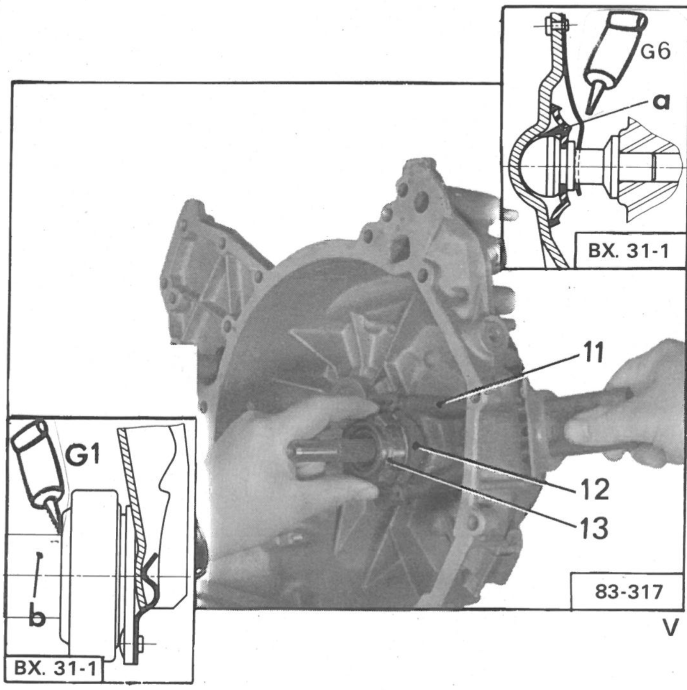
I



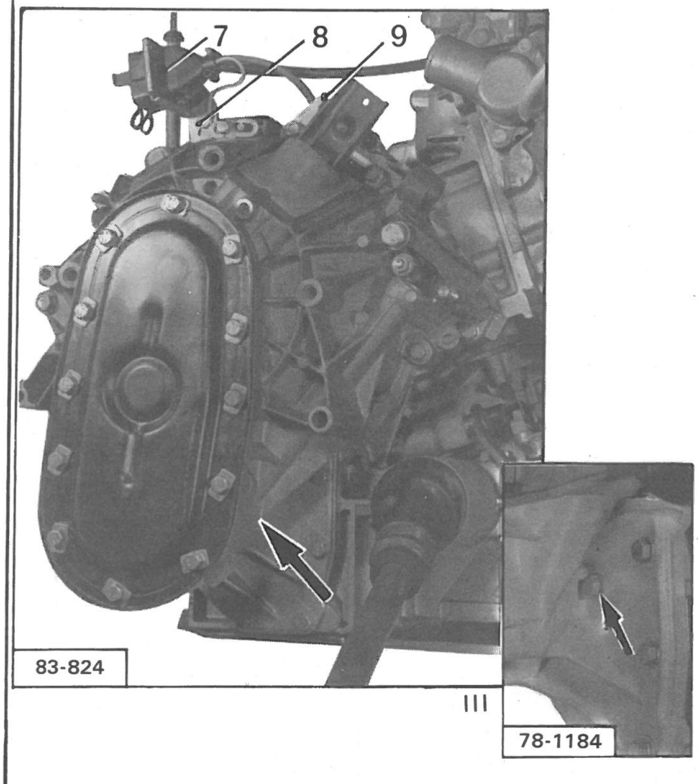
IV



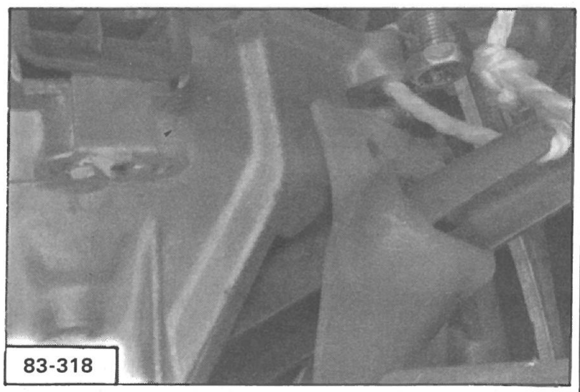
II



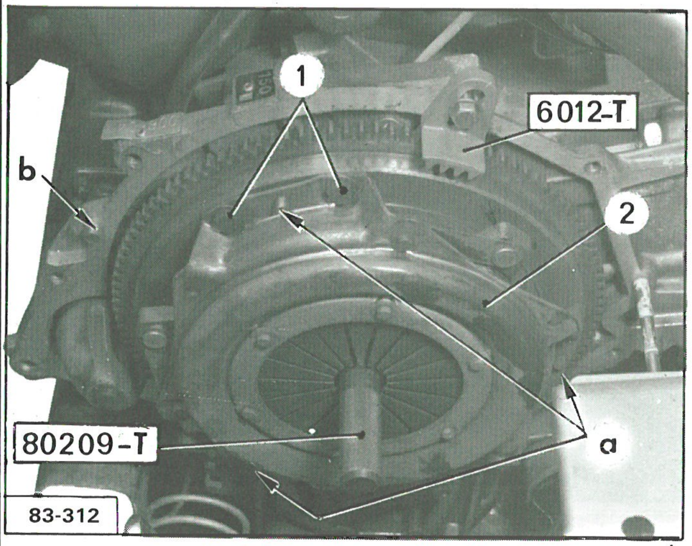
V



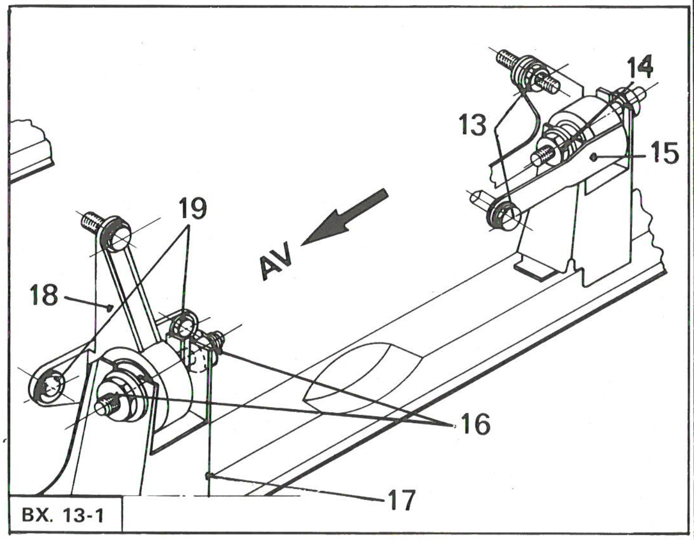
III



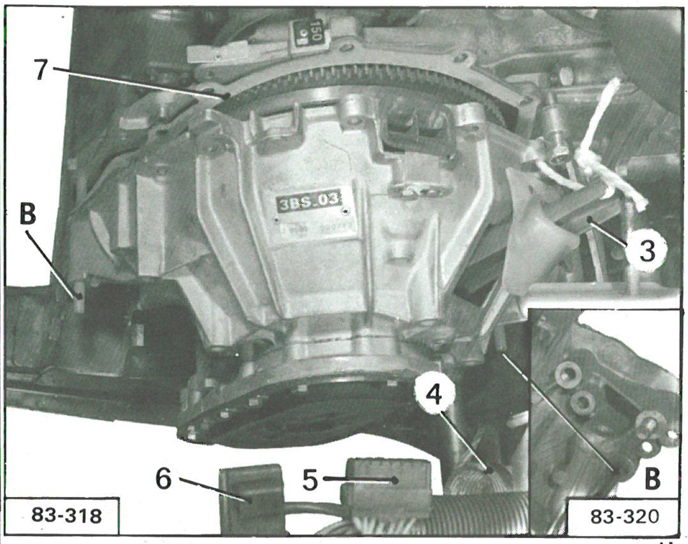
VI



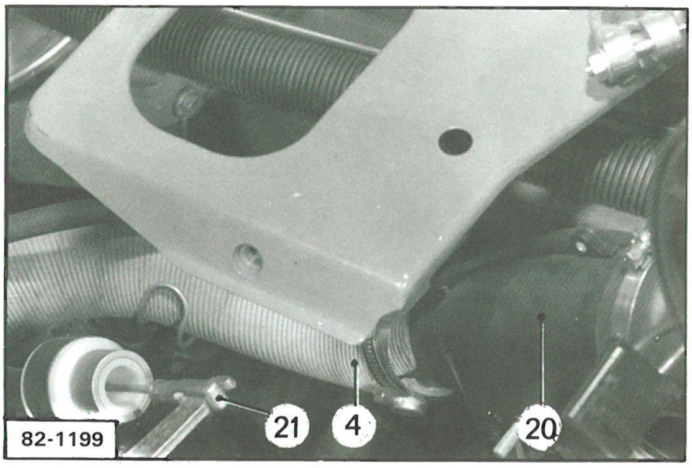
I



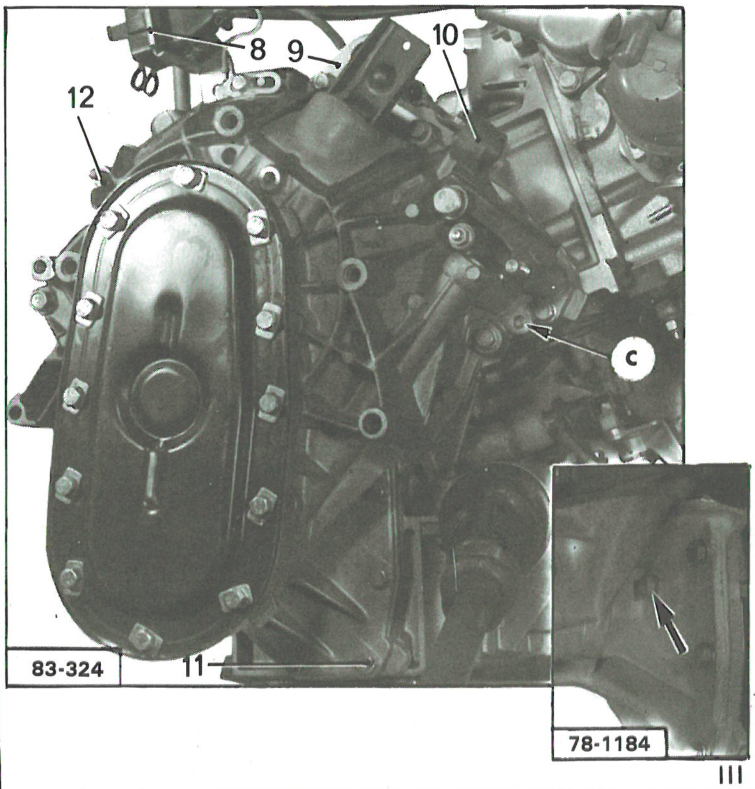
IV



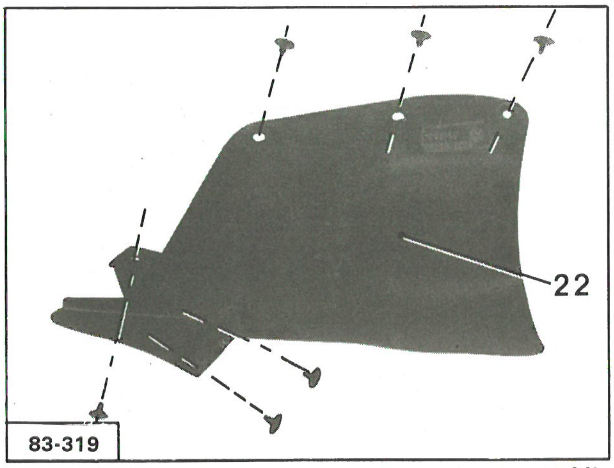
II



V



III



VI

FITTING.

Ensure that the joint face is perfectly clean and that the flywheel is free from foreign material.

Fit, Fig. I :
- the disc,
- the mechanism (2) (check that the three centring studs are fitted at **« a »**).

Use centring tool **8.0209-T** and the toothed locking sector **6012-T**
- the six screws (1) (flexible washers) of the mechanism.

Tighten to 1 m.daN.
Remove the centring tool and the sector.

Fit casing gasket (7) dry.
Make sure the two centring rings are present **« b »** and **« c »** see **Fig. I and III.**

Position the clutch casing : fit dowels **B Fig. II.**

Rotate the flywheel until the two shafts are coupled.
Fit screw (11) without tightening and extended head screw (12).
Free fork (3).

Remove dowels **B.**

Fit Fig. III :
- sling attachment (9),
- bracket (8).

Fit the assembly screws and tighten them to **1 m.daN.**
Do not forget screw ➡ Fig. III.

Fit, Fig. III and IV :
- sheath stop bracket (10) for clutch cable,
- brackets (15) and (18),
- screws (13) **tighten to 3.5 m.daN.**
- screws (19) **tighten to 2.2 m.daN.**

Lower the engine into its fixings on unit (17).

Fit, Fig. IV :
- the washers,
- nuts (14) and (16)

Tighten torque : 5 m.daN.

Connect clutch cable (21) in introducing the pushrod *(greased at both ends)*.
Check and adjust the pedal height if necessary.
(See Op. XB. 312-00 page 2).

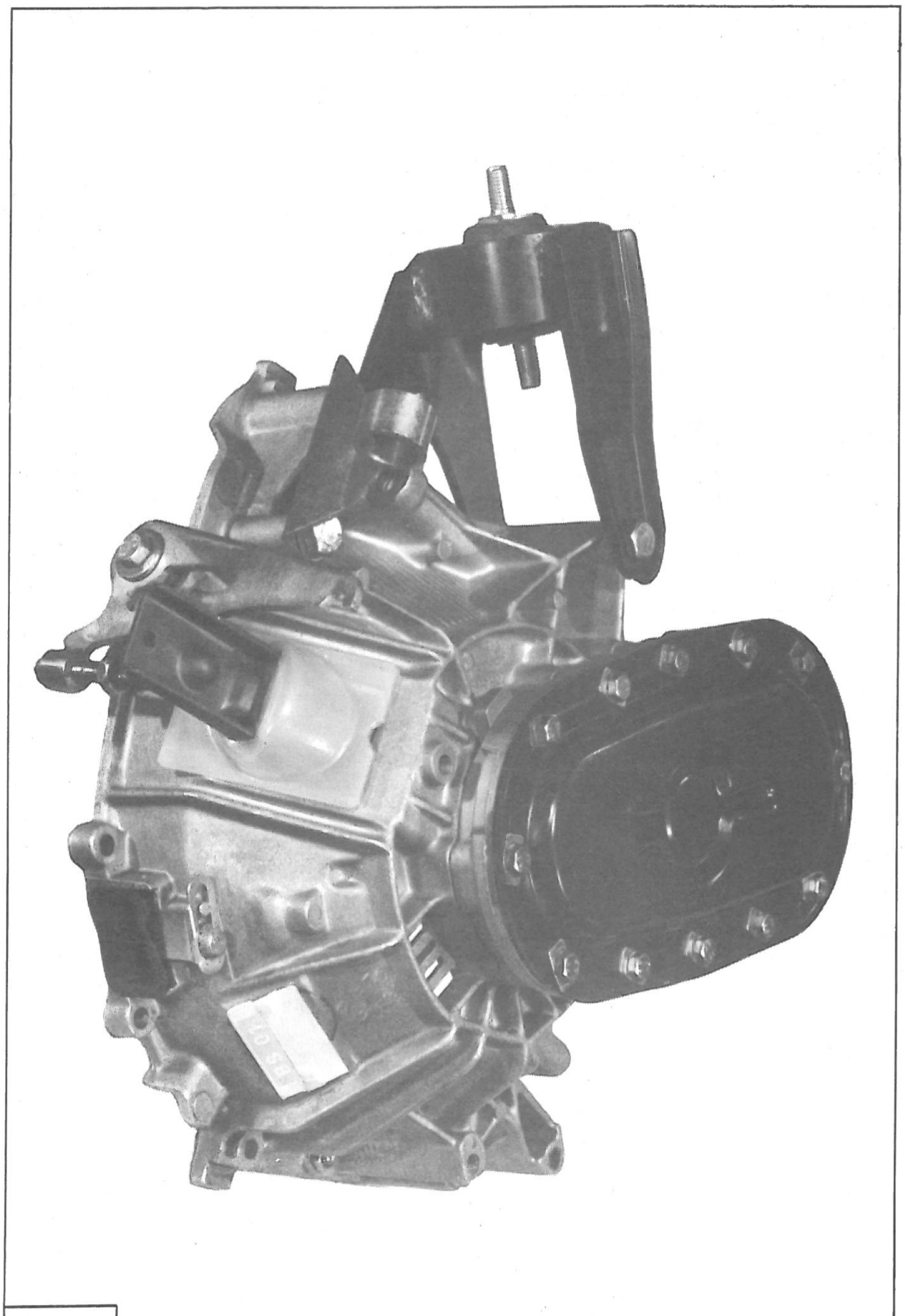
Fit, Fig. V :
- heater unit (20),
- air filter support,
- battery tray (connect the drain pipe).

Connect :
- WESTAFLEX pipe (4),
- air hose for air filter/carburettor connection.

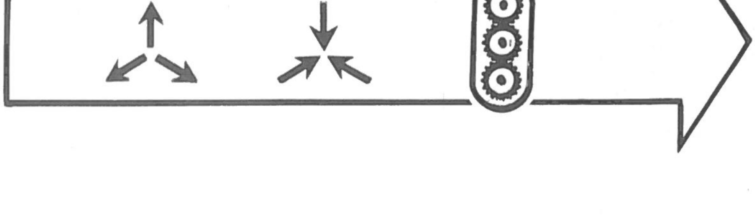
Connect :
- connectors (5) and (6).

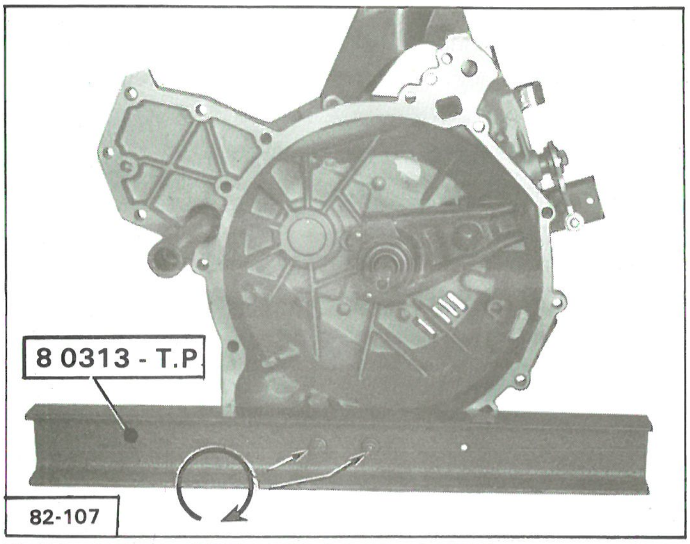
Fit, Fig. VI
- mud shield (22) in the wheelarch *(new fixings)*,
- the battery.

Connect the battery negative and positive terminals.
Lower the vehicle to the ground.
Fill up the engine-gearbox unit with oil.

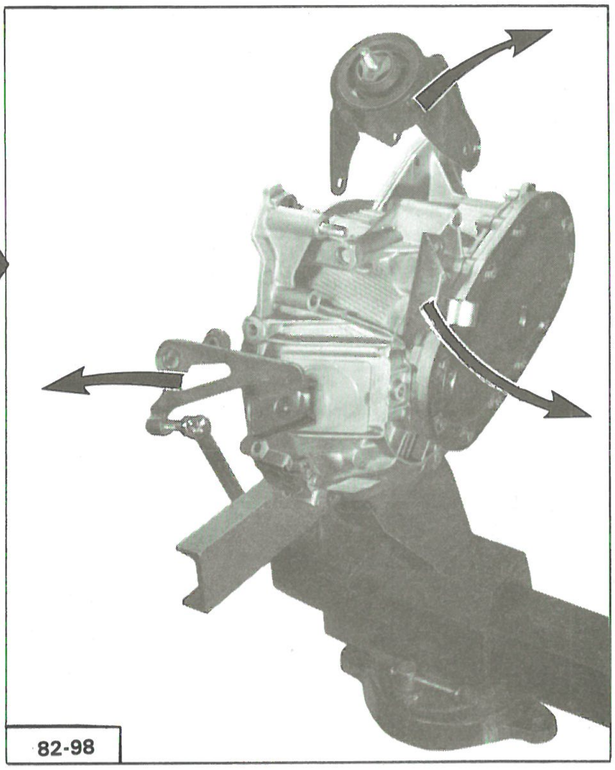


82-106

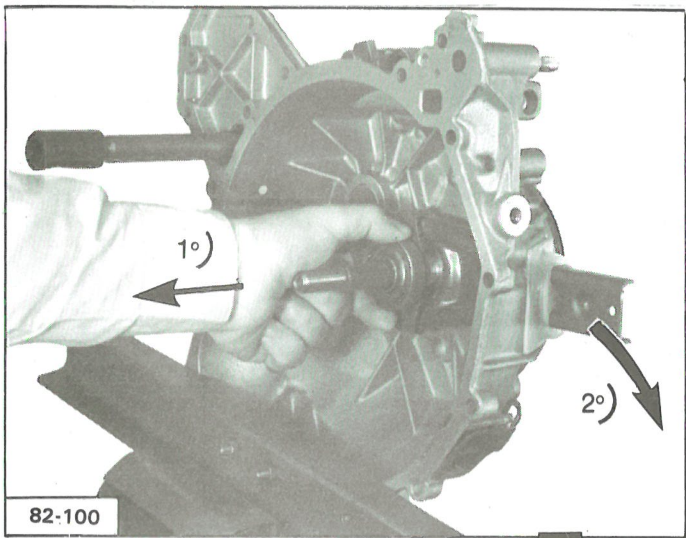




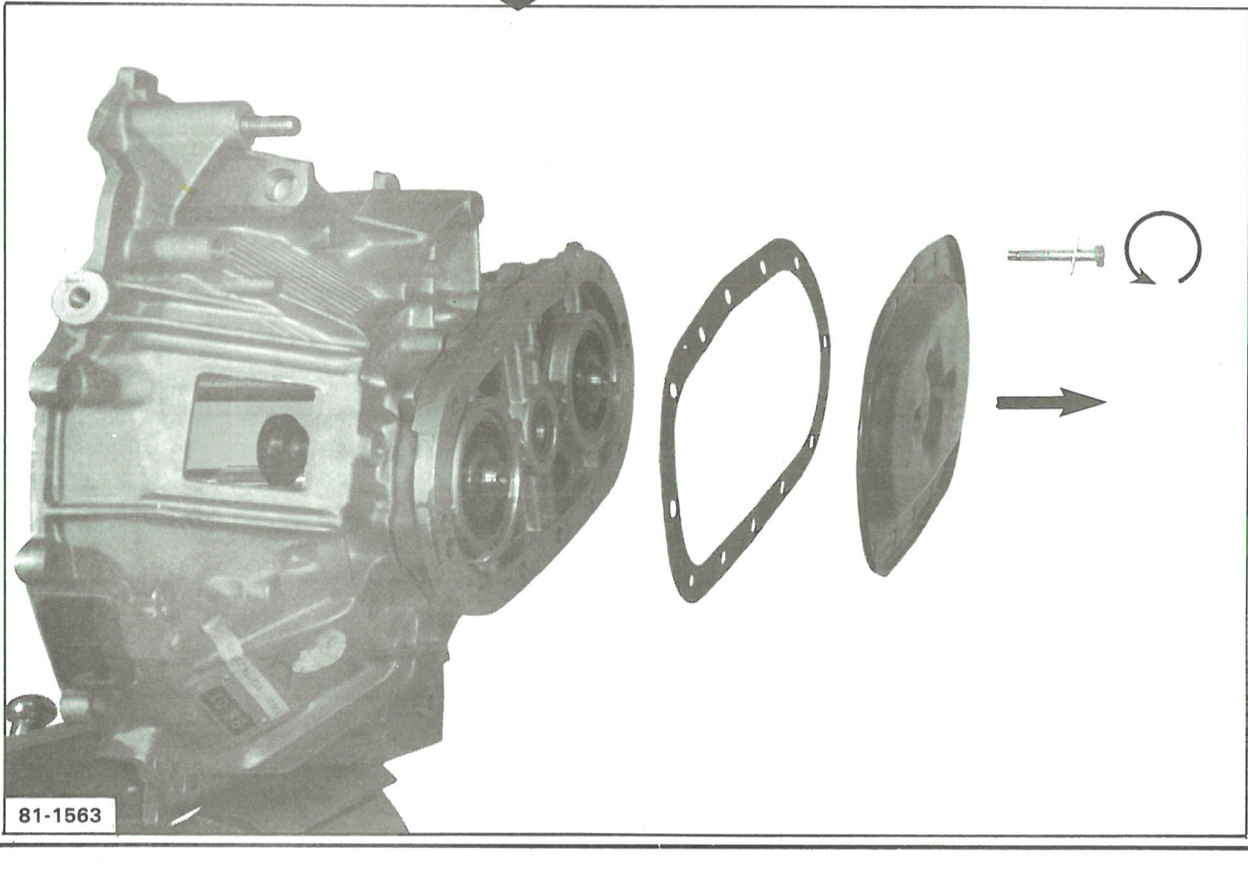
82-107



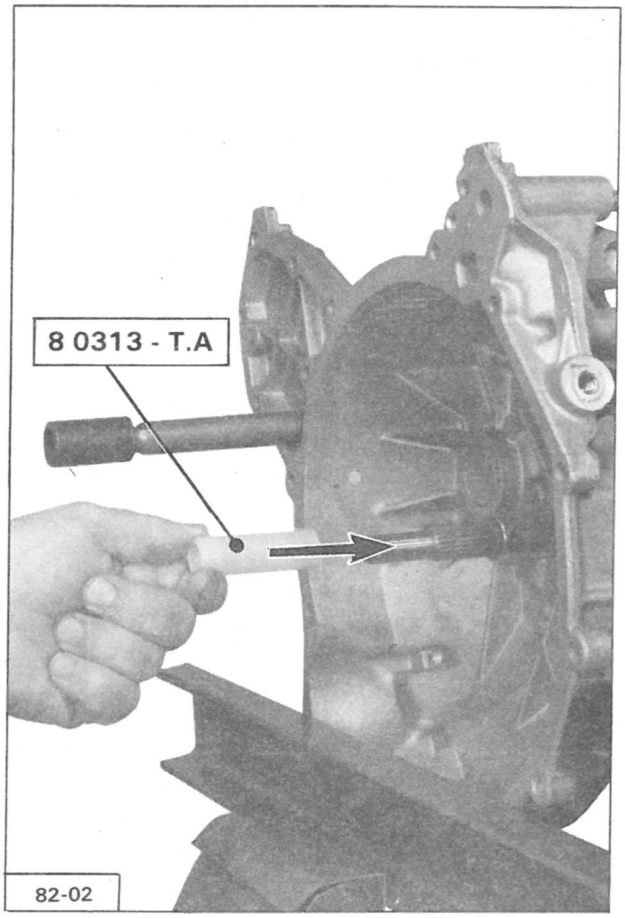
82-98



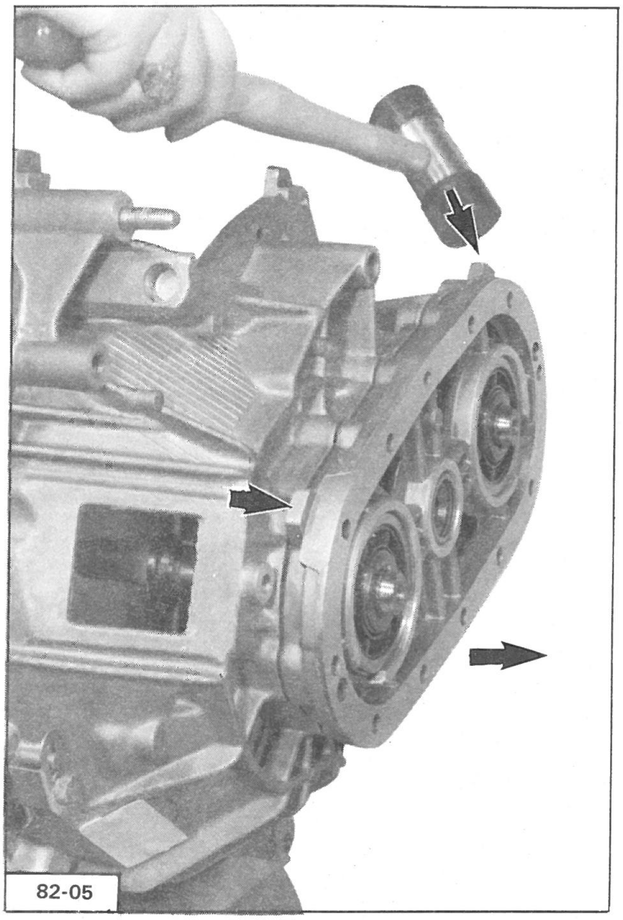
82-100

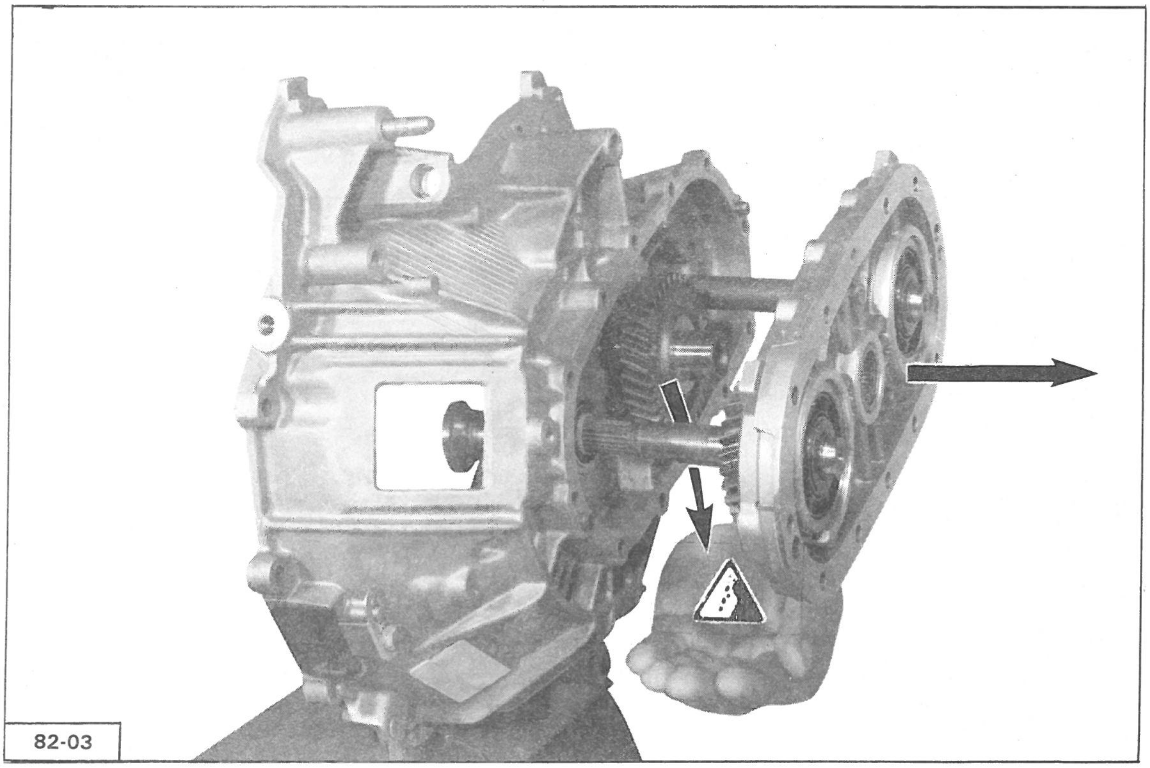


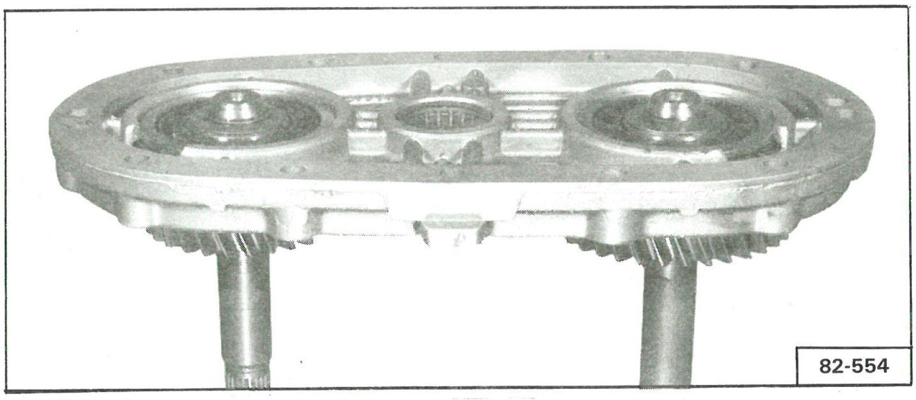
81-1563



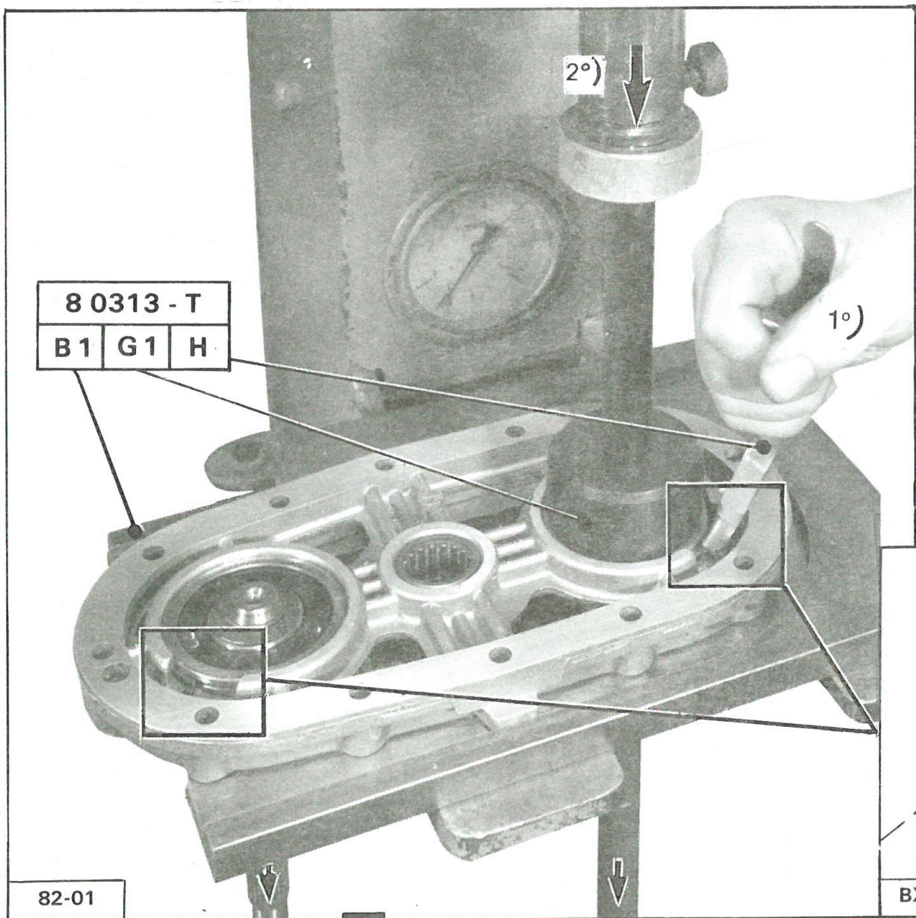
82-02


82-05

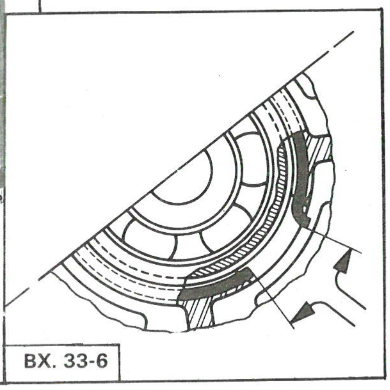

82-03



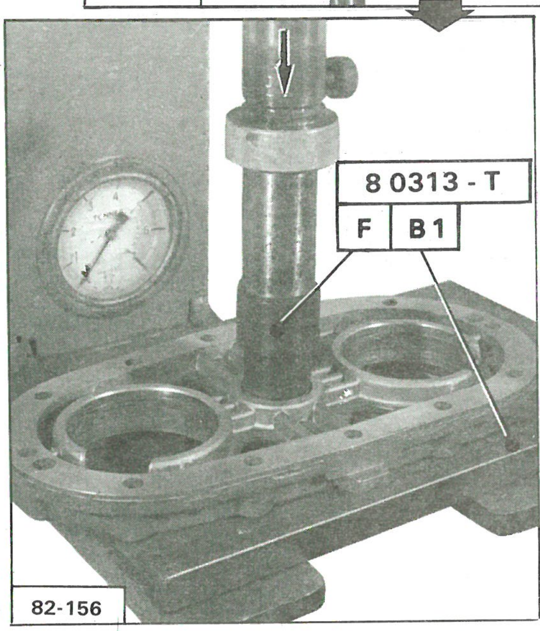
82-554



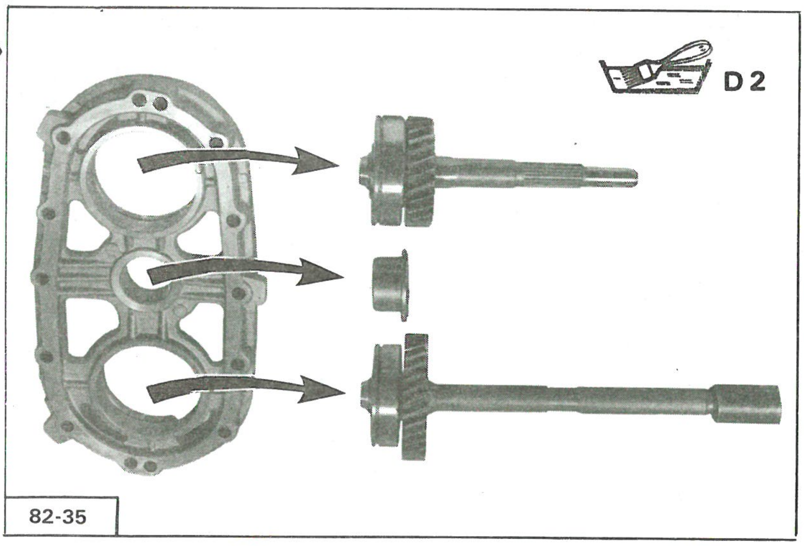
82-01



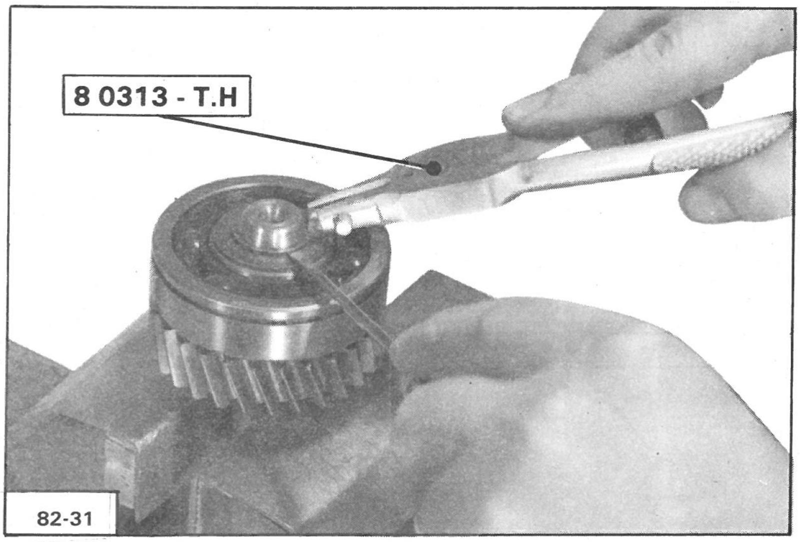
BX. 33-6



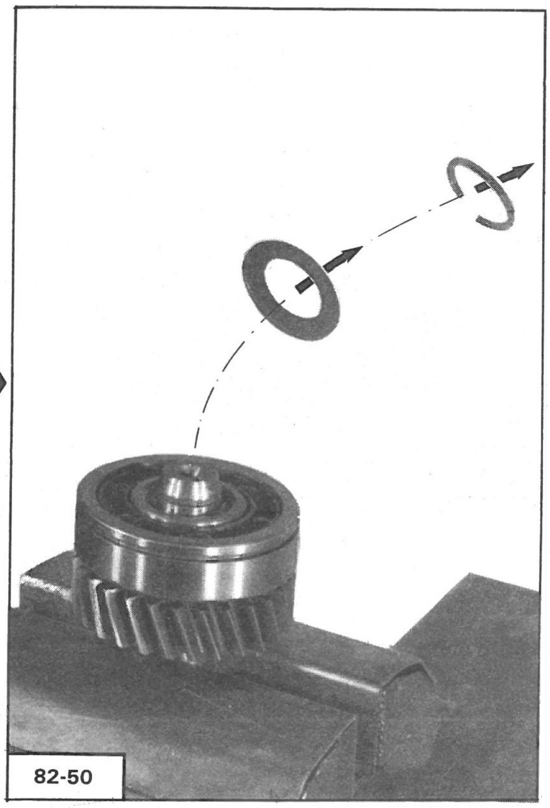
82-156

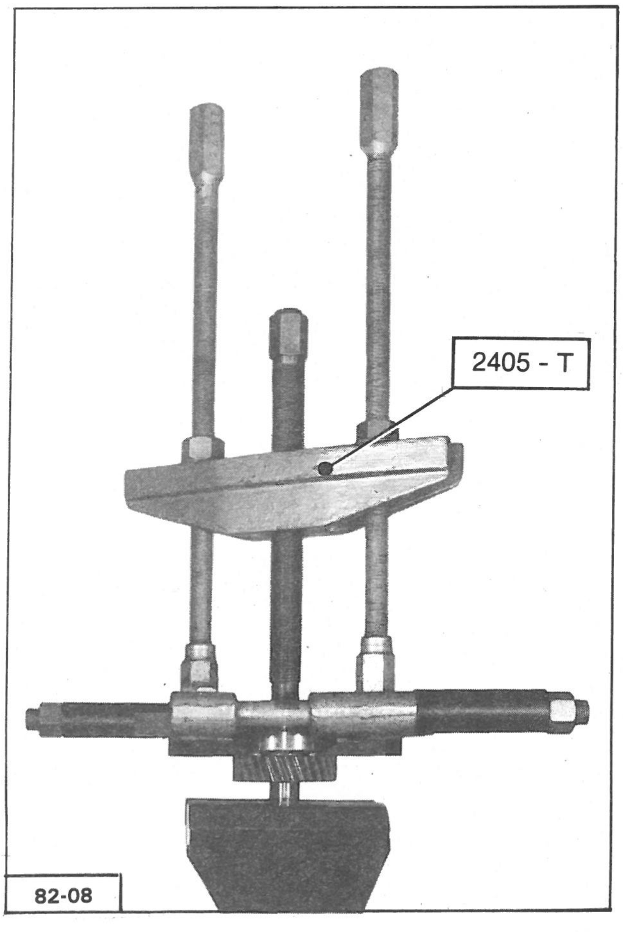


82-35

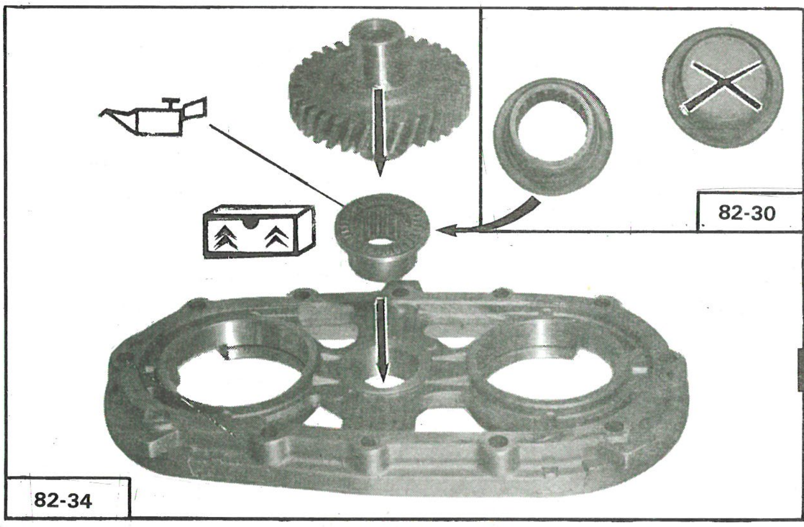


82-31


82-50

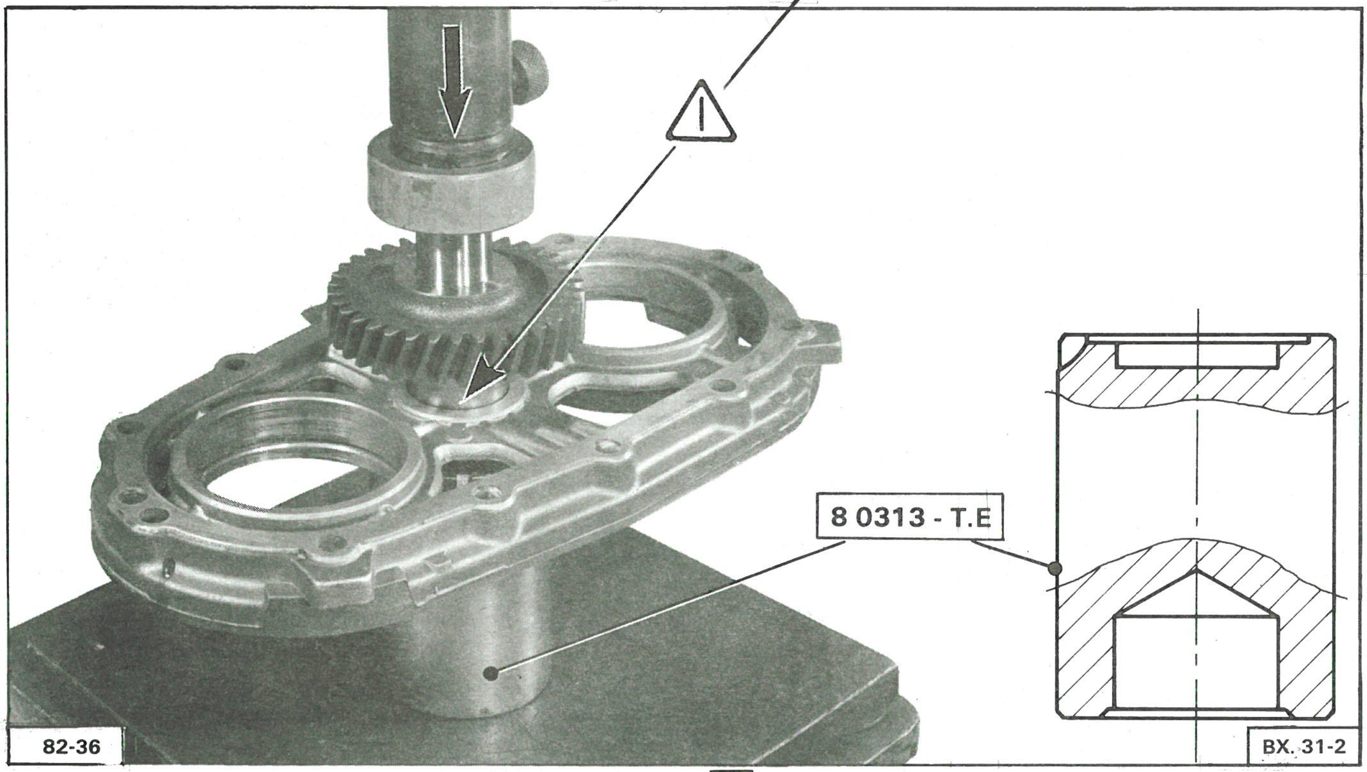


82-08

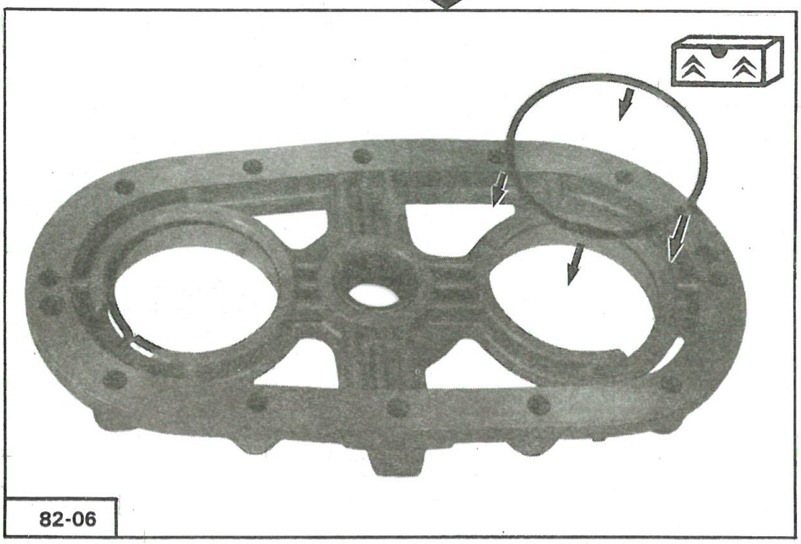

82-34
82-30

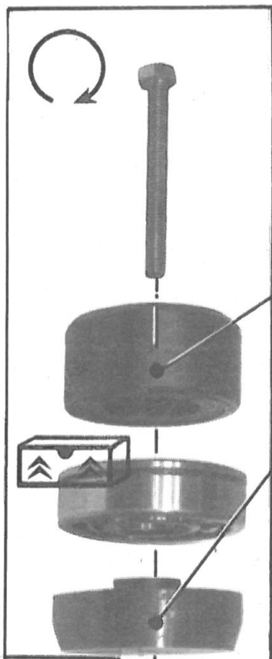
(D) Nur bis zum anschlag einpressen.
(DK) Forsigtig montering.
(E) Conectar sin presion.
(GB) Assemble without force.
(I) Accoppiare senza pressione.
(NL) Er in schuiven zonder druk uit te oefenen.
(P) Meter sem forçar.
(S) Saett paa plats utan tryck.

(F) Emmancher sans pression.

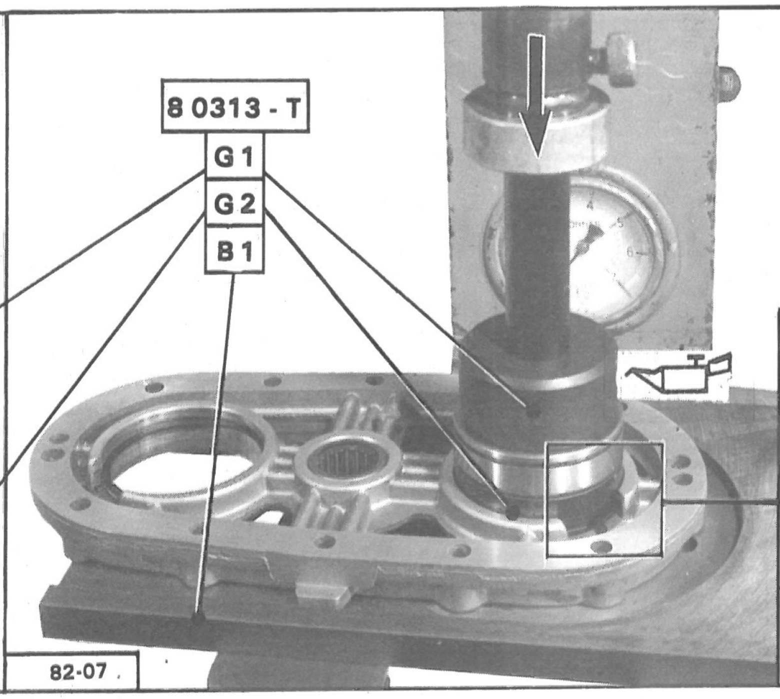


82-36
BX. 31-2

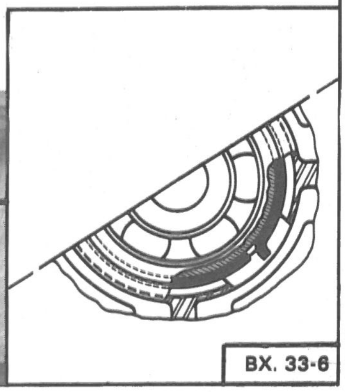

82-06



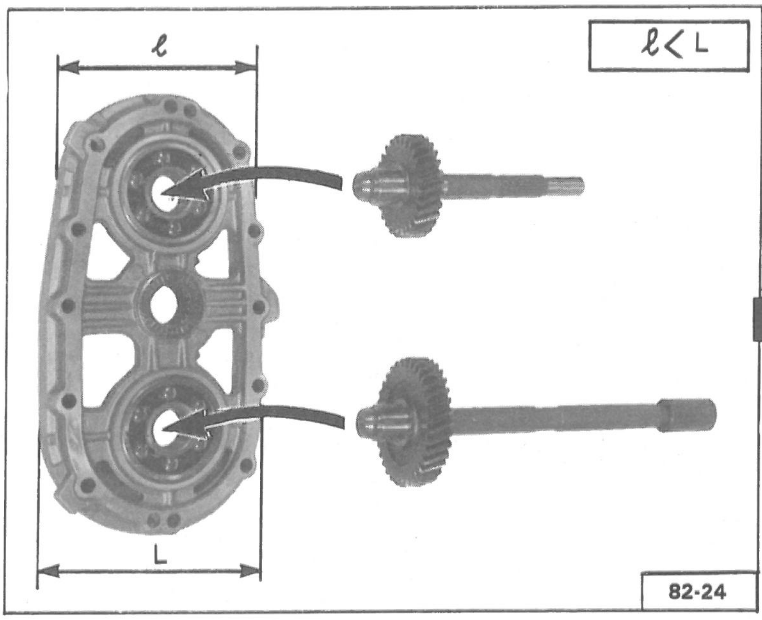
82-157



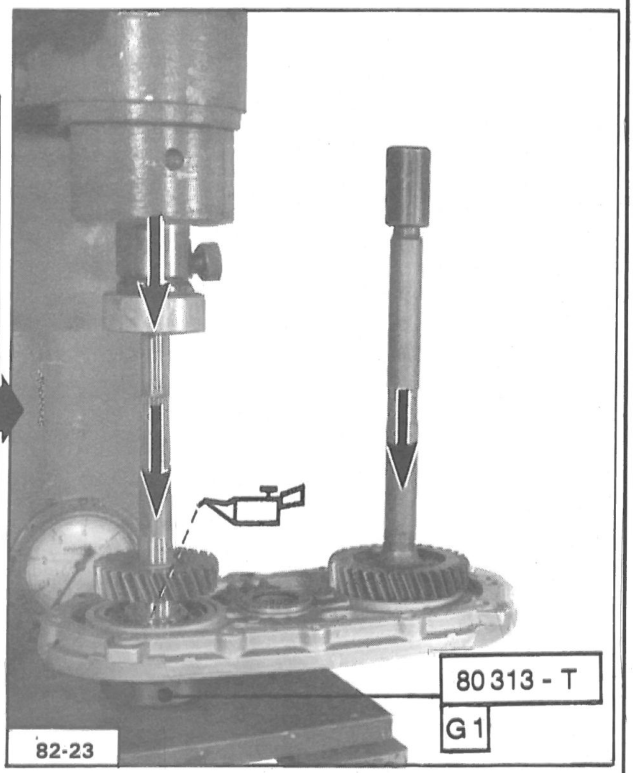
82-07



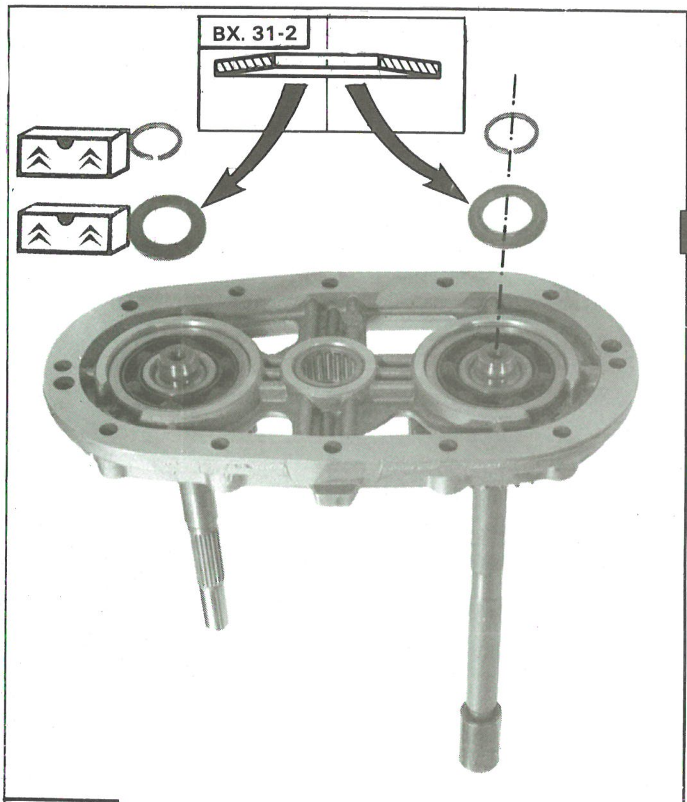
BX. 33-6



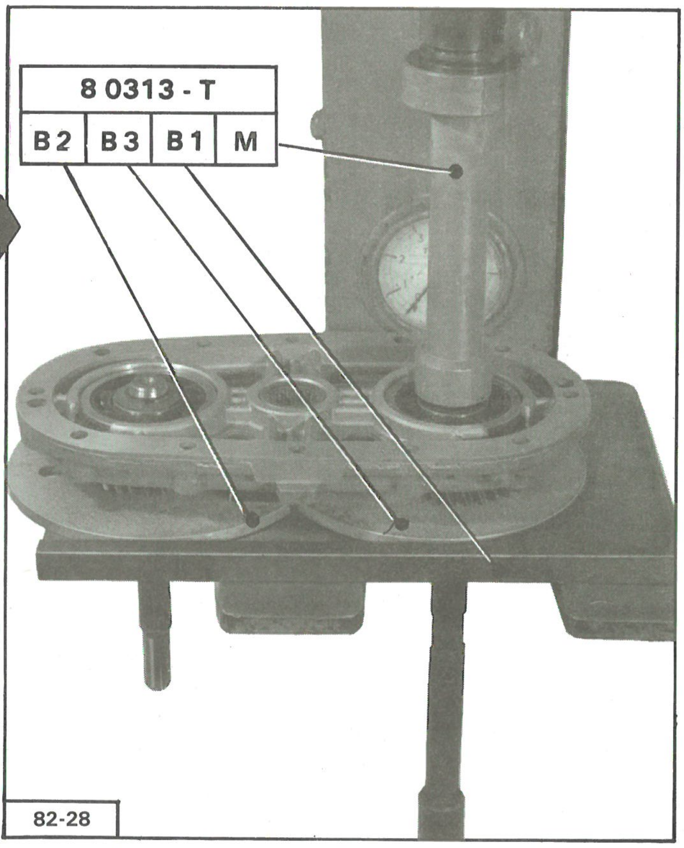
82-24



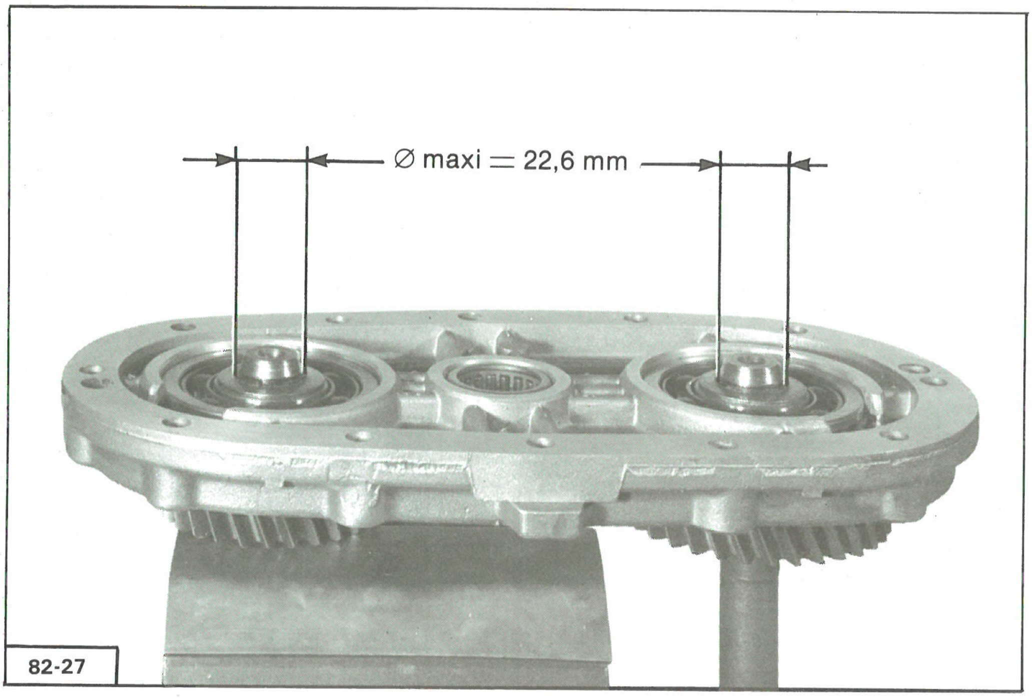
82-23



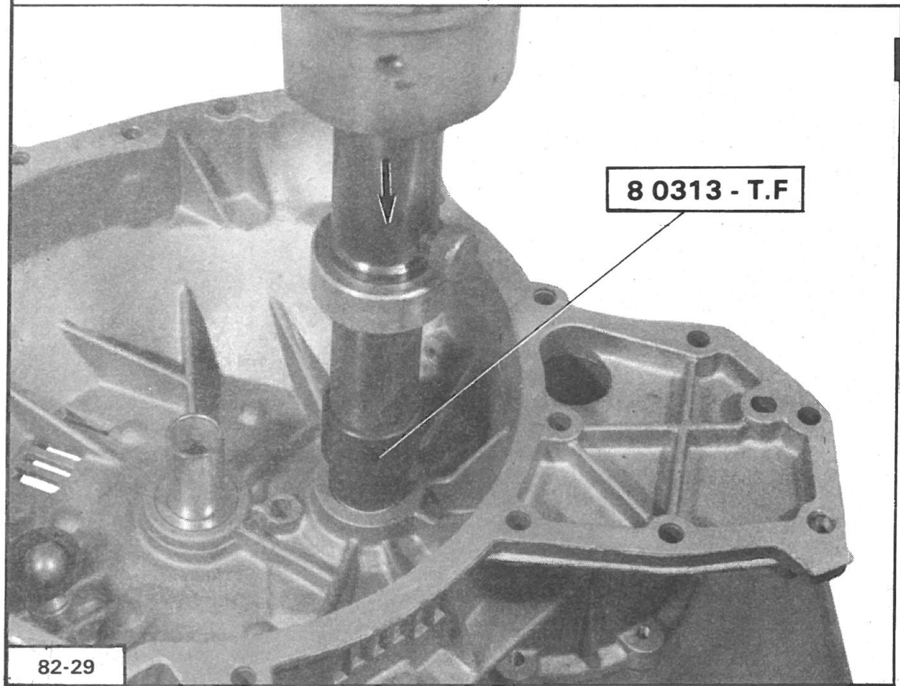
82-22



82-28



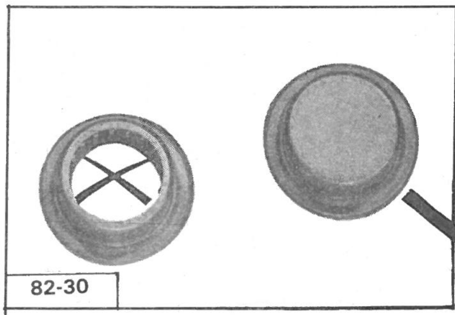
82-27



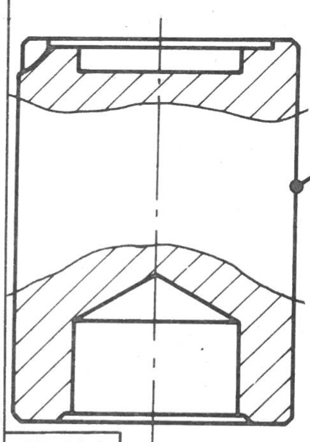
82-29

(D) Nur bis zum anschlag einpressen.
(DK) Forsigtig montering.
(E) Conectar sin presion.
(GB) Assemble without force.
(I) Accoppiare senza pressione.
(NL) Er in schuiven zonder druk uit te oefenen.
(P) Meter sem forçar.
(S) Saett paa plats utan tryck.

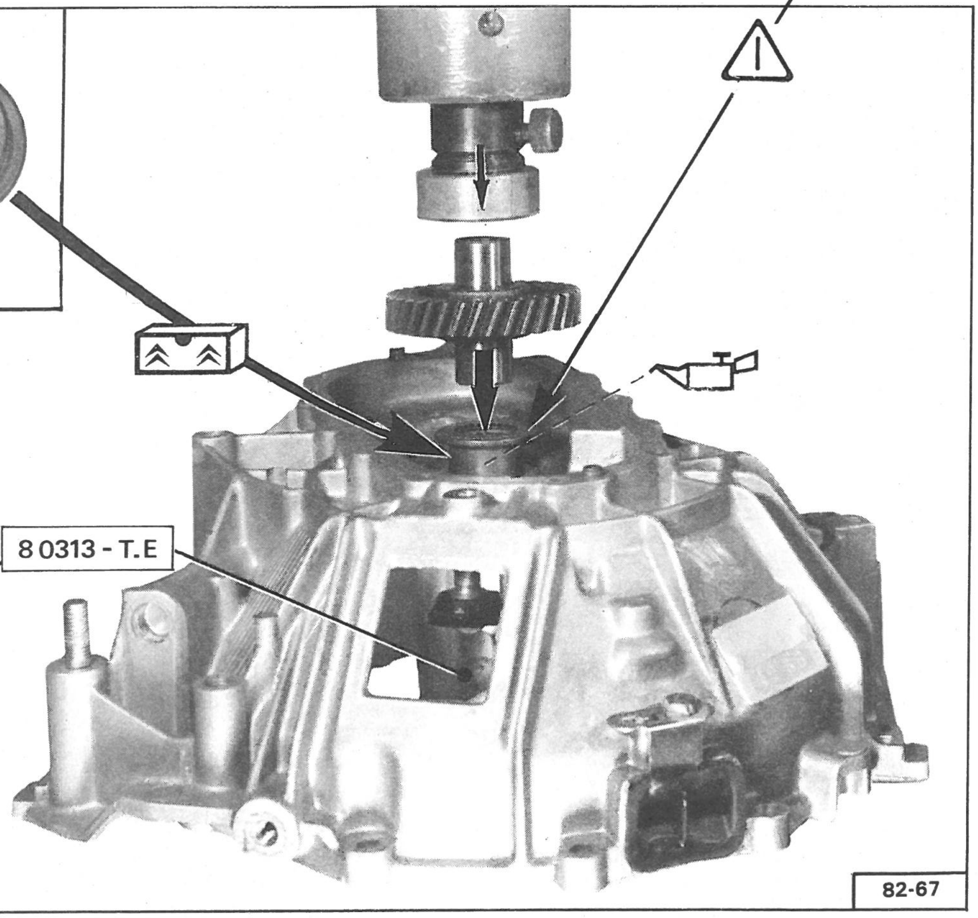
(F) Emmancher sans pression.



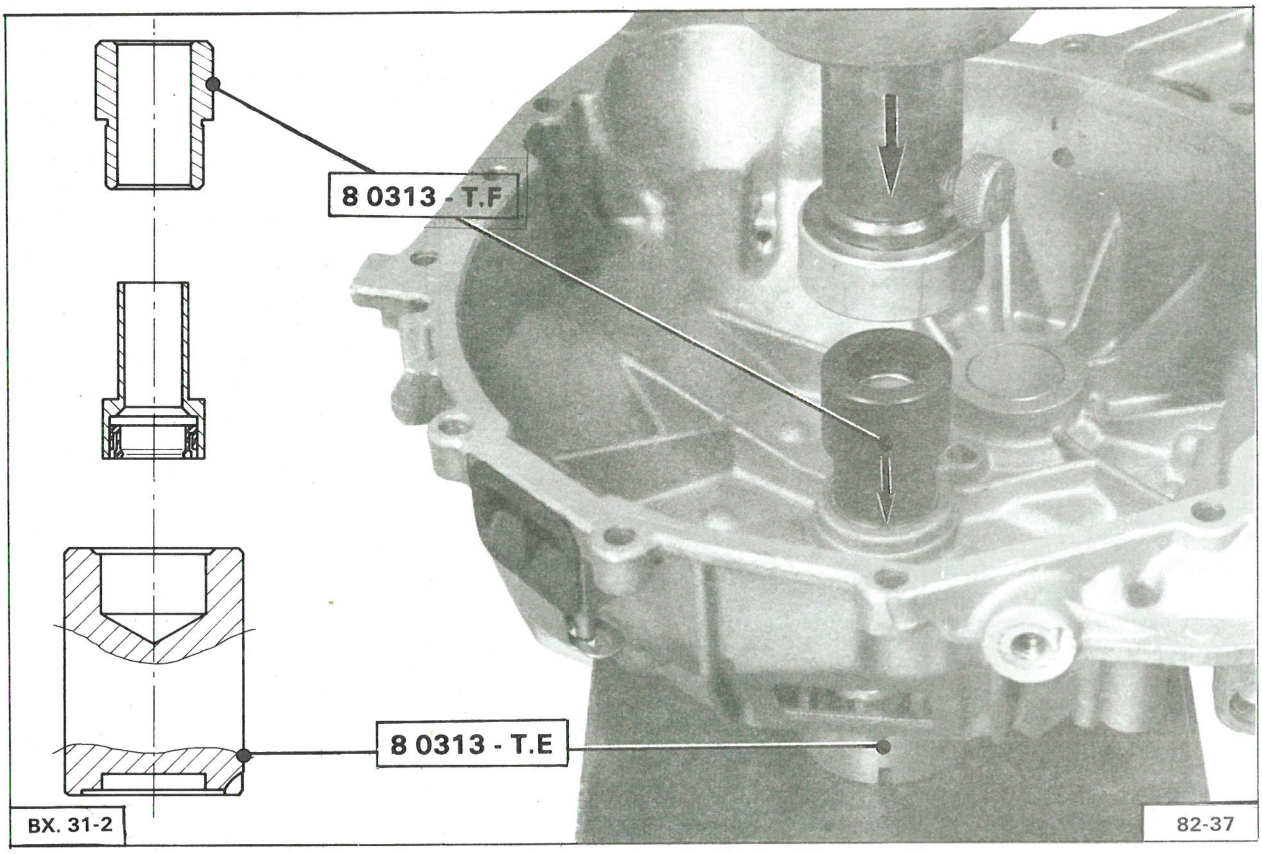
82-30

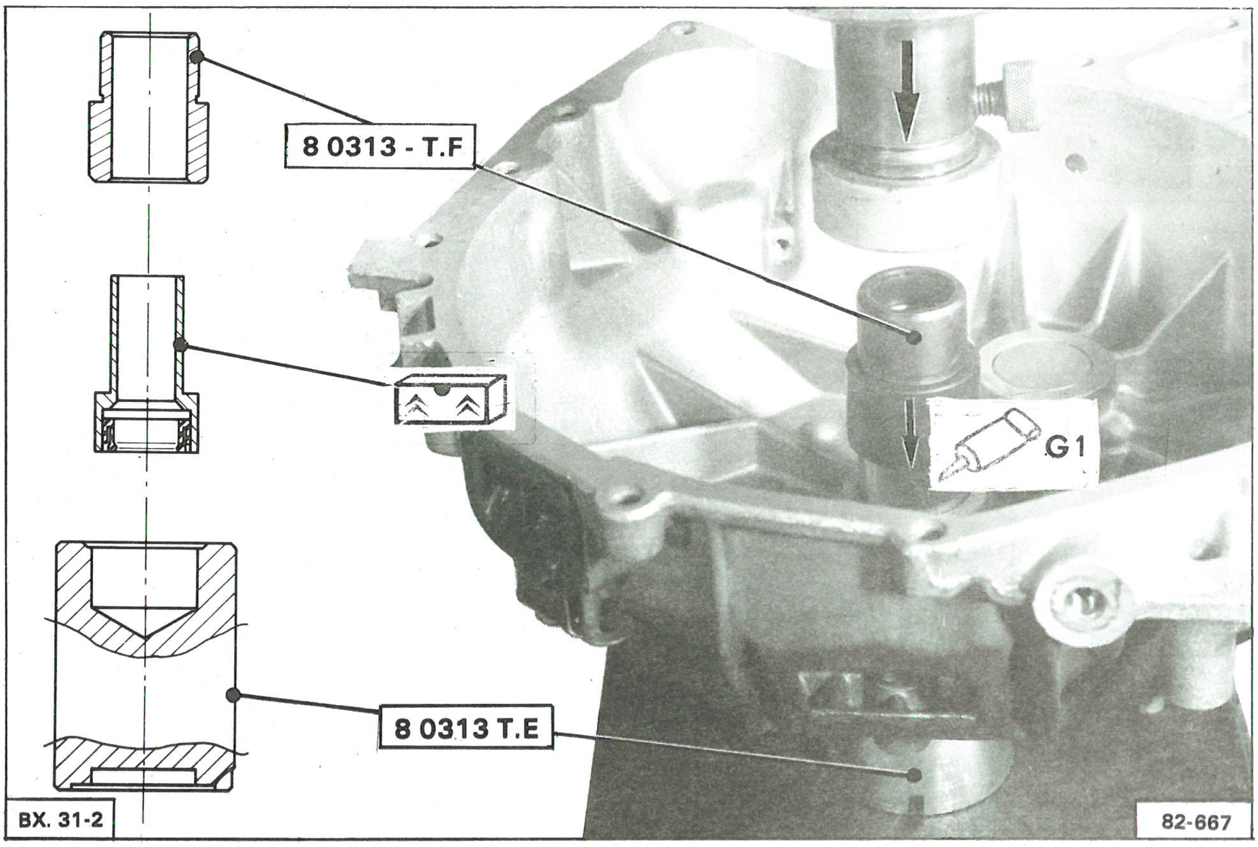


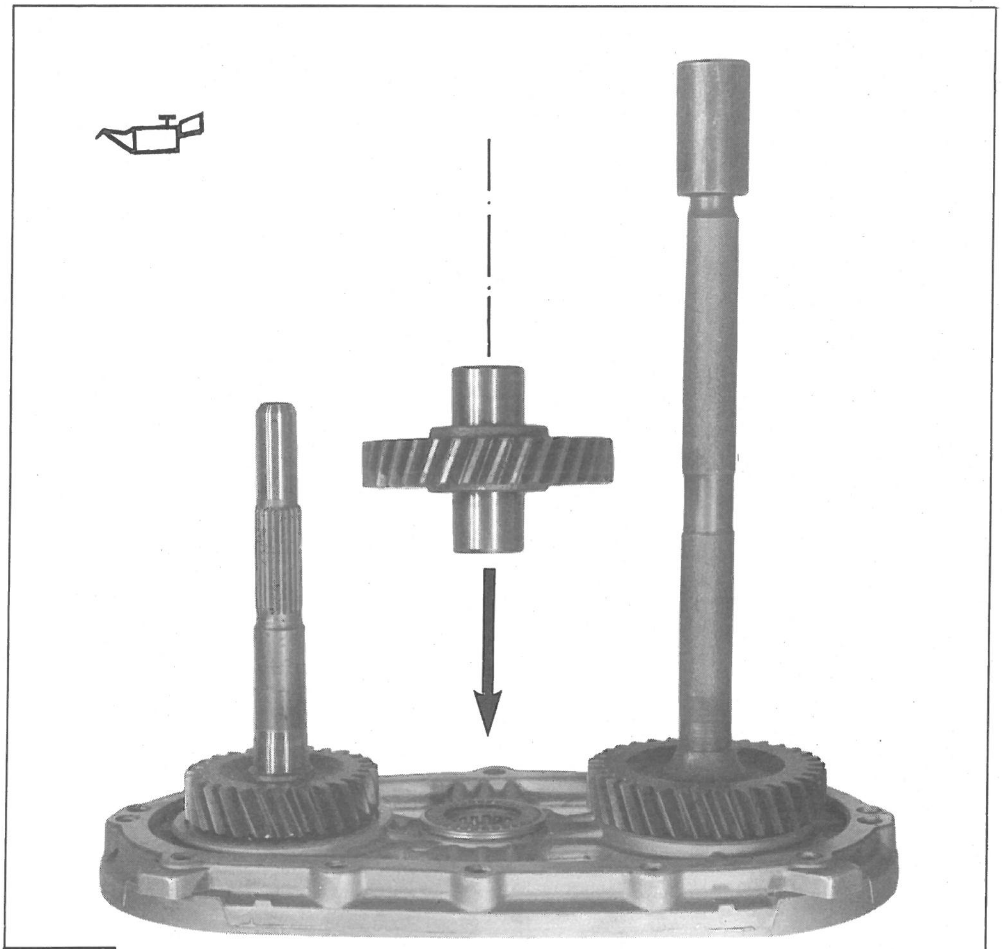
BX. 31-2



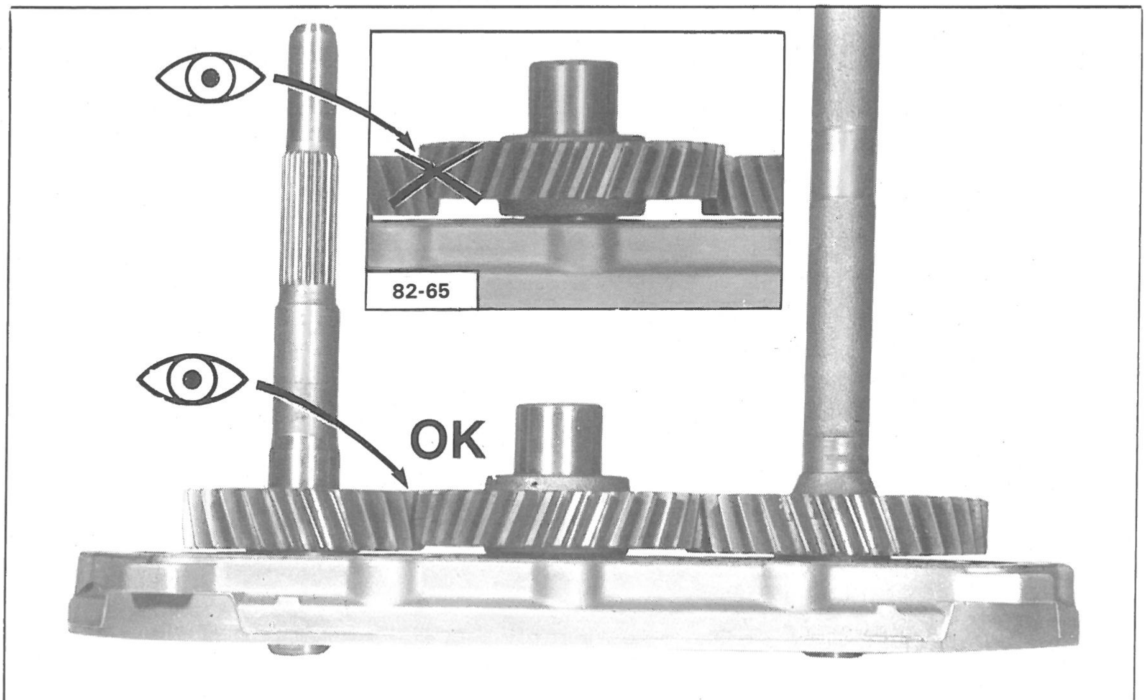
82-67


8 0313 - T.F
8 0313 - T.E
BX. 31-2
82-37


8 0313 - T.F
G1
8 0313 T.E
BX. 31-2
82-667

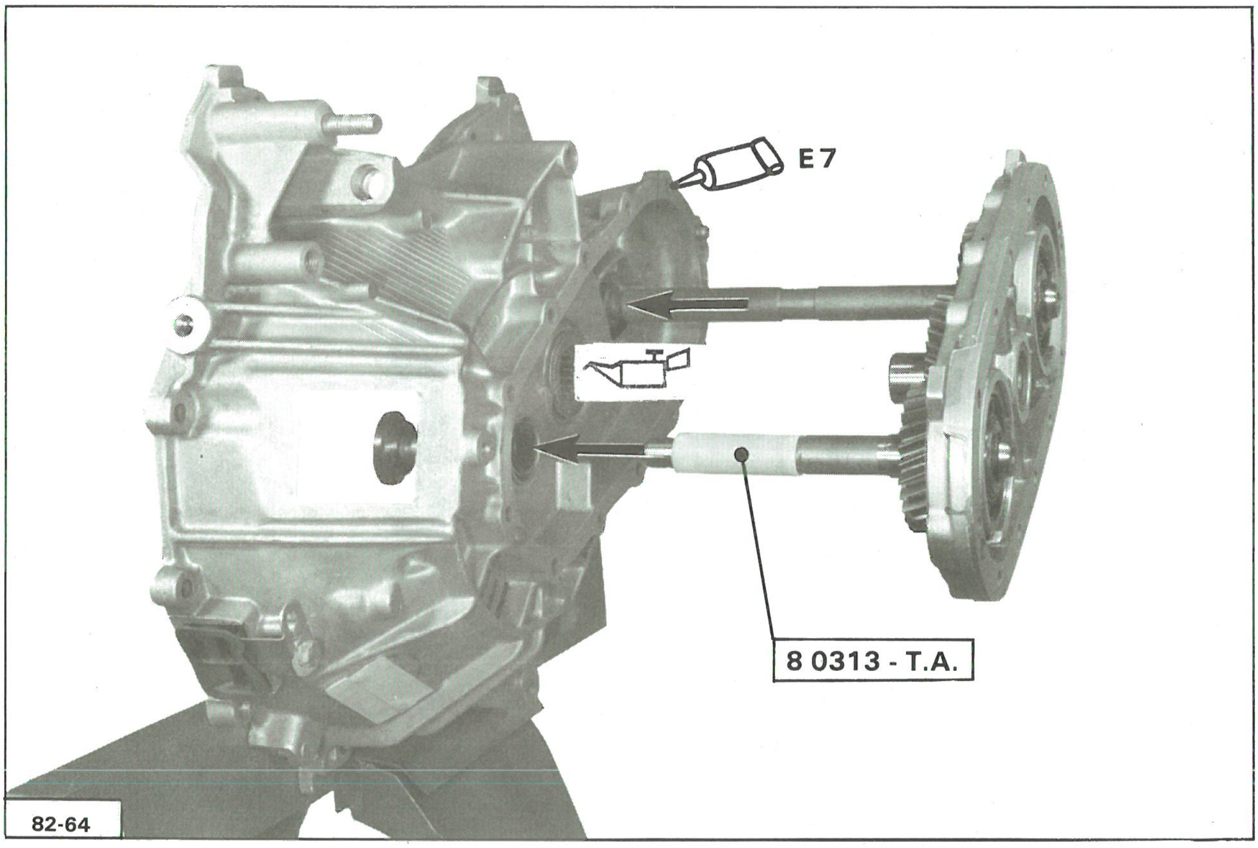


82-63

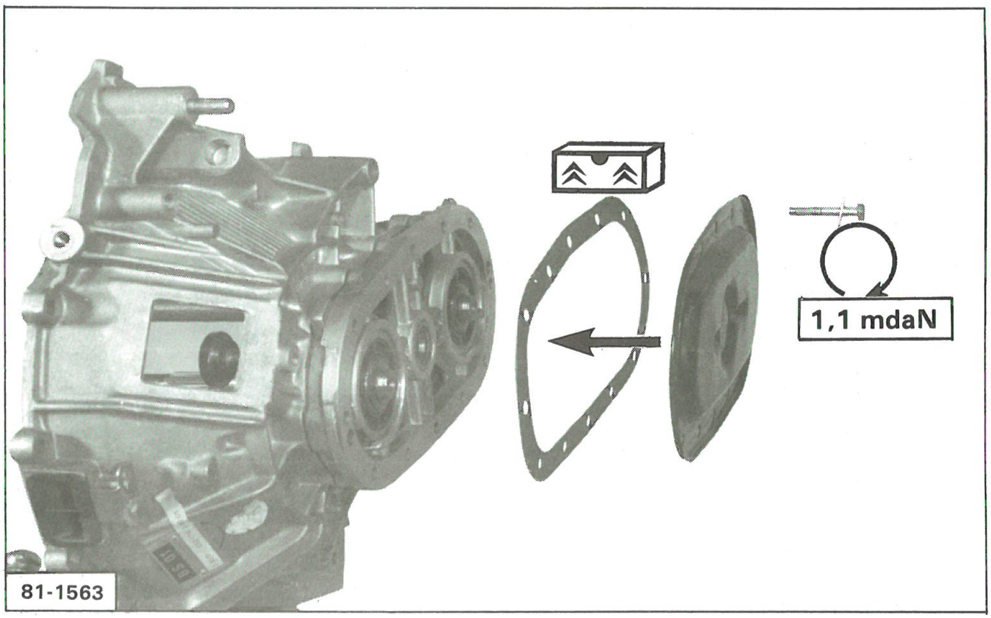


82-65

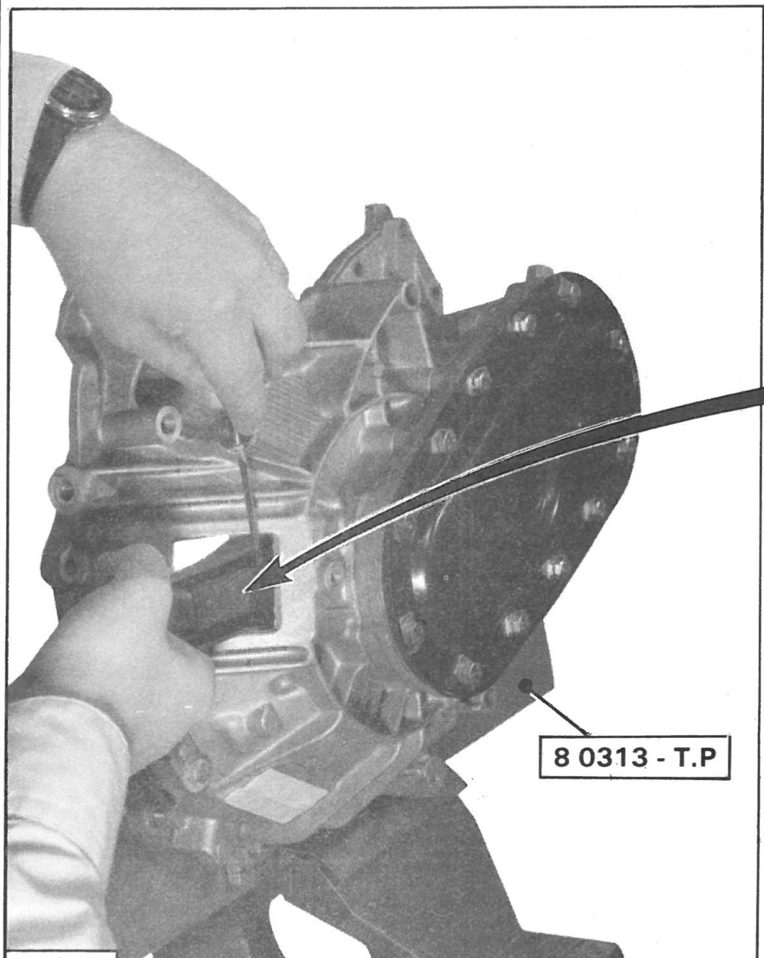
82-66



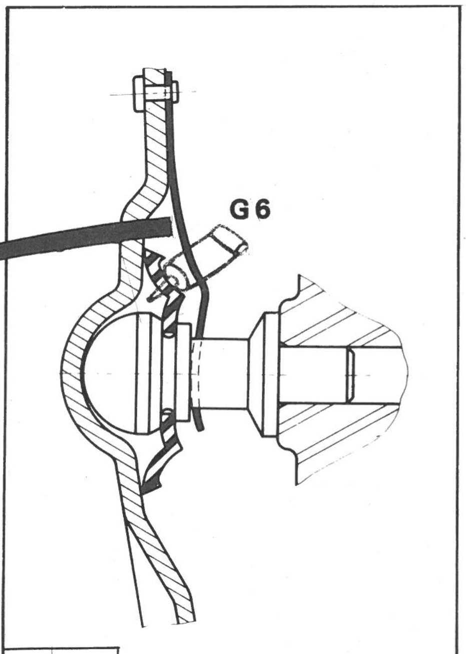
82-64



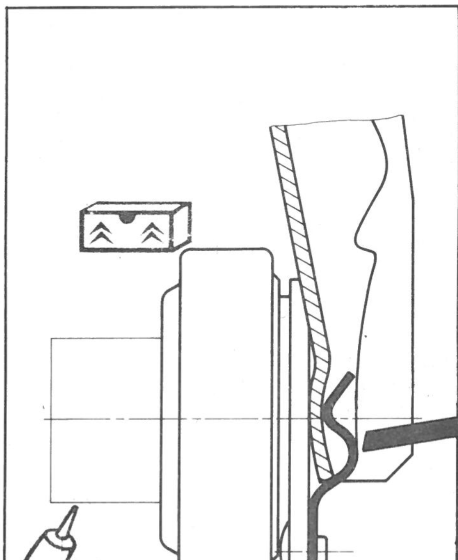
81-1563



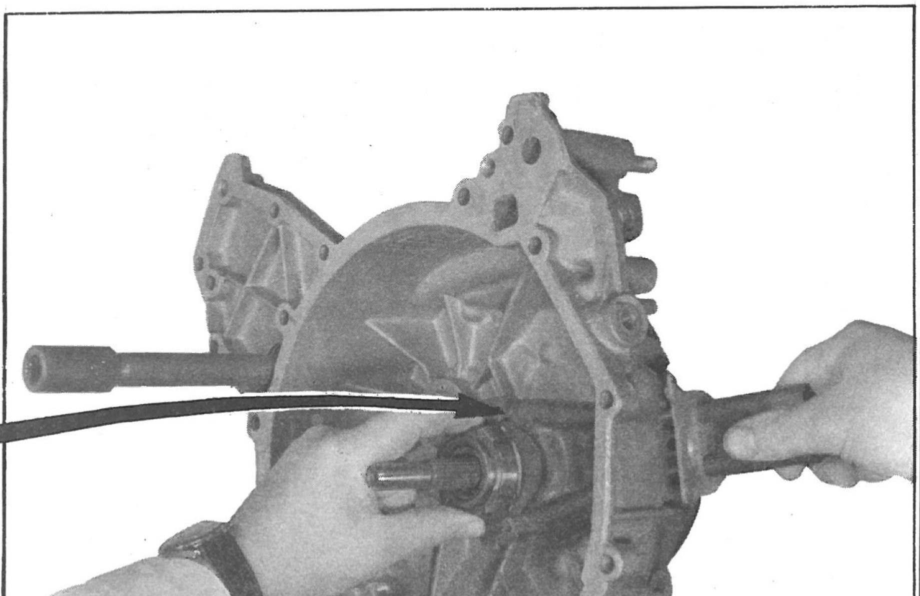
82-01

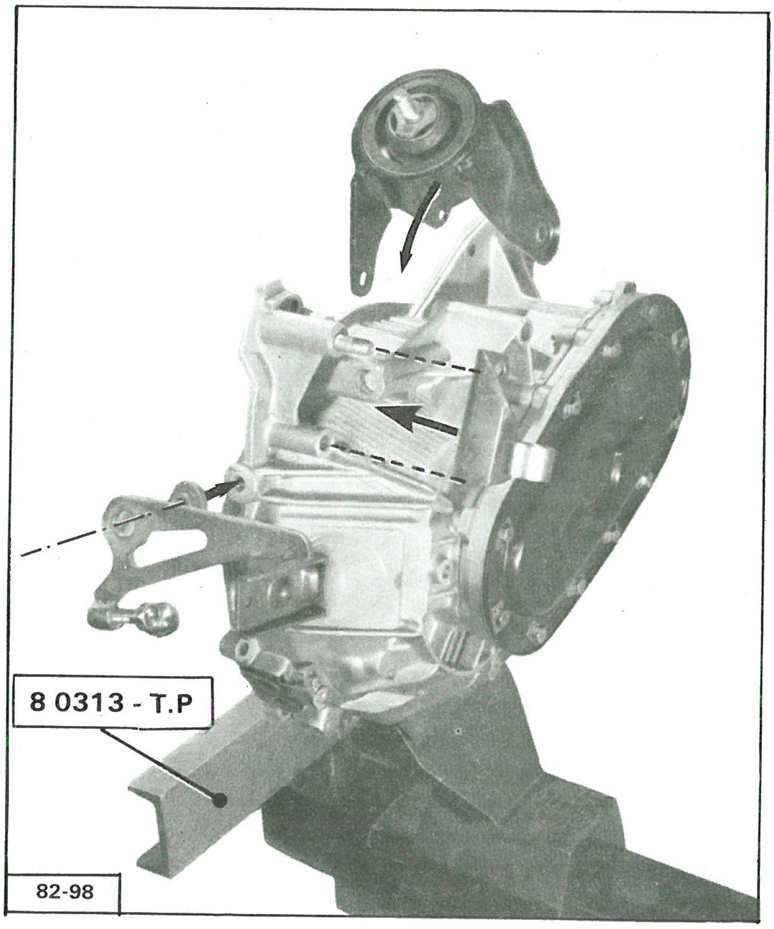


BX. 31-1

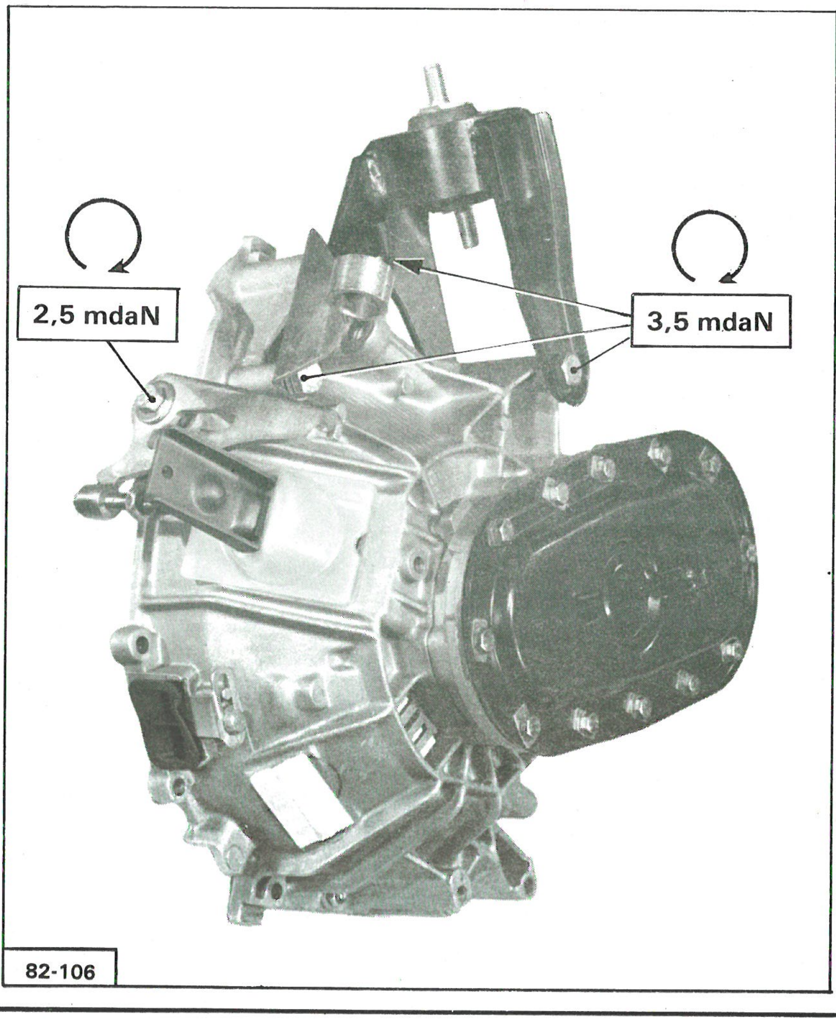


BX. 31-1


83-317



82-98



82-106

5

LIST OF OPERATIONS APPEARING IN CHAPTER : GEARBOX - DRIVE-SHAFTS

Operation number	DESCRIPTION
XB. 330-00	Characteristics and special features of the gearboxes
XB. 330-0	Adjusting the gear control
	BX and BX.14 (1360 cc engine)
XB.14 330-3	Reconditioning a gearbox
	BX.16 (1580 cc engine)
XB.16 330-1	Removing and fitting the gearbox
XB.16 330-3	Reconditioning a gearbox
XB.16 330-4	Working on the gearbox in situ Removing and fitting the primary and secondary shafts
XB. 372-00	Characteristics and special features of the drive-shafts
XB. 372-1	Removing and fitting the drive-shafts

GEARBOX
DRIVE-SHAFTS

CHARACTERISTICS AND SPECIAL FEATURES OF THE GEARBOX

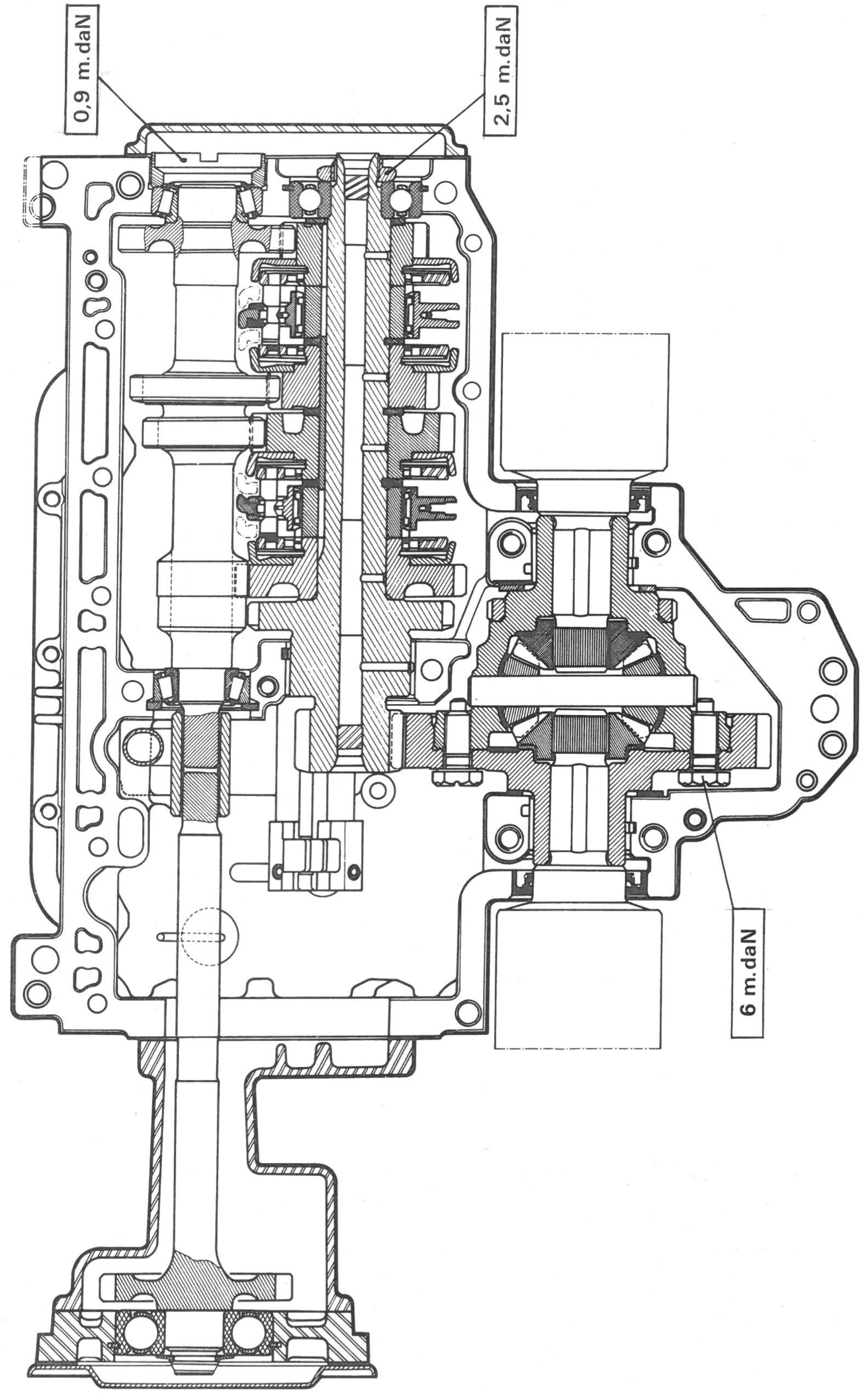
CHARACTERISTICS

4-SPEED GEARBOX, 2 BT 52 type
This gearbox equips the BX vehicles *(1360 cc engine, 150 A type).*

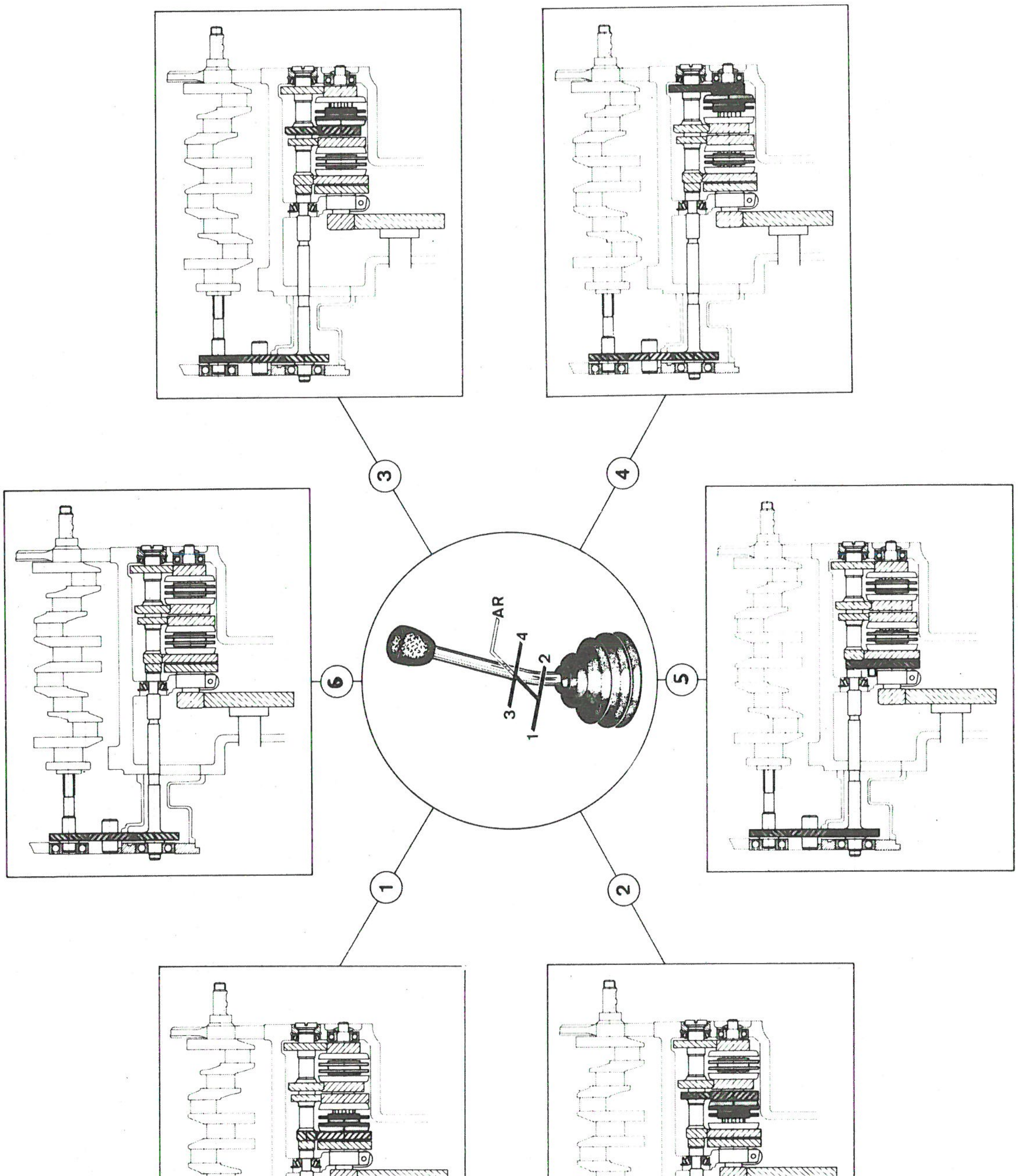
Transfer gear ratio	Gears	Gearbox ratio	Reduction gear	Overall ratios		Speed in kph at 1000 rpm
				Gearbox	Total	
(27/34) 0.7941 : 1	1	(12/37) 0.3243		0.0838	0.0665	7.182
	2	(17/28) 0.6071	(15/58) 0.2596	0.1570	0.1246	13.456
	3	(32/35) 0.9143		0.2364	0.1877	20.271
	4	(36/27) 1.3333		0.3448	0.2738	29.570
	REV.	(12/34) 0.3529		0.0912	0.0724	7.819
Speedometer drive ratio : 25/29						

Speeds are given for vehicles fitted with **145 SR 14** tyres, whose rolling circumference under load is 1.800 m. The rolling circumference of the **170/65 R 365 TRX** tyres is 1.795 m.

> **WARNING : If prolonged towing is necessary, the front wheels must be lifted off the ground in order to prevent possible seizing of the gearbox.**



82-1018



V 33-5 a

Lubrication :

Engine and gearbox oil : - TOTAL GOLD or TOTAL 20/50, *all the year round (U.K.)*
- TOTAL GTS 15 W 40 or TOTAL GTi Route et Ville 10 W 30

In very cold climates : TOTAL GTi Route et Ville 10 W 30

Gearchange control :

Floor-mounted gear lever, European gear pattern.

SPECIAL FEATURES

The primary shaft is mounted in conical bearings inside the gearbox casing.
Primary shaft end float : pre-tighten the nut to **2 m.daN**, loosen it, then re-tighten it to **0.9 m.daN.**
The secondary shaft is mounted in the gearbox half-casings :
- on L.H. side, in thin half-shells lubricated under pressure,
- on R.H. side, in ball bearings.

The differential bearings are fitted with thin half-shells, lubricated under pressure.

GEAR PATTERN

Figure 1 : 1st gear

Figure 2 : 2nd gear

Figure 3 : 3rd gear

Figure 4 : 4th gear

Figure 5 : Reverse gear

Figure 6 : Neutral

CHARACTERISTICS

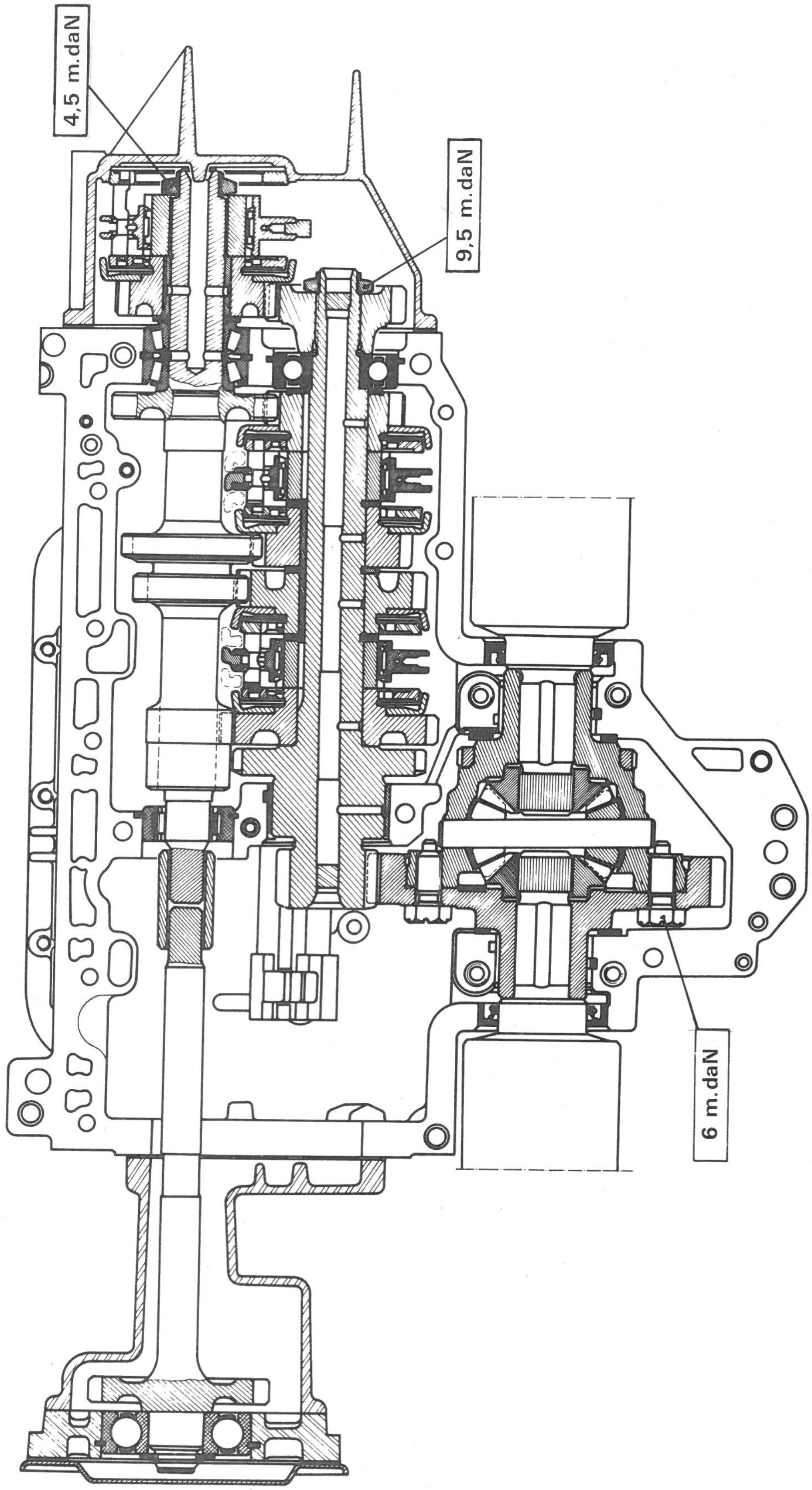
5-SPEED GEARBOX, 2 BT 28 type

This gearbox equips the BX 14 E and BX 14 RE vehicles *(1360 cc engine, 150 C type)*.

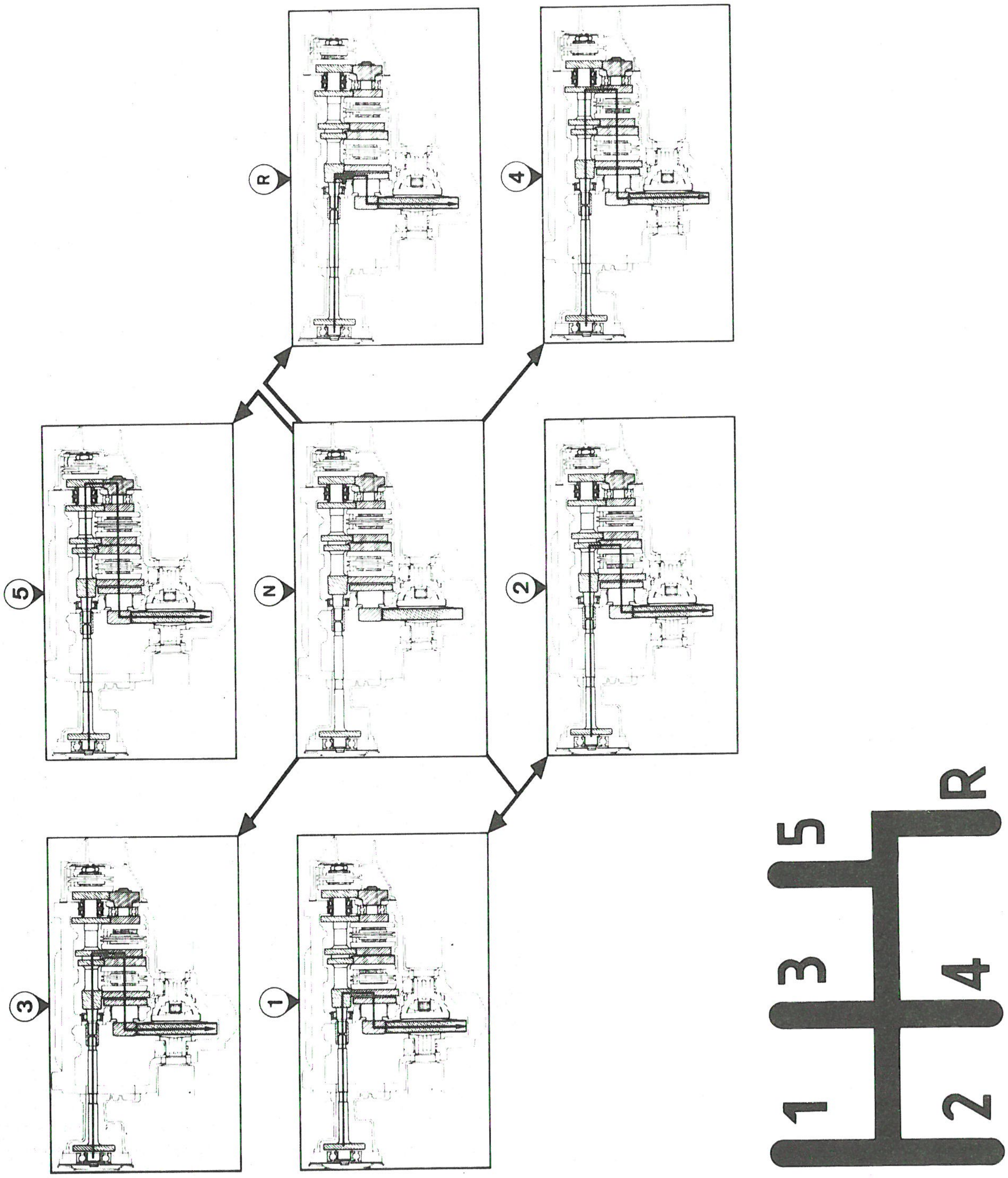
Transfer gear ratio	Gears	Gearbox ratios	Reduction gear	Overall ratios		Speed in kph at 1000 rpm
				Gearbox	Total	
	1	12/37 0.3243		0.0838	0.0665	7.182
	2	17/31 0.5483		0.1423	0.1125	12.150
27/34 0.7941	3	26/31 0.8387	15/58 0.2596	0.2177	0.1722	18.597
	4	28/25 1.1200		0.2907	0.2299	24.829
	5	39/28 1.3928		0.3615	0.2860	30.88
	REV.	12/34 0.3529		0.0912	0.0724	7.819
Speedometer drive ratio : 25/29						

Speeds are given for vehicles fitted with **145 SR 14**, whose rolling circumference under load is 1.800 m. The rolling circumference of the **170/65 R 365 TRX** tyres is 1.795 m.

WARNING : If prolonged towing is necessary, the front wheels must be lifted off the ground in order to prevent possible seizing of the gearbox.



82-1019



V 33-13 a

Lubrication :
Engine and gearbox oil : - TOTAL GOLD or TOTAL 20/50, *all the year round (U.K.)*
- TOTAL GTS 15 W 40 or TOTAL GTi Route et Ville 10 W 30
In very cold climates : TOTAL GTi Route et Ville 10 W 30

Gearchange control :

Floor-mounted gear lever, European gear pattern.

SPECIAL FEATURES

Primary line :

The primary shaft is lengthened to enable the 5th gear pinion and the 5th/reverse gear synchronizer to be fitted. At 1st gear end, the shaft rotates in a roller bearing, without inner bush, and held in position by a circlip. The two bearings with opposed conical rollers, located at 5th gear assembly end, ensure the correct guiding of the shaft. They are fitted with outer bushes which come in contact with a washer integral with one groove of the casing.
A collar nut holds the assembly in position.
The shaft comprises one axial and two cross drillings ensuring a correct lubrication of the conical roller bearings and of the 5th gear pinion (the only one to be fitted on a bush).

Secondary line :

The end of the secondary shaft has coil splines on which the 5 th gear driven pinion is fitted.

GEAR PATTERN

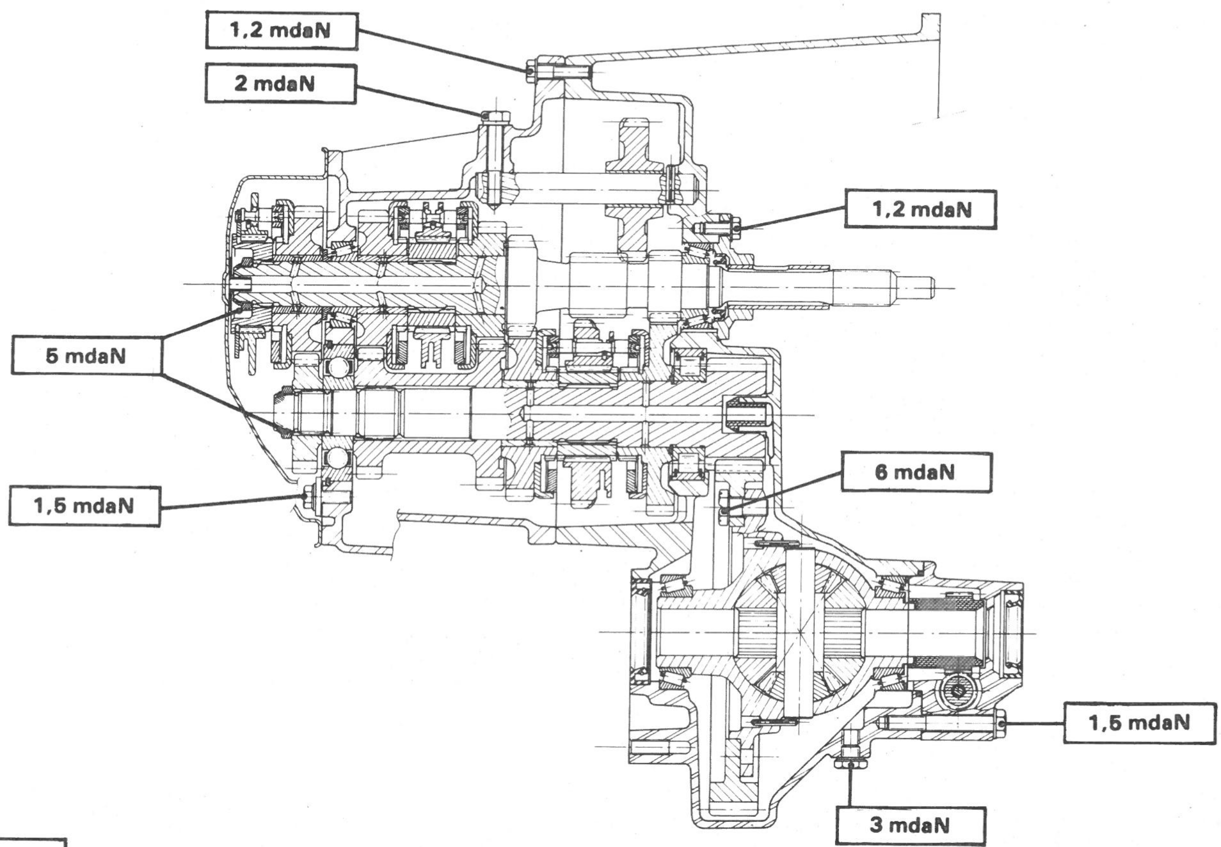
Figure 1 : 1st gear
Figure 2 : 2nd gear
Figure 3 : 3rd gear
Figure 4 : 4th gear
Figure 5 : 5th gear
Figure R : Reverse gear
Figure N : Neutral

CHARACTERISTICS

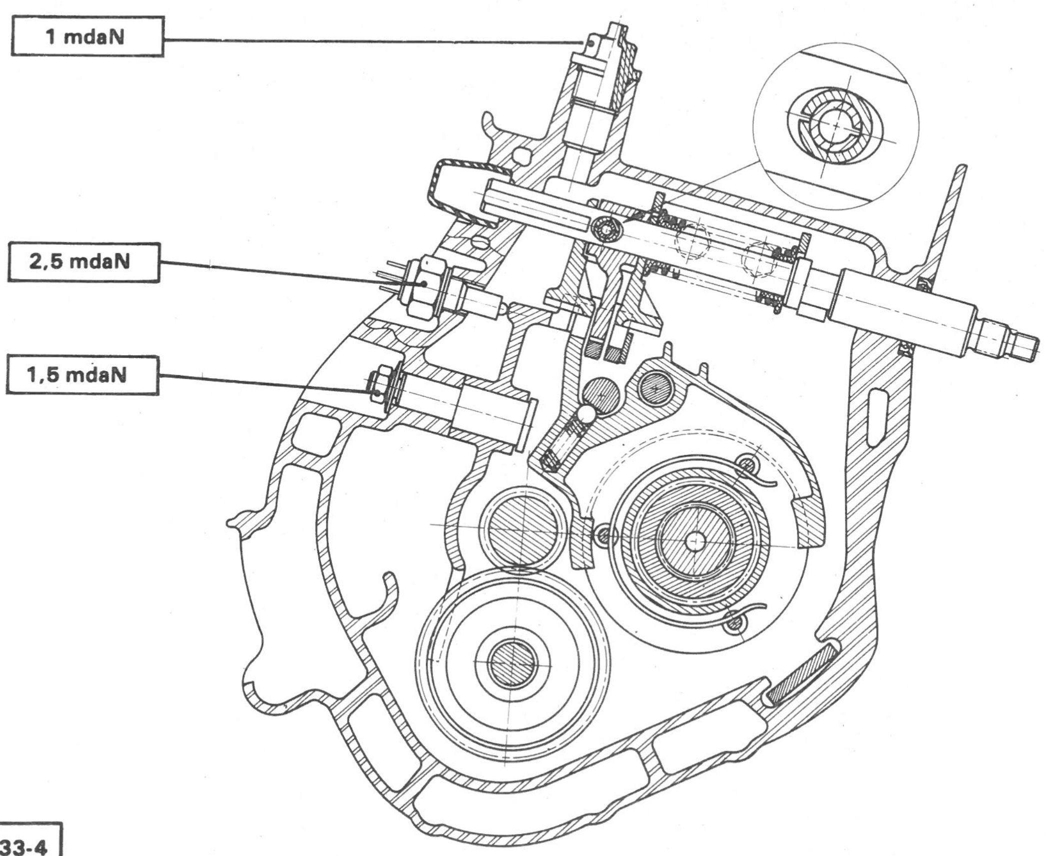
5-SPEED GEARBOX, 2 BL 03 type
This gearbox equips the BX 16 RS and BX 16 TRS vehicles *(1580 cc engine, 171 A type)*.

Gears	Gearbox ratios	Reduction gear	Overall ratios	Speed in kph at 1000 rpm
1	13/43	16/67	0.0721	7.765
2	17/32		0.1268	13.656
3	25/32		0.1865	20.086
4	32/31		0.2464	26.537
5	37/28		0.3155	33.979
REV	12/40		0.0716	7.711
Speedometer drive ratio : 22/19				

Speeds are given for vehicles fitted with **170/65 R 365 TRX,** whose rolling circumference under load is **1.795 m.**

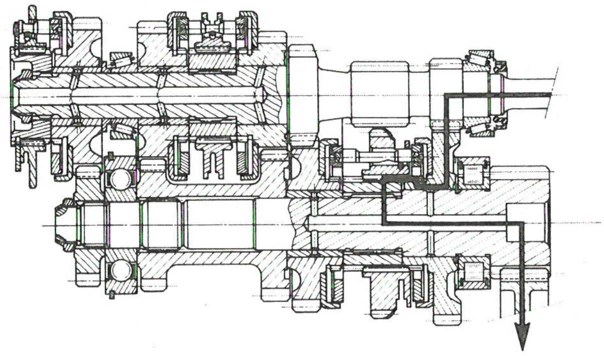

1,2 mdaN
2 mdaN
1,2 mdaN
5 mdaN
1,5 mdaN
6 mdaN
1,5 mdaN
3 mdaN

BX 33-1

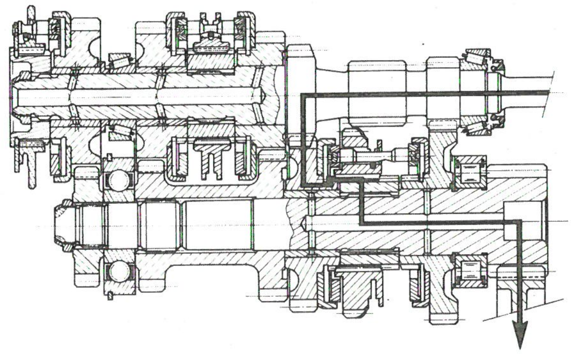

1 mdaN
2,5 mdaN
1,5 mdaN

BX 33-4

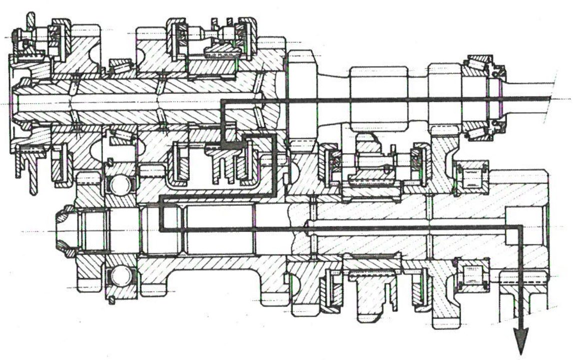
1



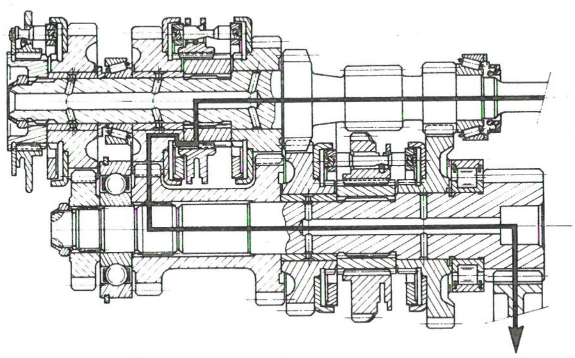
2



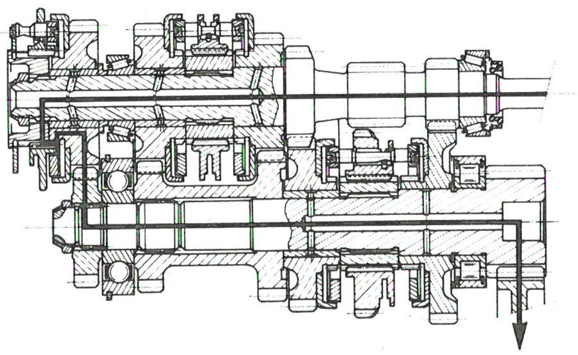
3



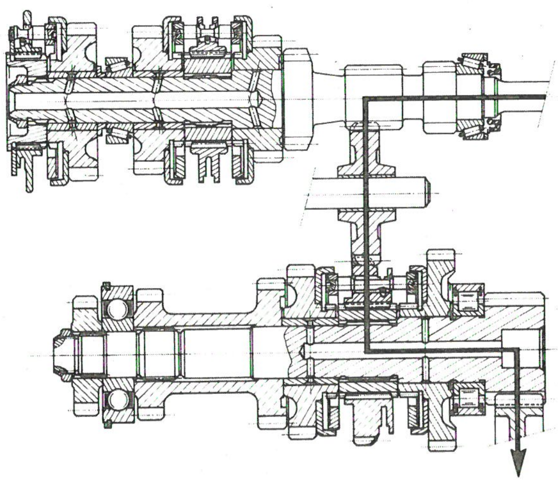
4



5



6



Lubrication :

1.4 litre of oil : TOTAL EP 80 W/90 (U.K).
TOTAL TRANSMISSION TM MULTIGRADE (France)

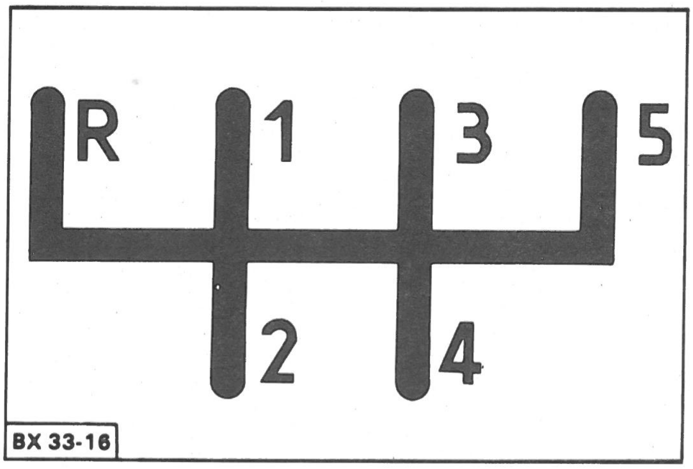
The draining should be carried out at the 1000 km inspection and then at 97.500 km.

In case of leaks, it is necessary to drain the gearbox and to top up the level with 1.4 litre of oil. DO NOT EXCEED THE QUANTITY OF OIL INDICATED.

(See the position of the filler and drain plugs, pages 14 and 15).

Gear-change control :

Floor-mounted lever, specific gear pattern.



GEAR PATTERN

Figure 1 : 1st gear

Figure 2 : 2nd gear

Figure 3 : 3rd gear

Figure 4 : 4th gear

Figure 5 : 5th gear

Figure 6 : Reverse gear **(R)**

SPECIAL FEATURES

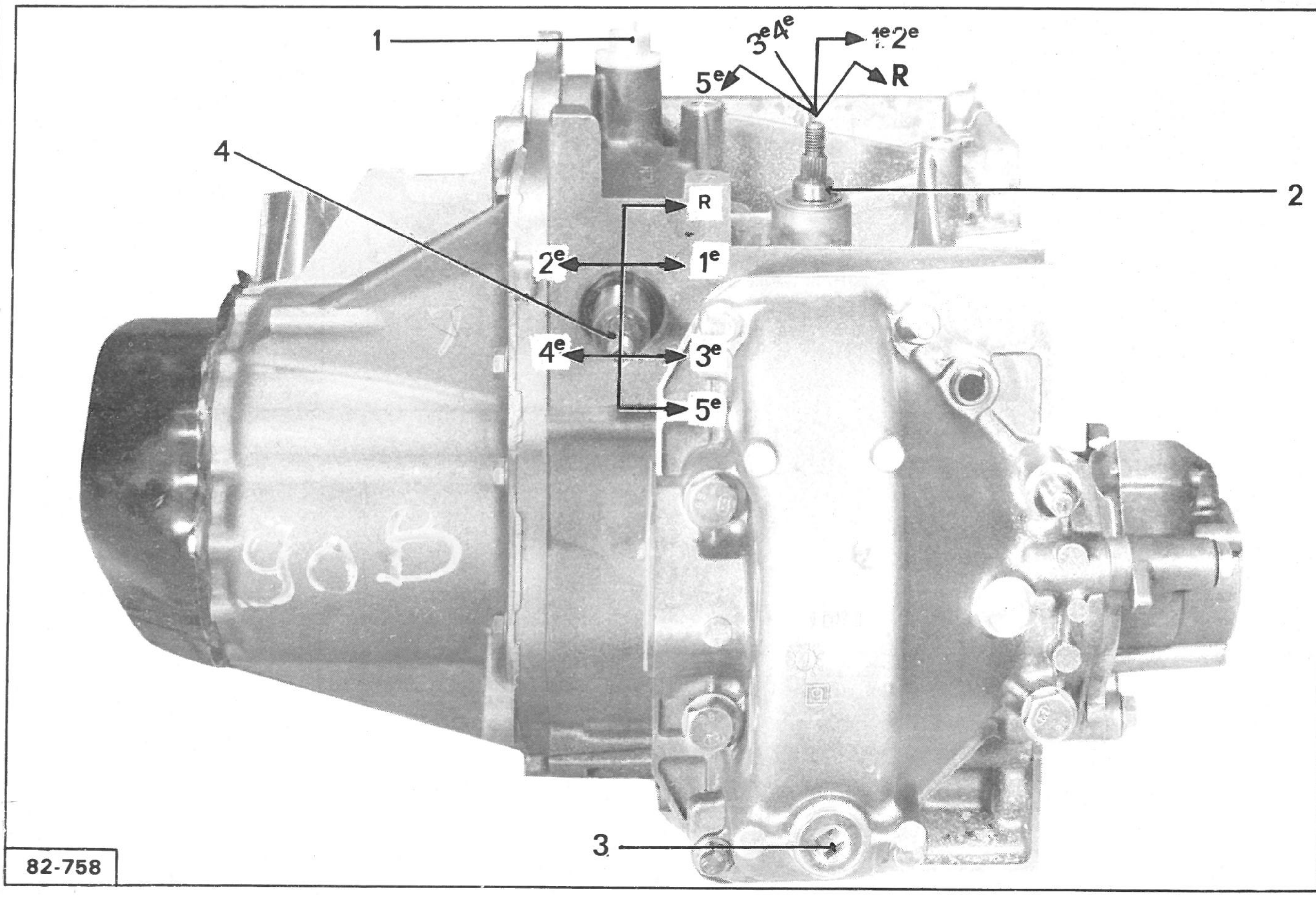
Fig. I :

Venting device (1).
Selector shaft (2).
Drain plug on differential housing (3).
Gear shifting shaft (4).

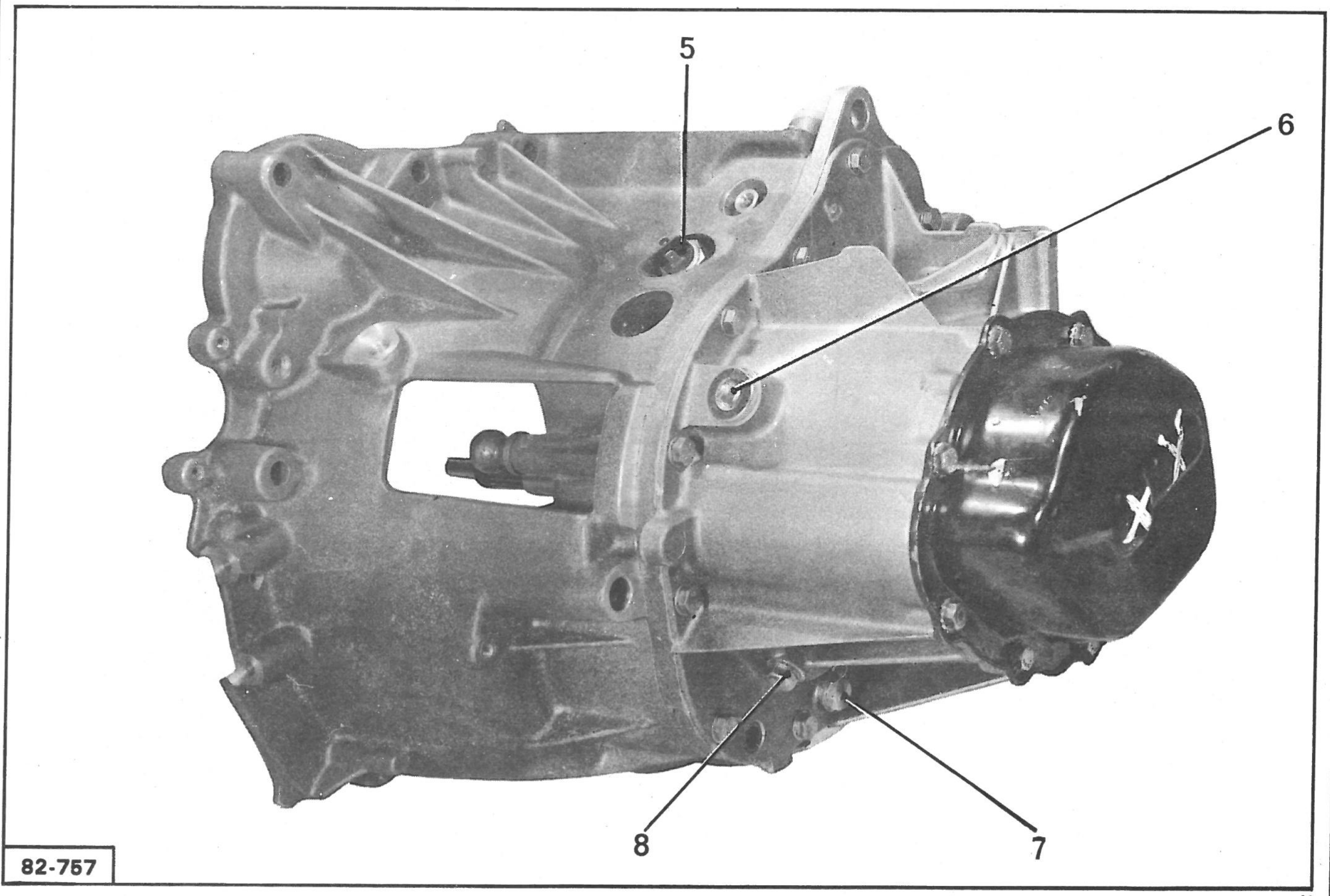
Fig. II :

Reversing lamp switch (5).
Filler plug (6).
Drain plug on gearbox casing (7).

Clamping screw for reverse gear shaft (8) : DO NOT REMOVE IT.

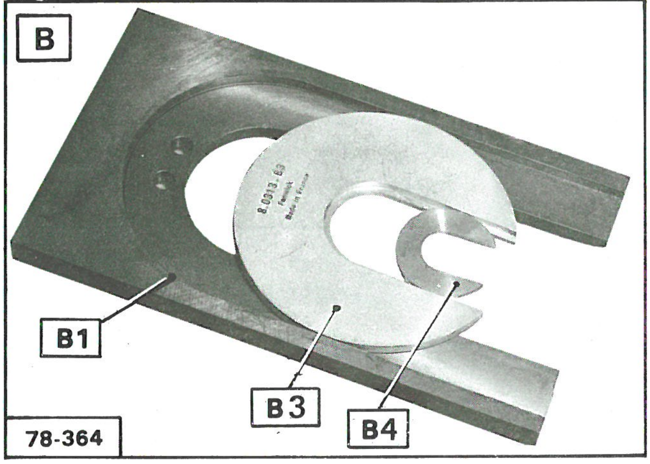


82-758



82-757

B



78-364

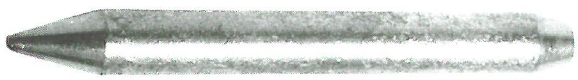
KZ

78-356

LZ

78-359

C



78-360

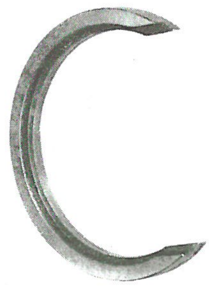
D

78-353

N

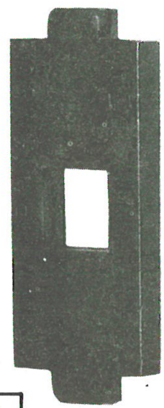
78-357

R



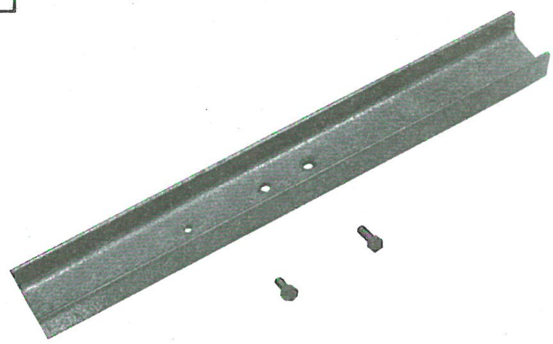
81-954

J



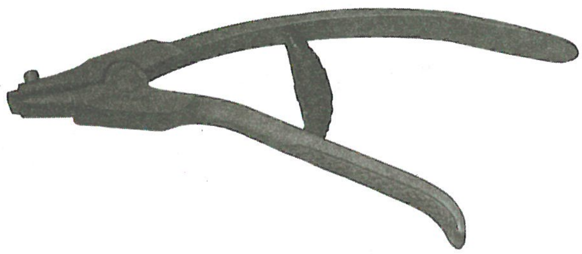
78-366

P



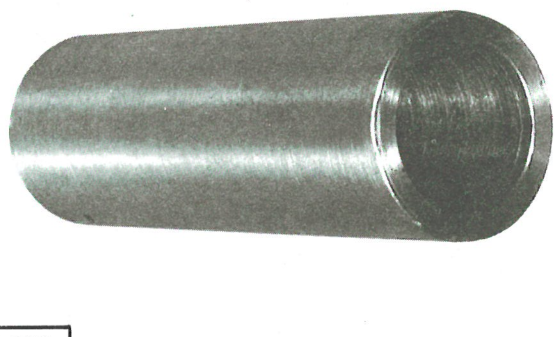
78-322

H



78-361

S



81-953

RECOMMENDED TOOLS

Operation XB.14. 330-3 : Reconditioning a gearbox.

From kit, R.P. ref. OUT 38.0313 T : Use the following tools :

B : Press support plate comprising :
- **B1 :** supporting plate
- **B3 :** thrust washer
- **B4 :** thrust washer

C : Locking punch.

D : Fork for fitting and removing selector spring

J : Primary shaft nut plate.

H : Pliers for speedometer control and bearing circlip.

KZ : Half-rings for removing the R.H. bearing of the primary shaft.

LZ : Pad for fitting the gearbox drive outlet seals.

N : Drift for fitting and removing roller bearings.

P : Support for gearbox and clutch casing.

R : Tool for fitting and removing the primary shaft bearings *(5-speed gearbox).*

S : Primary shaft bearing fitting drift *(5-speed gearbox).*

Operation XB 16 330-3 : Reconditioning a gearbox.

From kit, R.P. reference **OUT 38.0313 T :** Use the following tools :

C : Locking punch *(see figure page 16).*

B3 : Thrust washer *(see figure page 16).*

B4 : Thrust washer *(see figure page 16).*

B2 : Thrust washer.

Kit, R.P. reference OUT 30 7101 T

B : Tube for fitting the oil seal of the selector shaft

D : Tube for fitting the differential bearings.

E : Tube for fitting the secondary shaft front bearing.

F : Tube for fitting the primary and secondary shaft bearings.

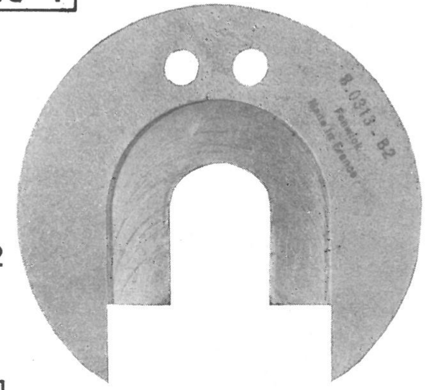
A : Tool for extracting and fitting the outer race of the gearbox casing.

C : Tool for holding the spring of the selector shaft in position.

G : Pad for fitting the oil seal of the differential housing on the side opposite to the speedometer drive.

H : Pad for fitting the oil seal of the thrust guide.

38 0313 - T

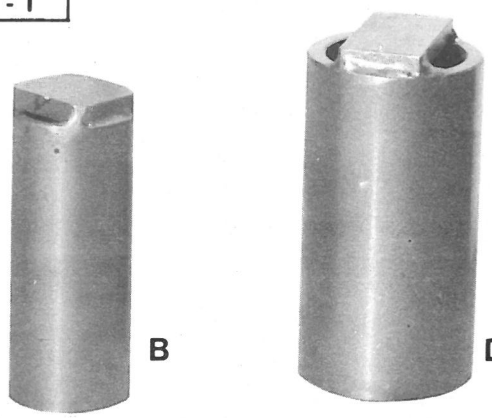


82-2003

7101 - T

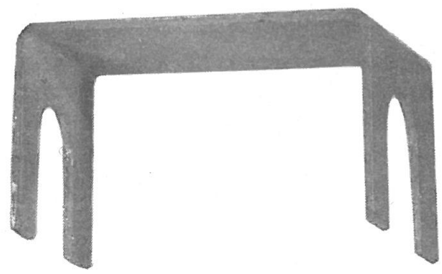
81-1545

7101 - T



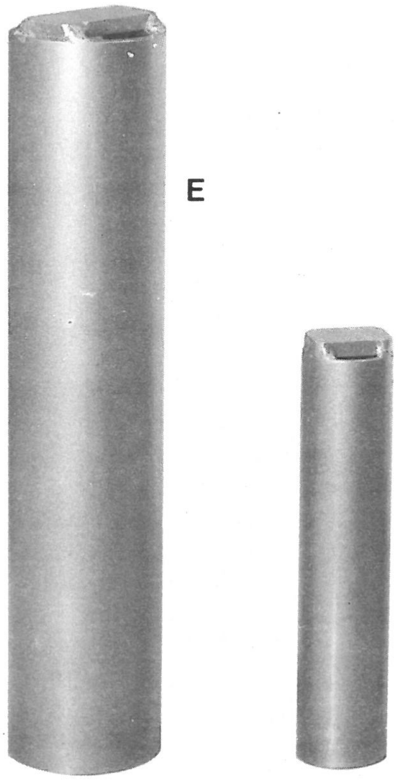
81-1524

7101 - T



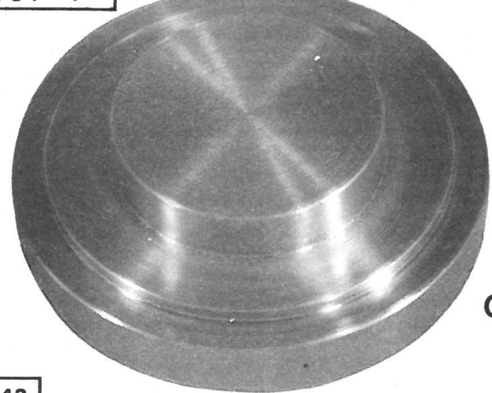
81-1542

7101 - T



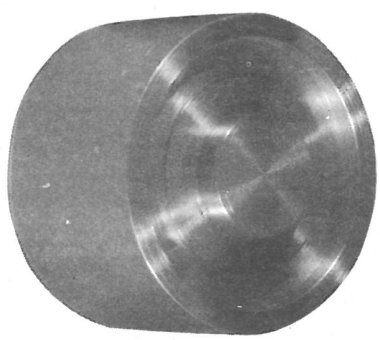
81-1524

7101 - T



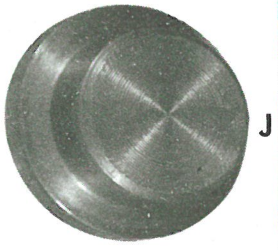
81-1543

7101 - T



81-1543

7101 - T

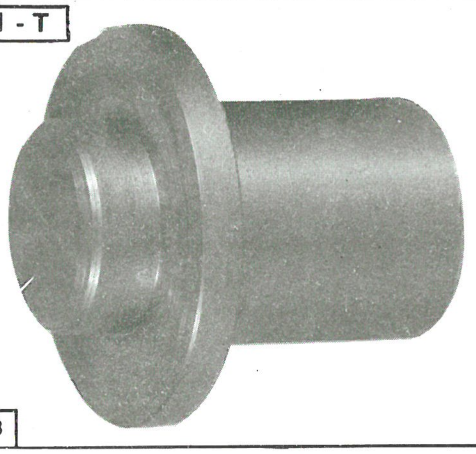


81-1542

7101 - T

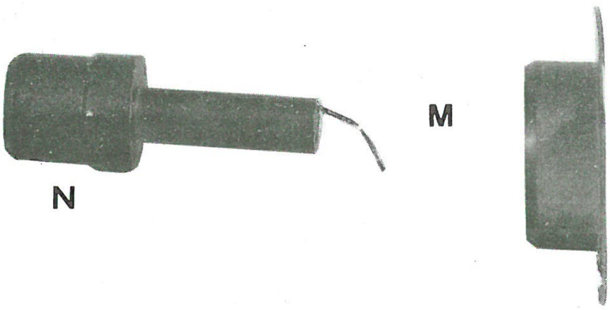
82-2004

7101 - T



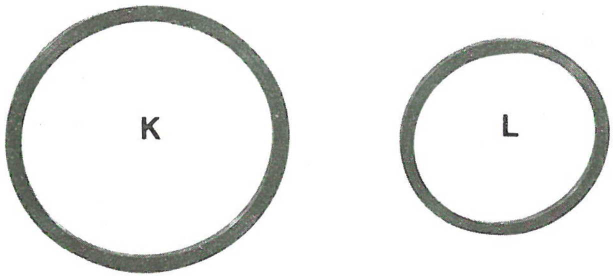
81-1543

7101 - T



81-1544

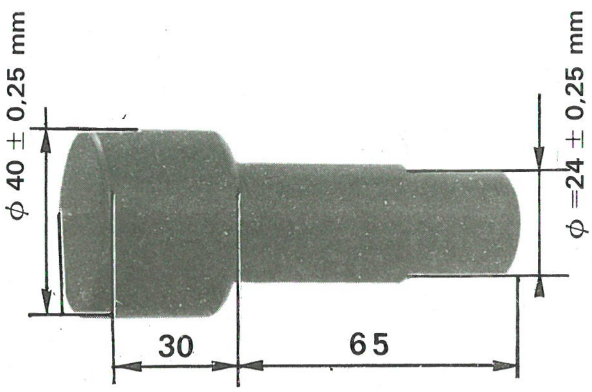
7101 - T



82-2004

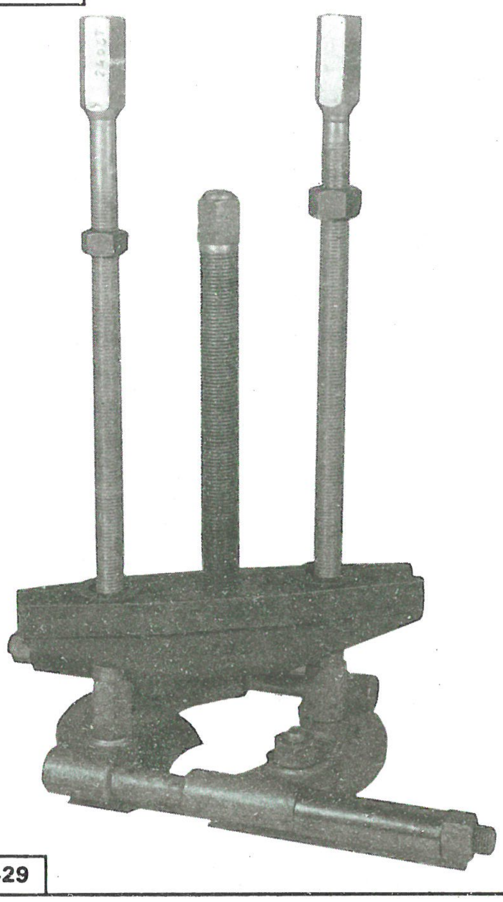
8.0133-T

78-367



81-1461

2405 - T



12-429

Kit 7101-T *(cont.) :*

J : Thrust pad for extracting the bearings of the differential.

P : Guide for fitting the fork control.

M - N : Centring mandrel and plug for locking the planetary gears.

From kit **8.0132T,** R.P. reference OUT 38 0132-T, use tool :
8.0133-T.B : Spanner for drain plug.

If tools **M** and **N** are not available, it is possible to make them according to the dimensions given.

O : Pad for fitting the gearbox drive outlet oil seal *(at speedometer drive end).*

K : 2.2 mm thick shim for adjusting the differential.

L : 2.4 mm thick shim for adjusting the primary shaft.

2405-T : Puller with separator.

12-face bush, 28 mm across flats *(not shown).*

Operation XB 16 330-4 : Working on the gearbox in situ.

7107-T : R.P. Reference OUT 307 107-T
Supplement to kit **7101-T.**

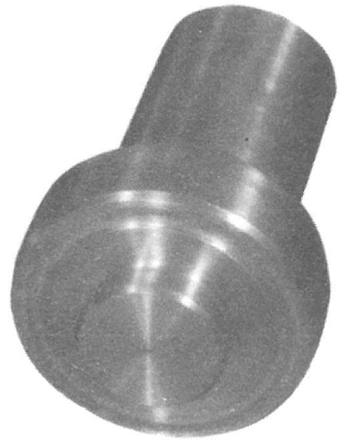
Q : Mandrel for fitting the oil seal of the thrust guide.

R : Mandrel for holding the primary shaft against the housing, thus enabling the preloading to be measured

S : Mandrel for holding the primary shaft bearing at thrust end, thus enabling the preloading to be measured.

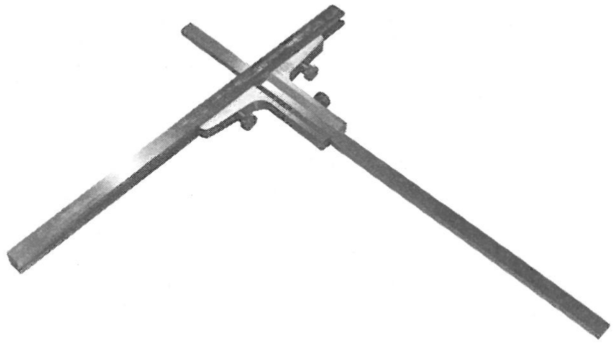
Recommended measuring tool
Depth gauge with sliding base.

7107-T



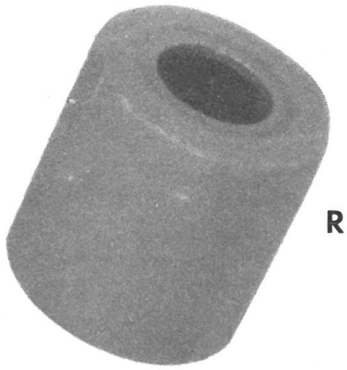
Q

83-530



83-533

7107-T

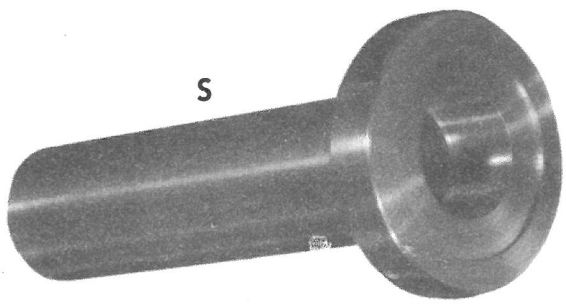


R

83-530

7107-T

S



83-530

ADJUSTING THE GEAR CHANGE CONTROL

BX 14 ADJUSTING THE GEAR-CHANGE CONTROL

With the gear-change lever in « Neutral » position (PM) :

Longitudinal adjustment of the control lever :

The centre of the handle should be at **L = 235 mm** approx. from the dashboard : **Fig. II.**
If it is not, the length **« y »** of the gear-change link-rod should be modified : **Fig. I.**

« y » should be comprised between **162 and 172 mm.**

When **« y »** decreases **« L »** decreases
When **« y »** increases, **« L »** increases.

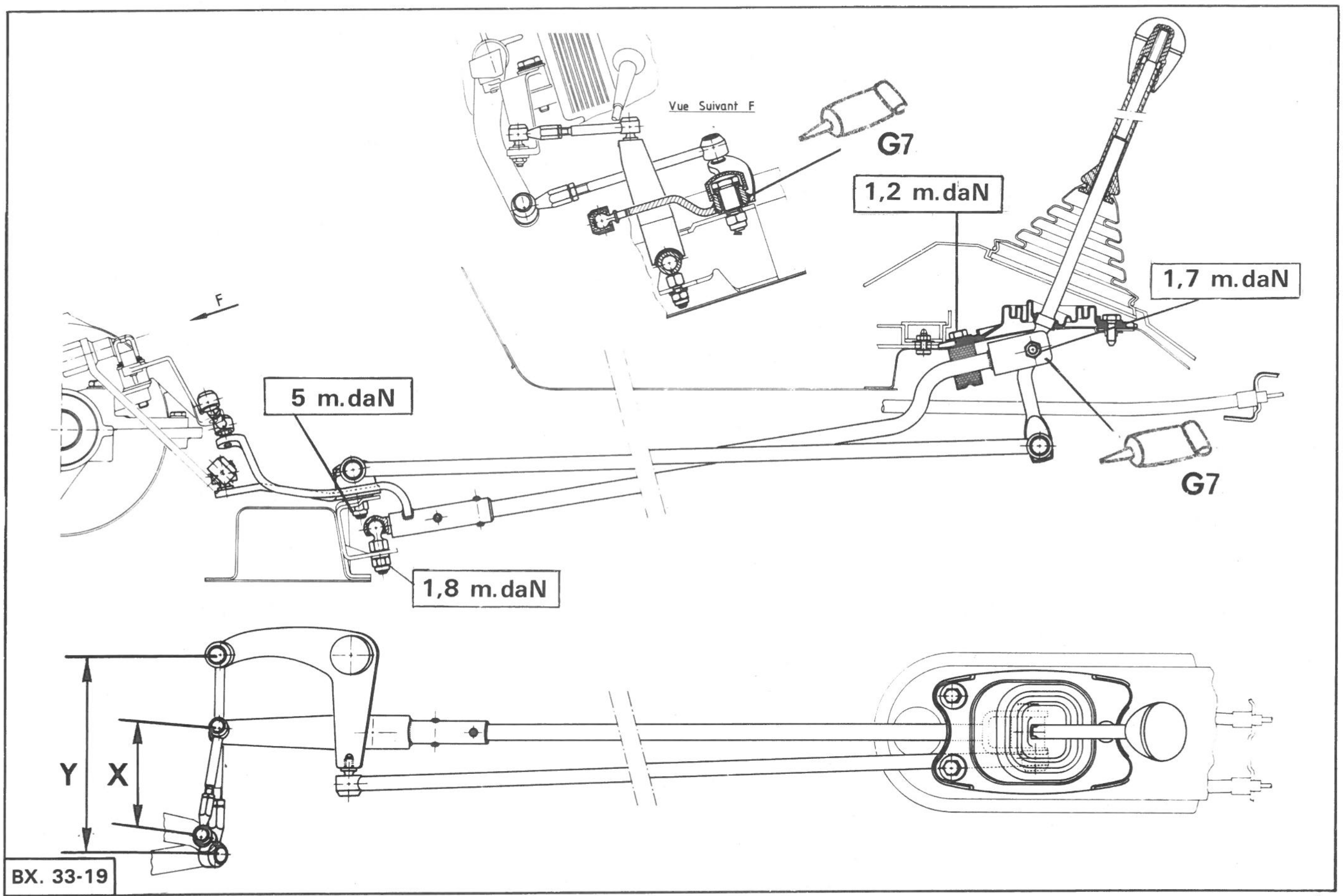
Lateral adjustment of the control lever :

The control lever should be in an upright position, as seen from the front of the vehicle. If it is not, the length **« x »** of the gear-change link rod should be modified : **Fig. I.**

« x » should be comprised between **90 and 100 mm**

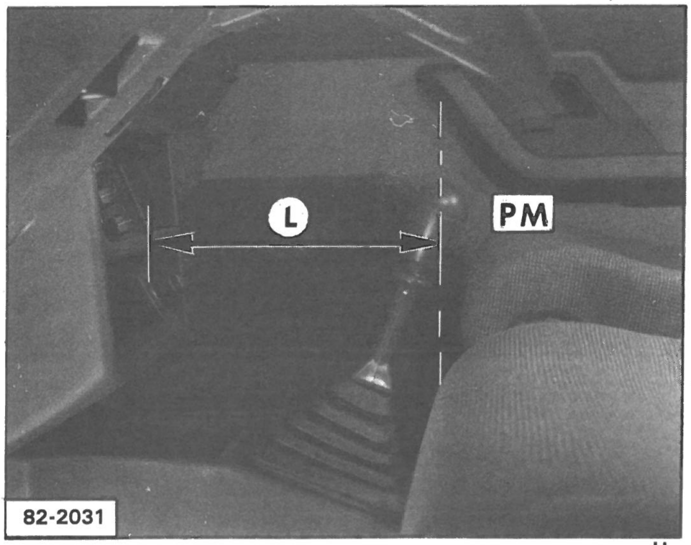
When **« x »** decreases, the lever tilts towards the left
When **« x »** increases, the lever tilts towards the right.

When tightening the link rod locknut, balance the link rod travel on the ball-joints.



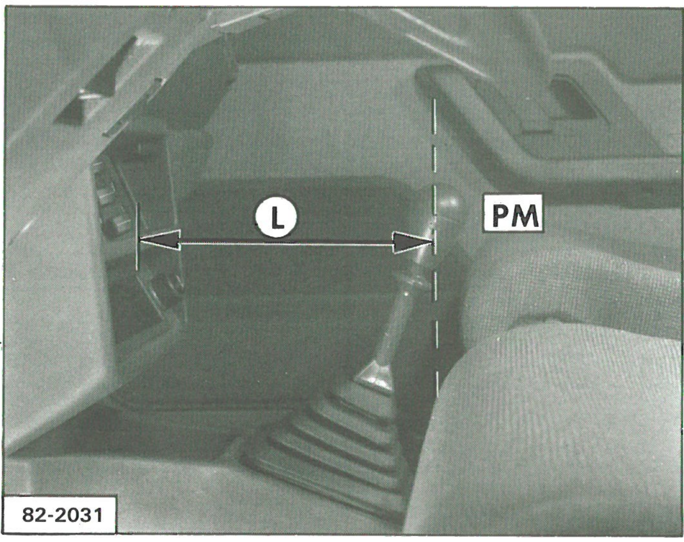
BX. 33-19

I



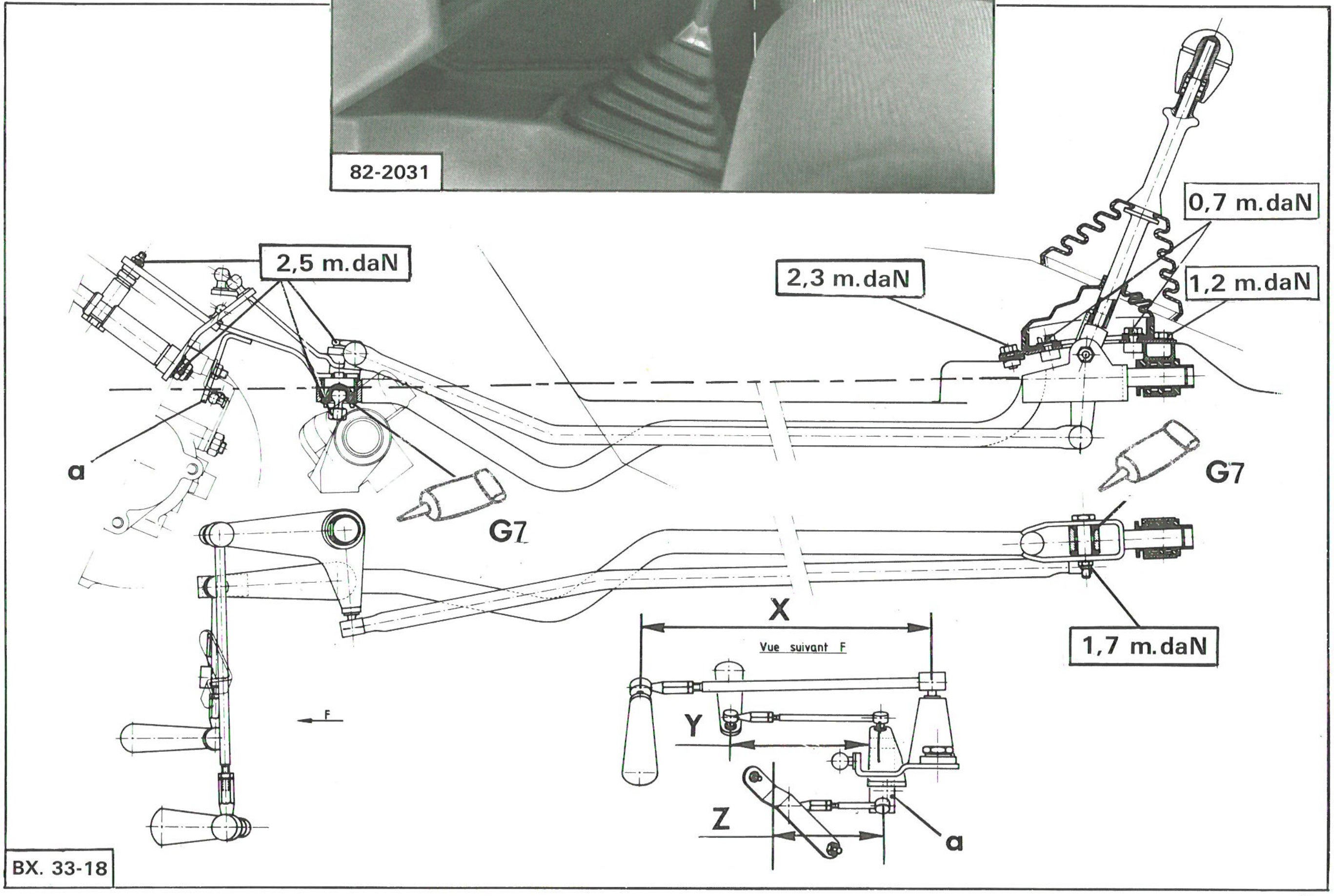
82-2031

II



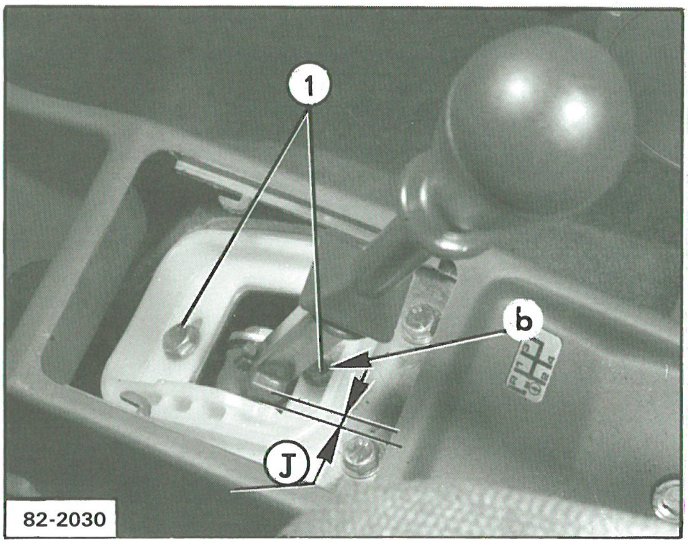
L
PM
82-2031

I



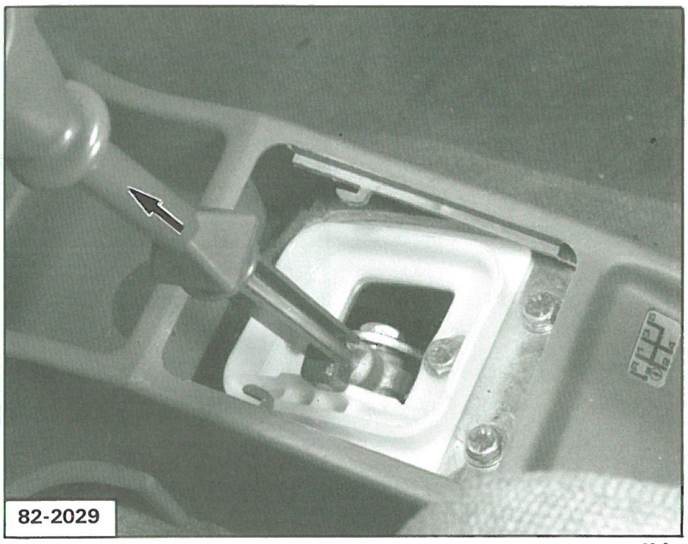
2,5 m.daN
2,3 m.daN
0,7 m.daN
1,2 m.daN
1,7 m.daN
a
G7
G7
X
Vue suivant F
F
Y
Z
a
BX. 33-18

II



1
b
J
82-2030

III



82-2029

IV

BX.16 ADJUSTING THE GEAR-CHANGE CONTROL

With the gear-change lever in « Neutral » position (PM) :

Adjusting the selector control : Fig. II

Lever **« a »** of the selector control should be in an upright position.
If it is not, modify length **« z »** of the reaction link-rod; **« z »** should be comprised between **70** and **80 mm.**

Adjusting the control lever longitudinally :

The centre of the handle should be at approximately **L = 215 mm** from the dashboard : **Fig. I.**
If it is not, modify length **« x »** of the gear-change link-rod : **Fig. II.**
« x » should be comprised between **245 and 255 mm.**
- When **« x »** decreases, **« L »** decreases.
- When **« x »** increases, **« L »** increases.

With the 2nd or the 4th gear engaged.
Make sure that the clearance between the rear part of the box and the control lever is **4 to 5 mm min at « b ».**

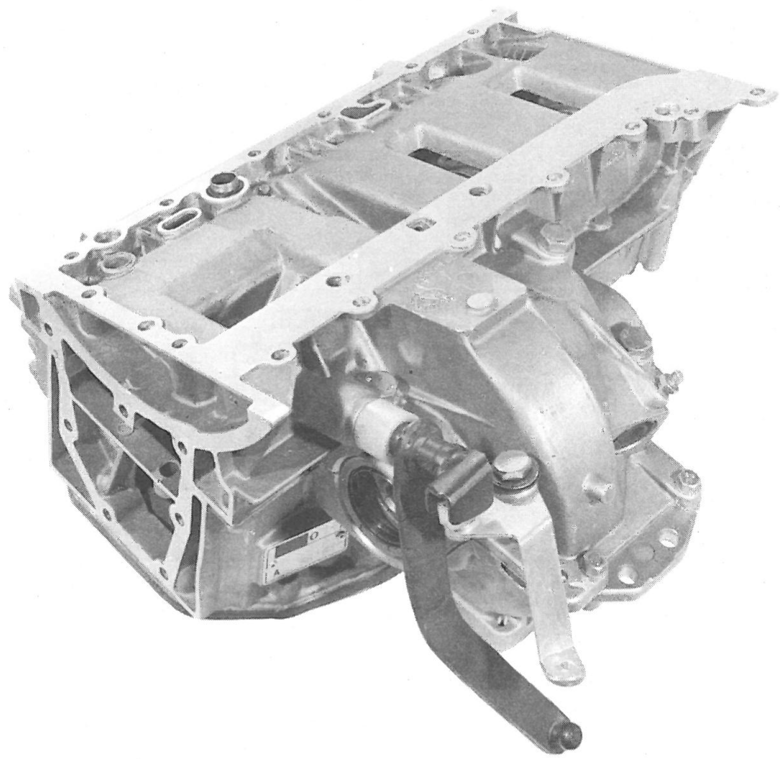
> When tightening the link-rod locknut, balance the link rod travel on the ball-joints.

Adjusting the control lever laterally :

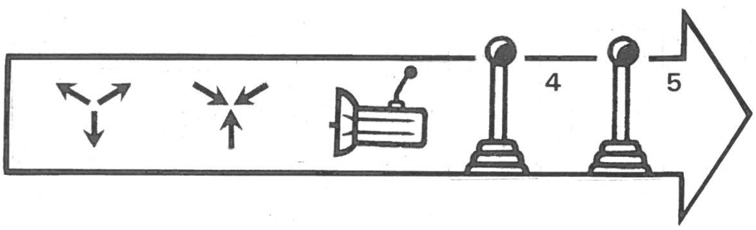
The control lever should be in an upright position, as seen from the front of the vehicle.
If it is not, modify length **« y »** of the selector link-rod : **Fig. II.**
« y » should be comprised between **122 and 132 mm**
- When **« y »** decreases, the lever tilts towards the left,
- When **« y »** increases, the lever tilts towards the right.

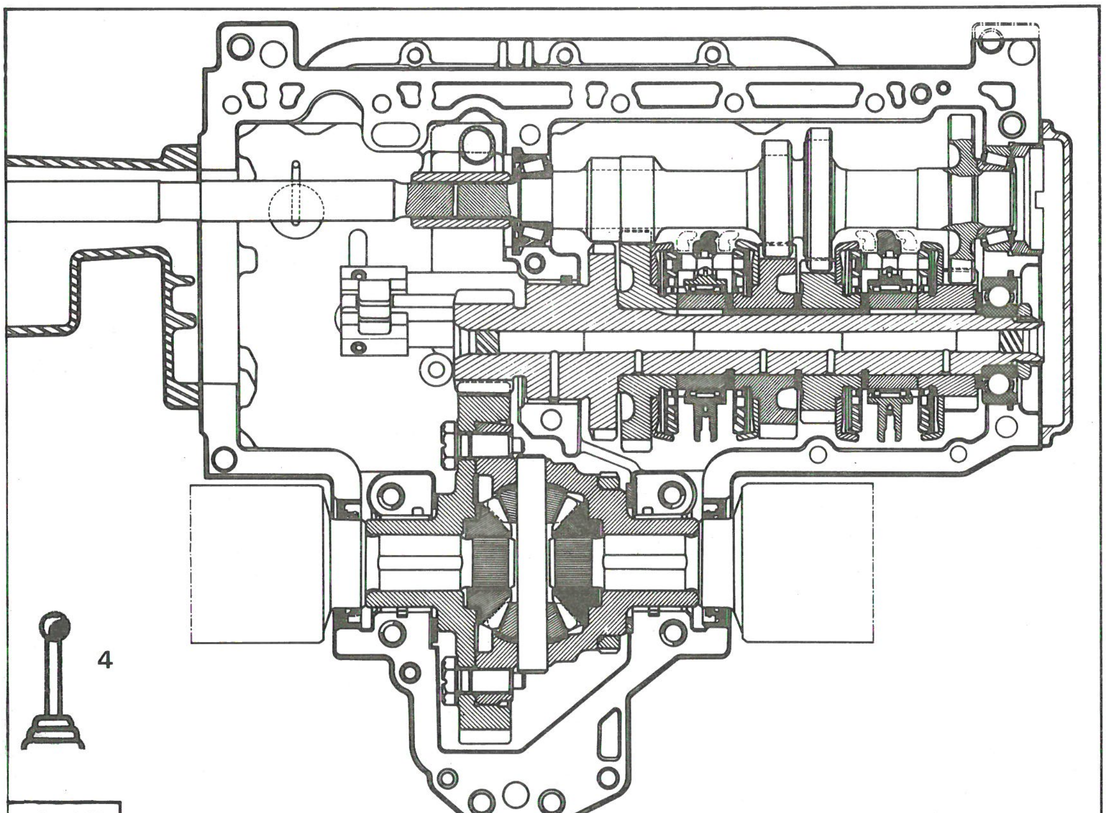
Adjusting the 1st/2nd gear selection :

Loosen the screws (1) of the box : **Fig. III**
Set the gear-change lever on 2nd-gear position.
Position the box so as to obtain a free-play **J = 2 to 3 mm** between the lever guide block and the box.
Tighten screws (1).
Check that the reverse gear and all the other gears can be selected freely : **Fig. IV.**
When carrying out a road test, make sure that the 3rd gear/2nd gear shifting is correct.
If the 2nd gear is « hard », carry out the adjustment of the 1st/2nd gear selection again.

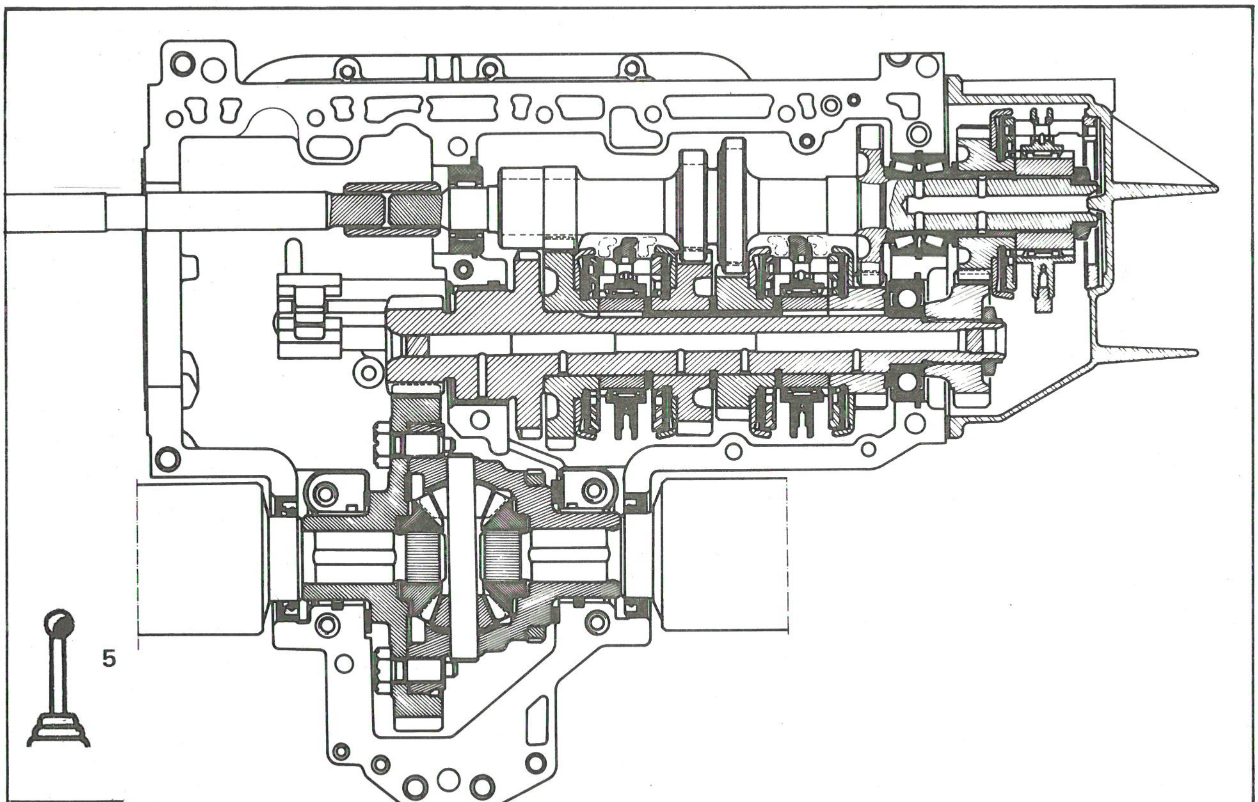


82-983

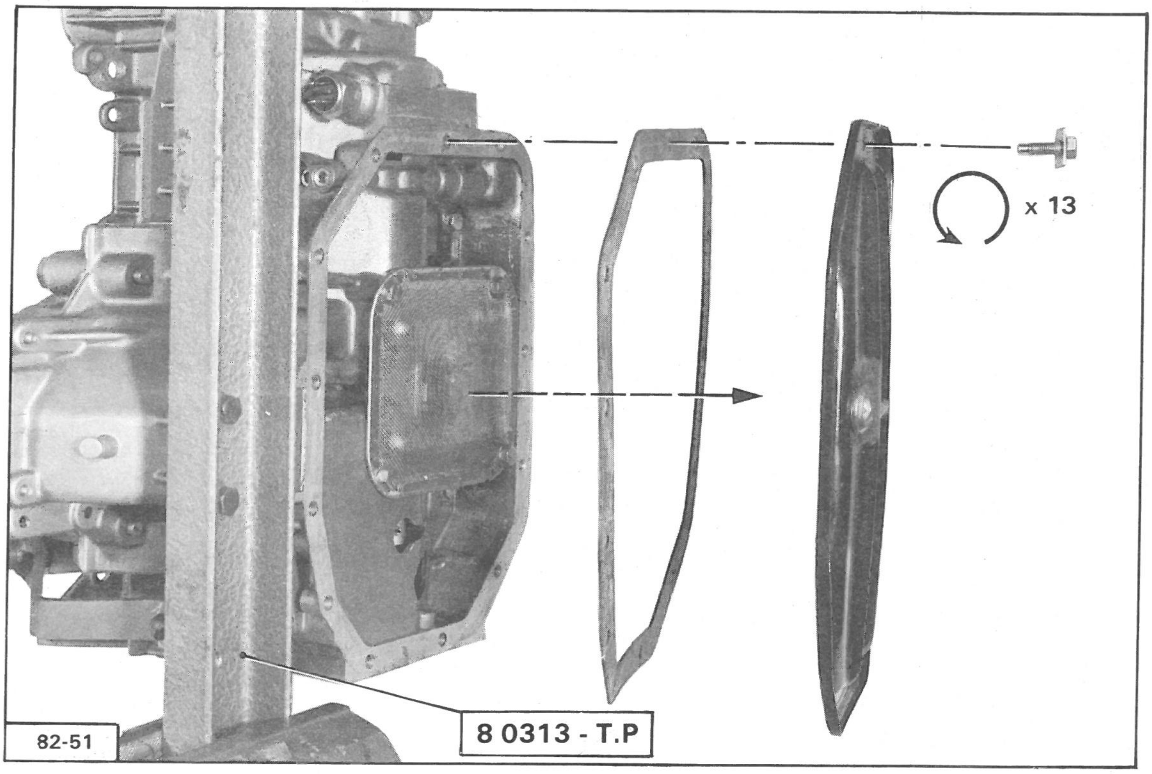




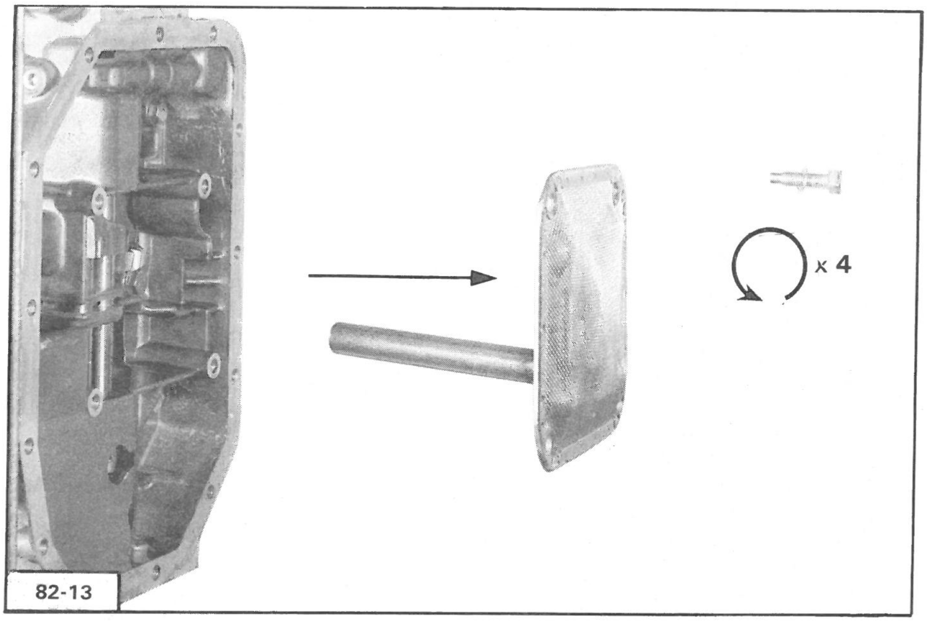
82-1018



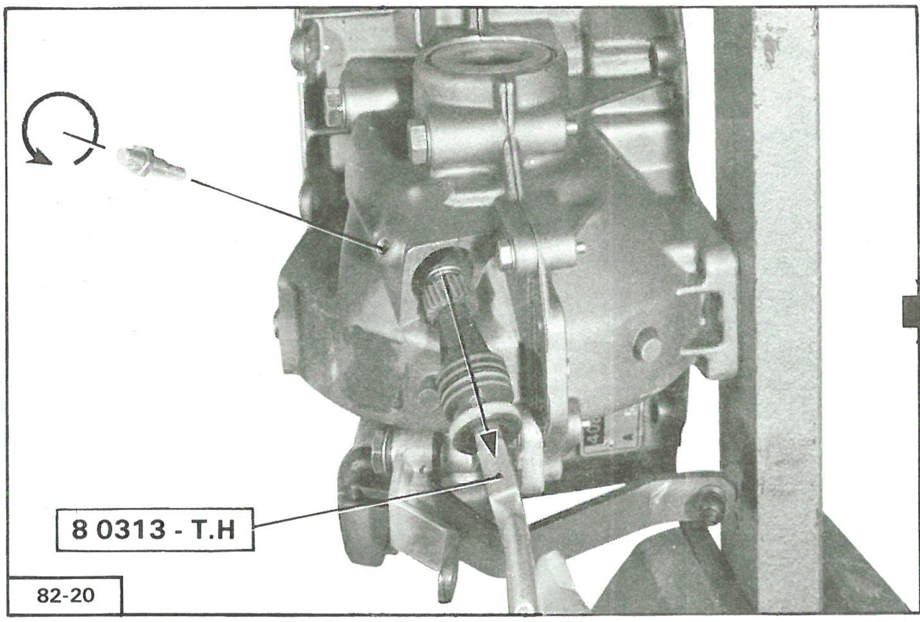
82-1019



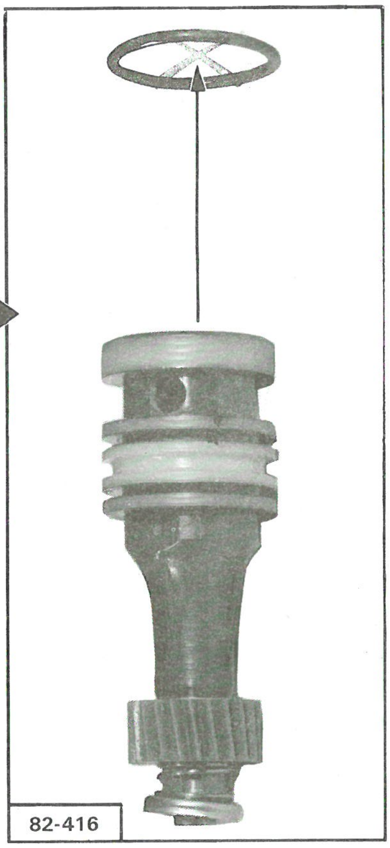
82-51

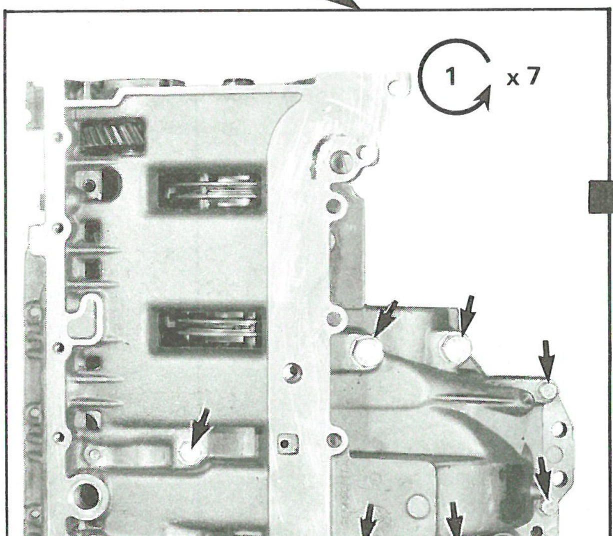


82-13

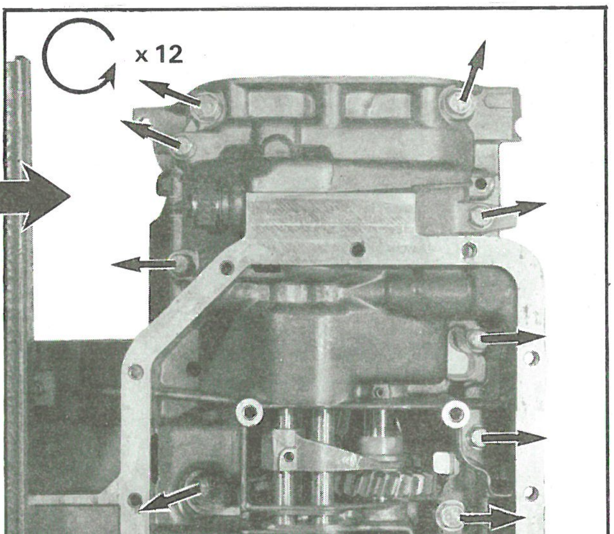


82-20

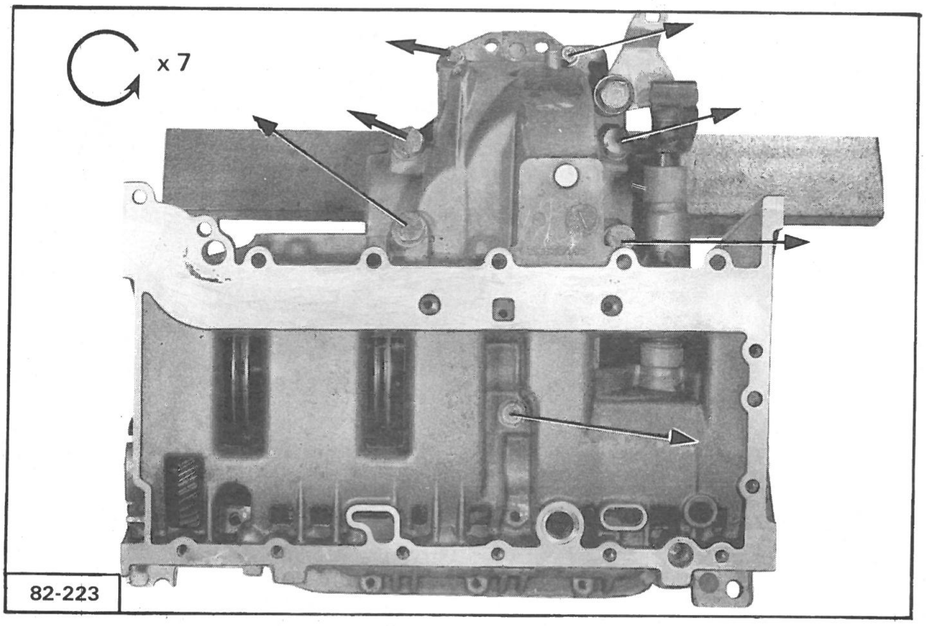

82-416



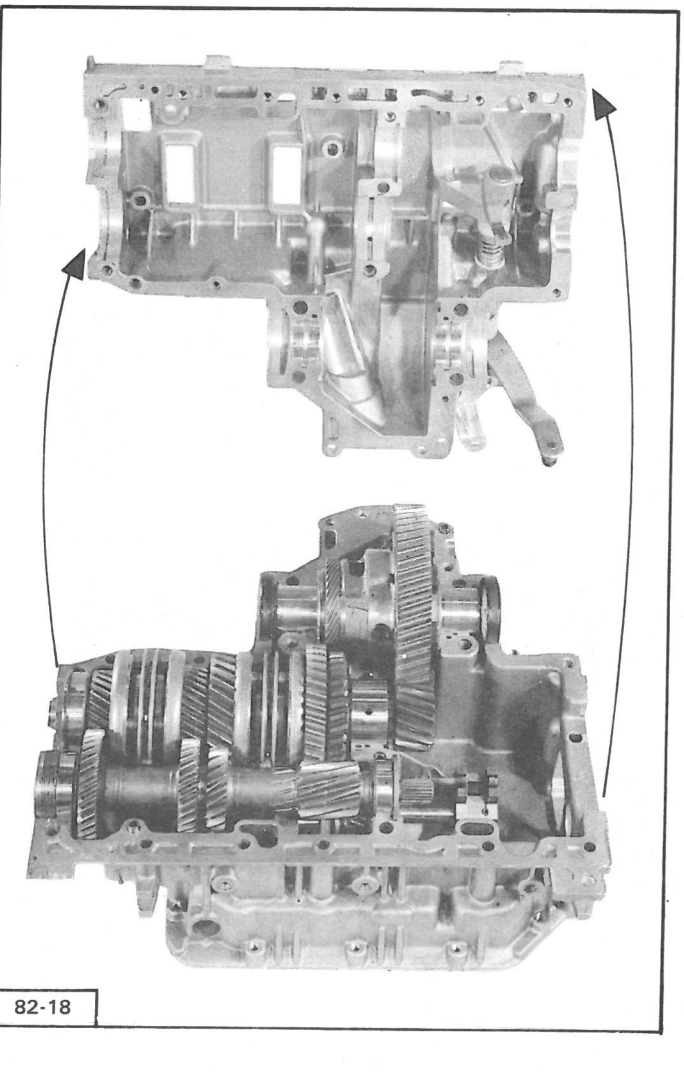
82-21



82-17

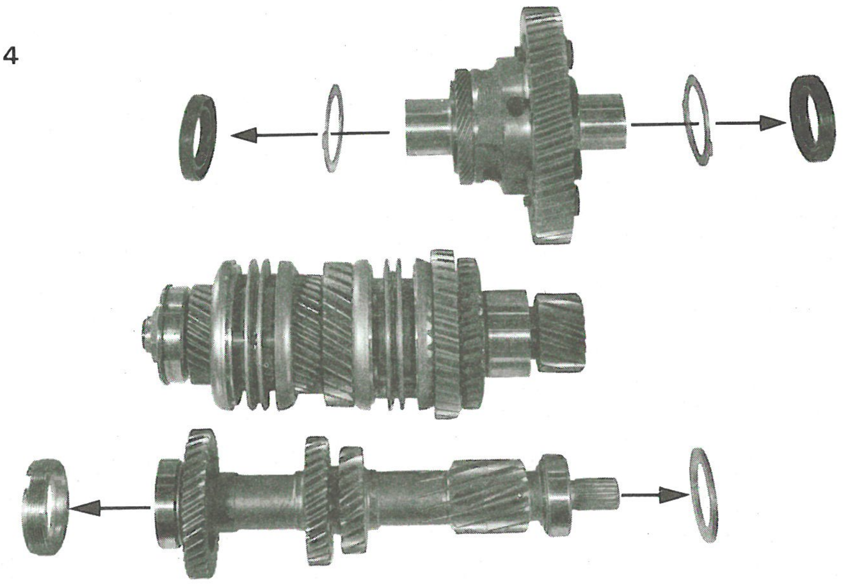


82-223



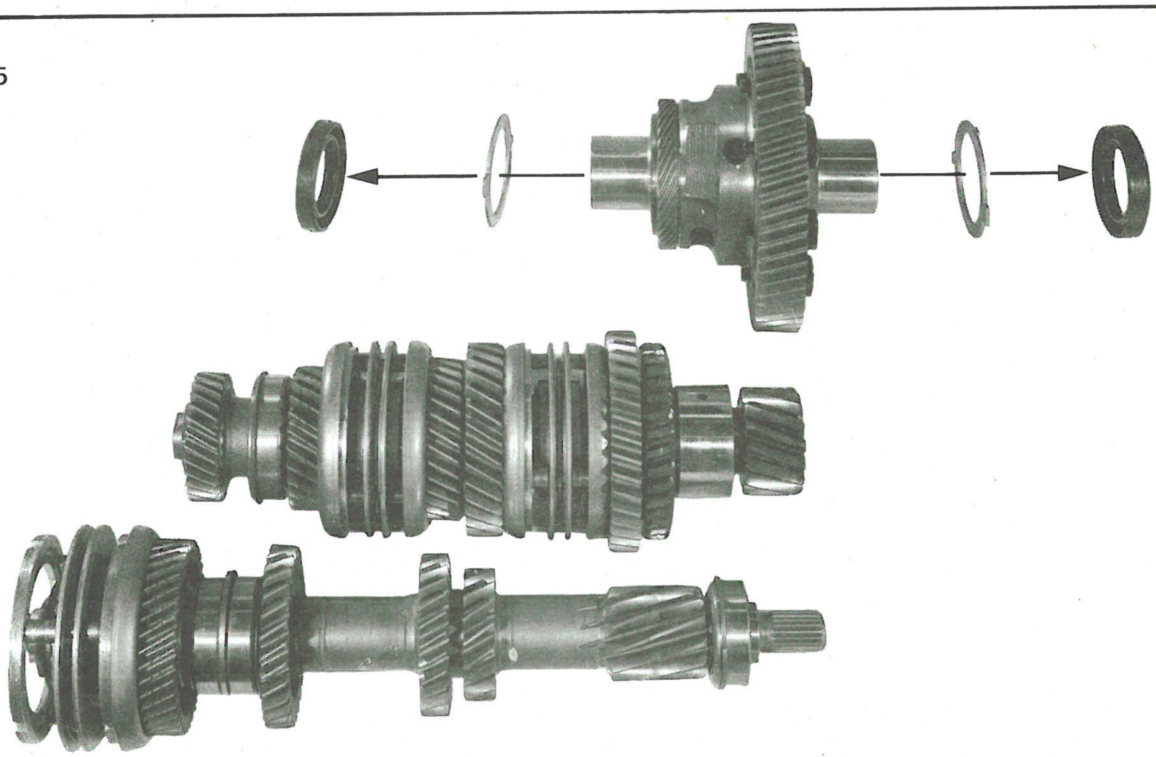
82-18

4

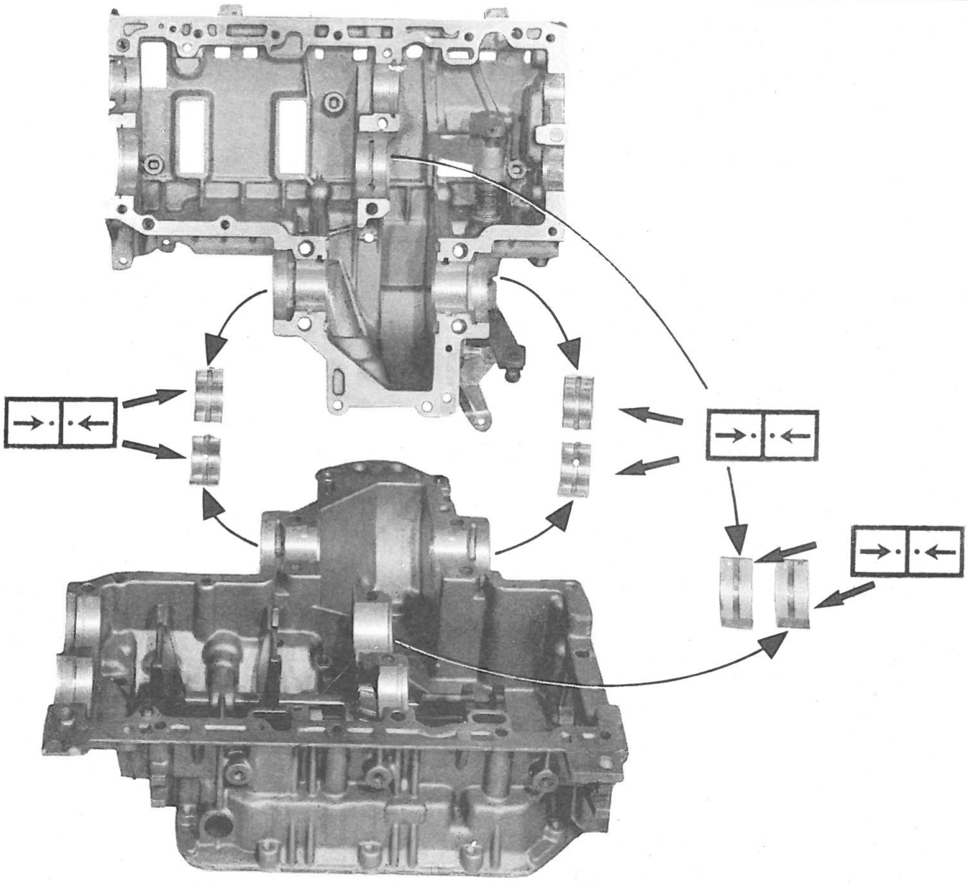


82-26

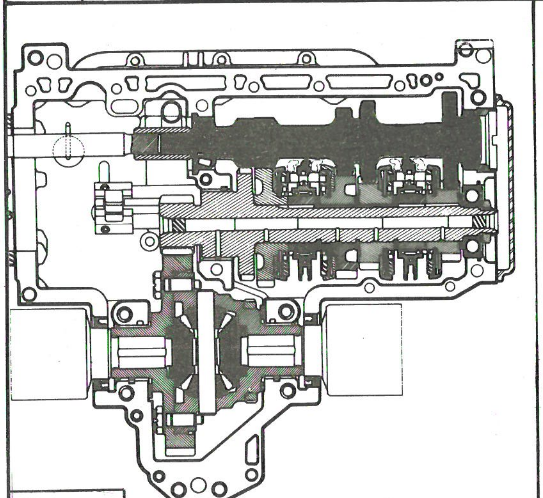
5



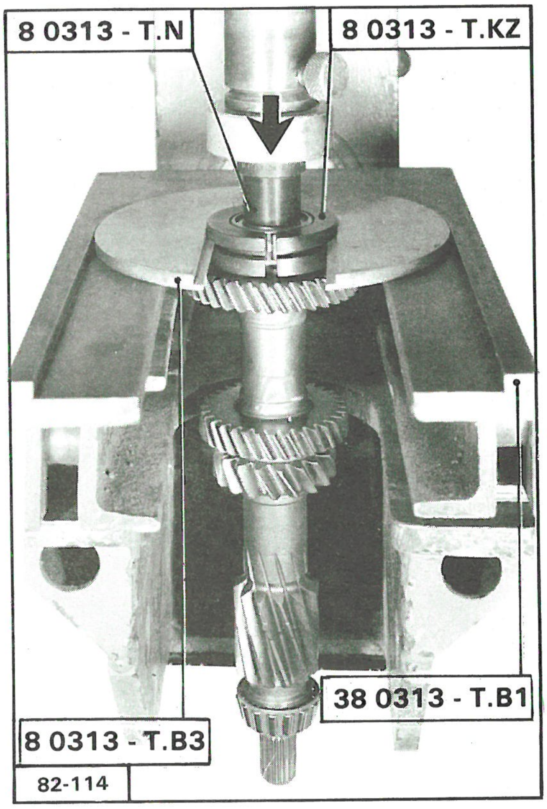
82-25



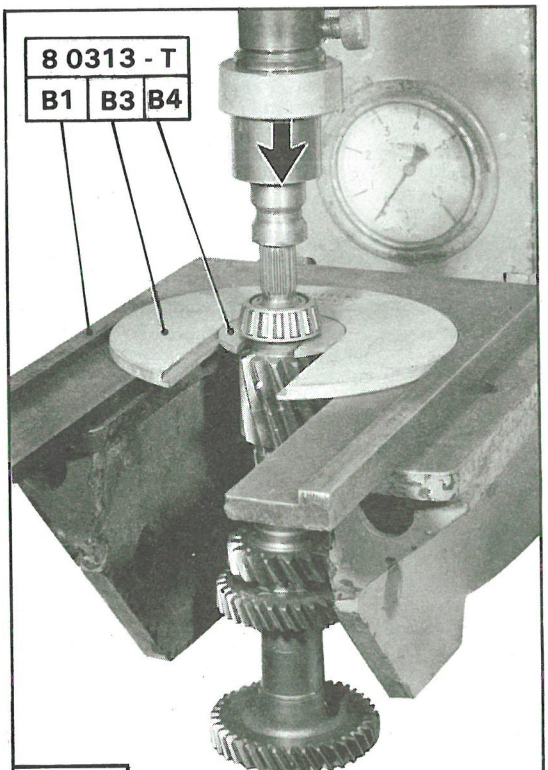
82-103



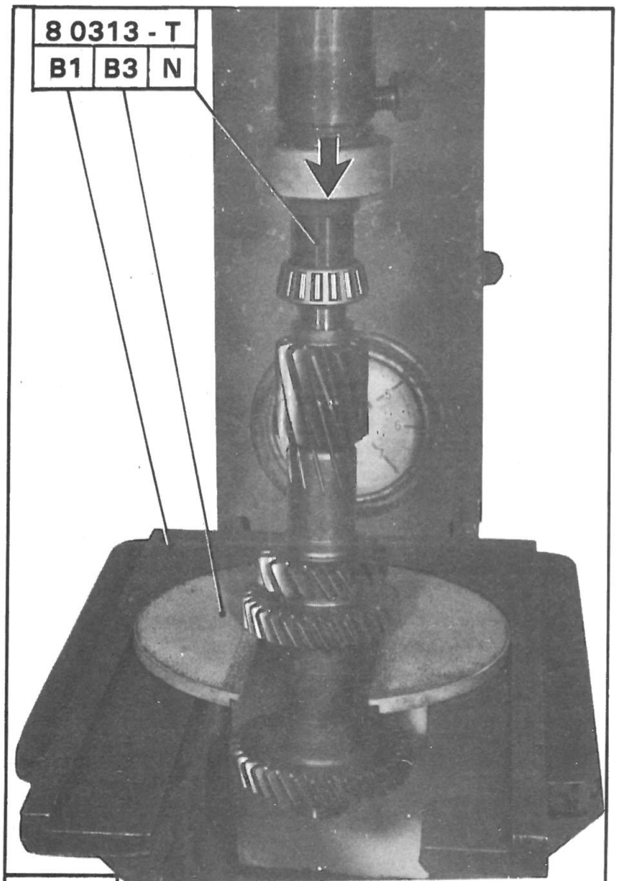
82-1018



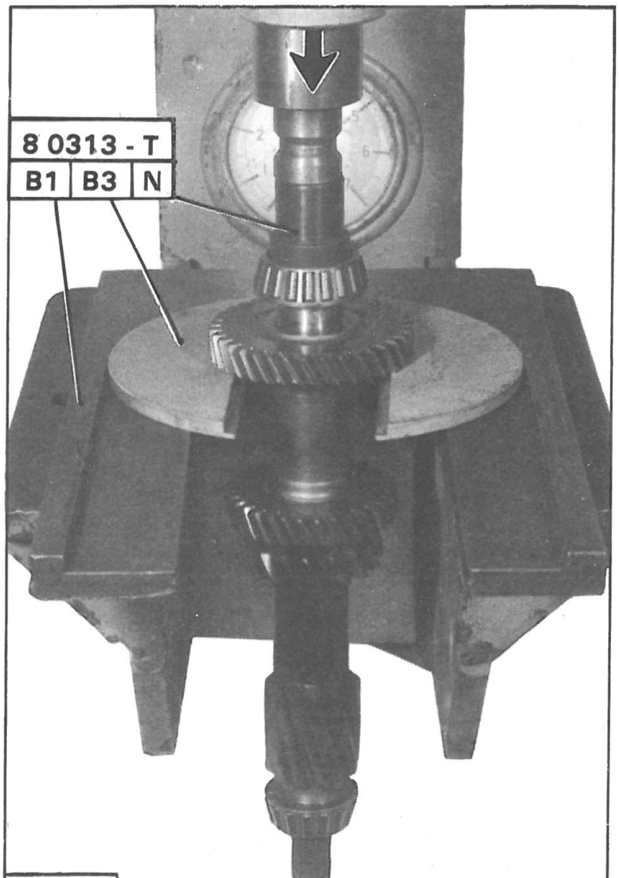
82-114



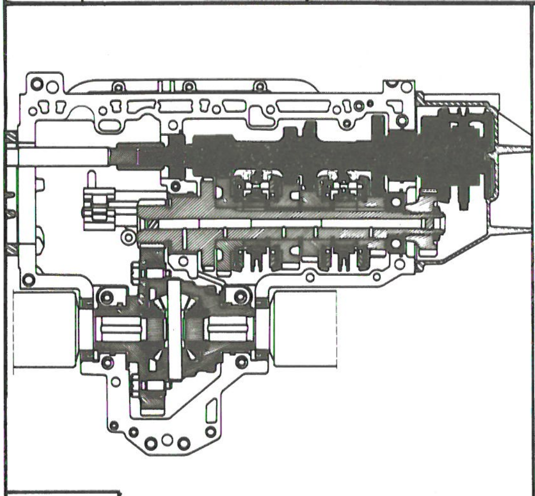
82-288



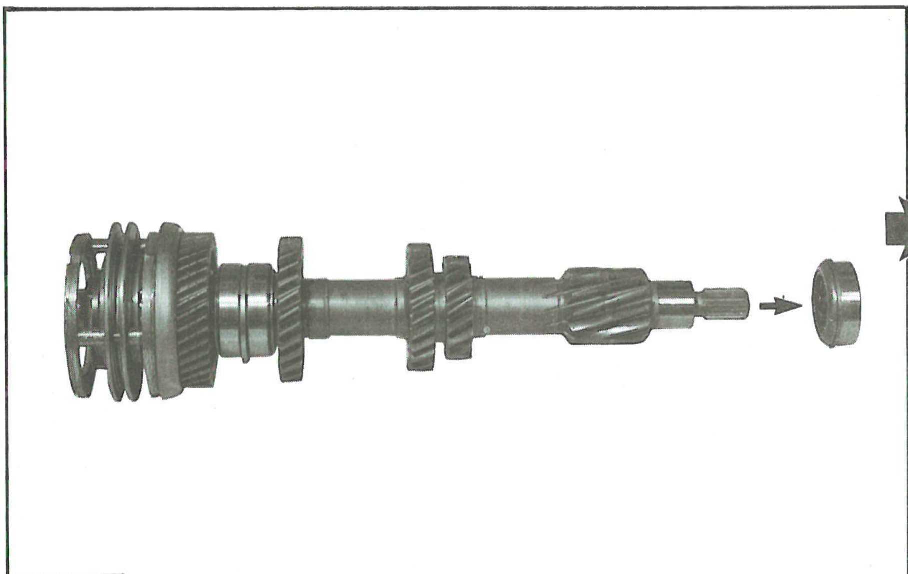
82-276



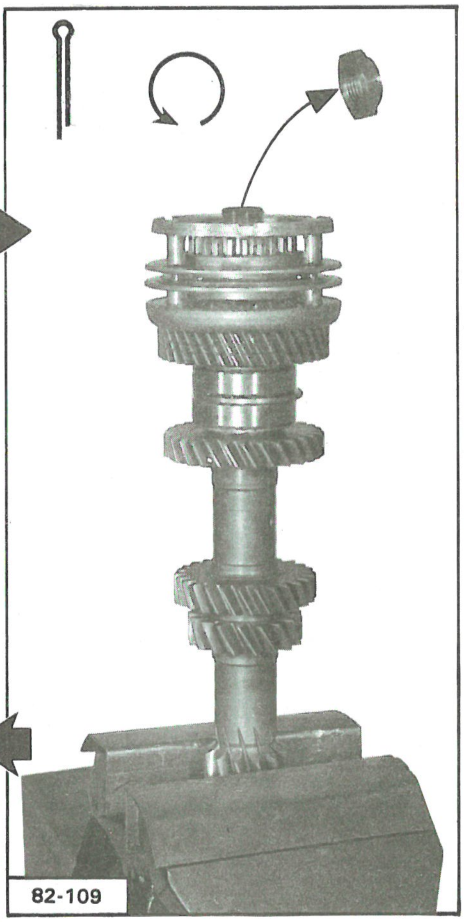
82-373



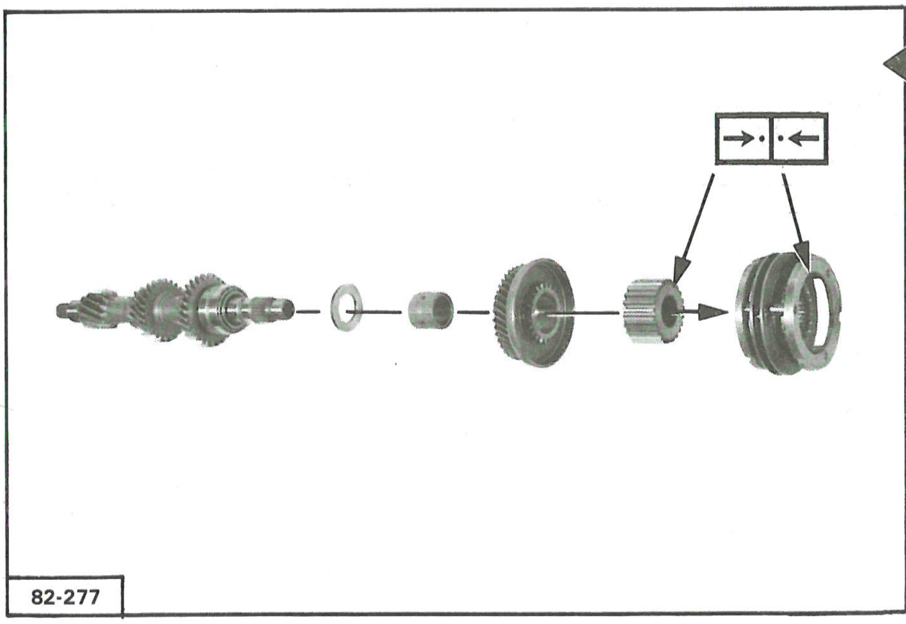
82-1019



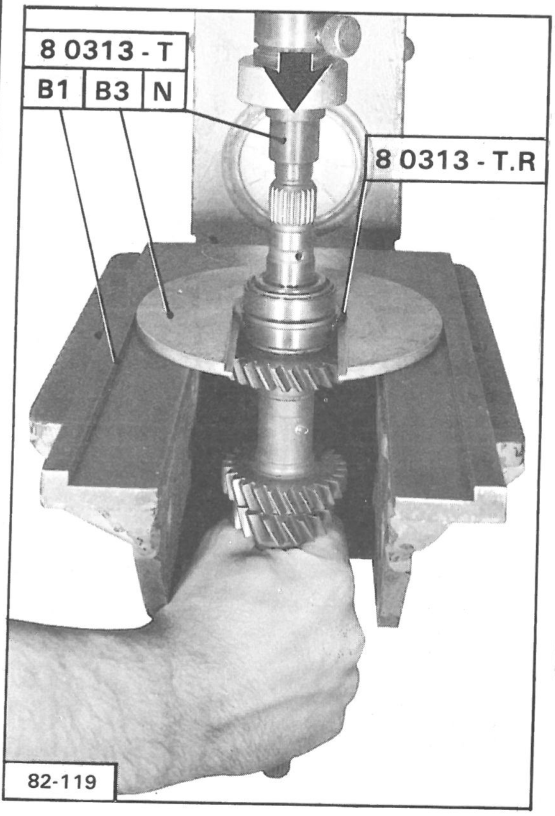
82-102



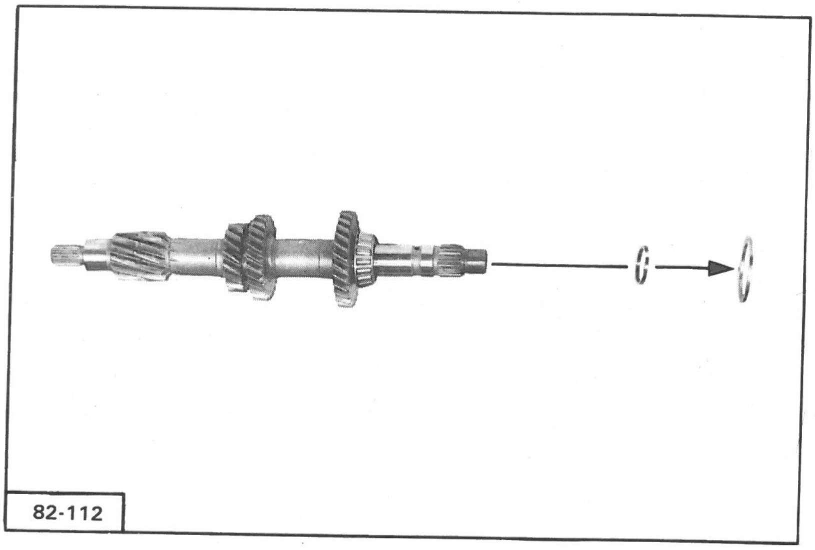
82-109

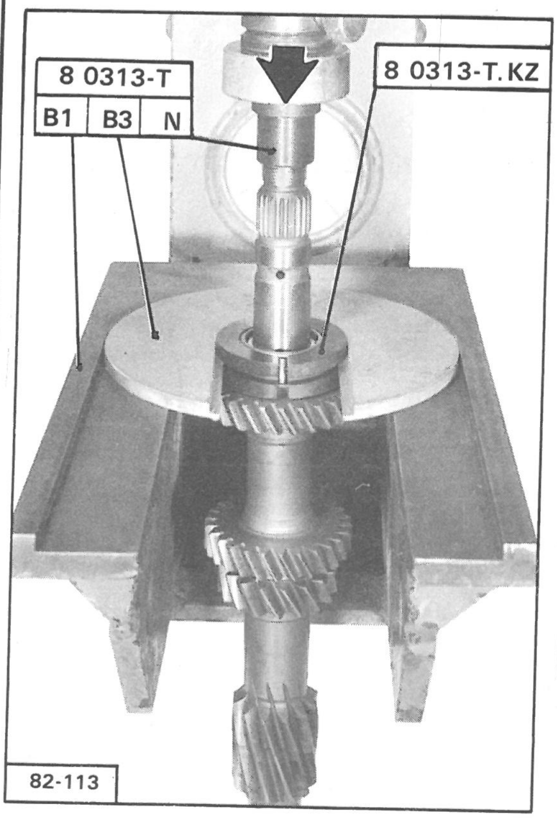


82-277

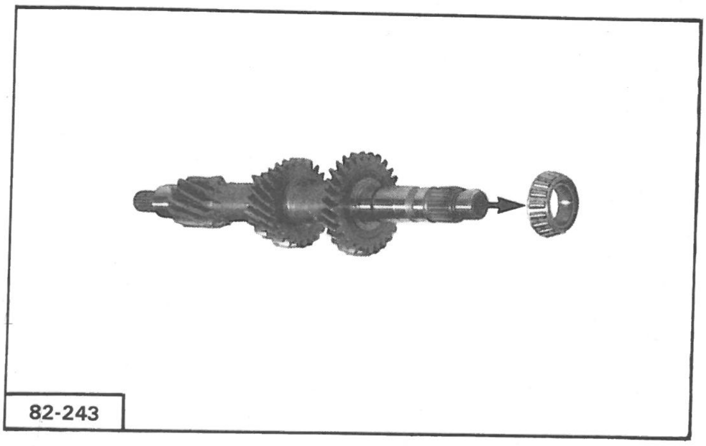


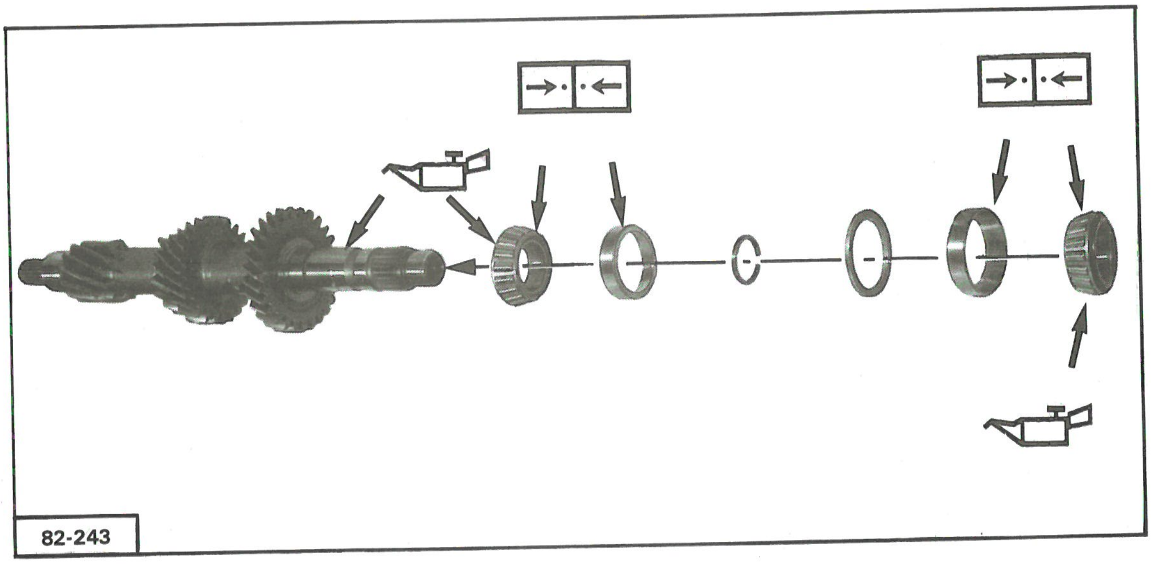
82-119


82-112

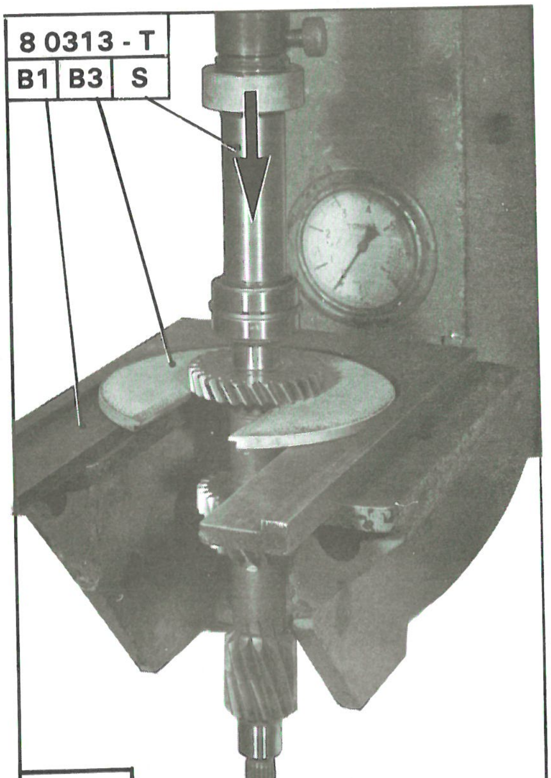


82-113

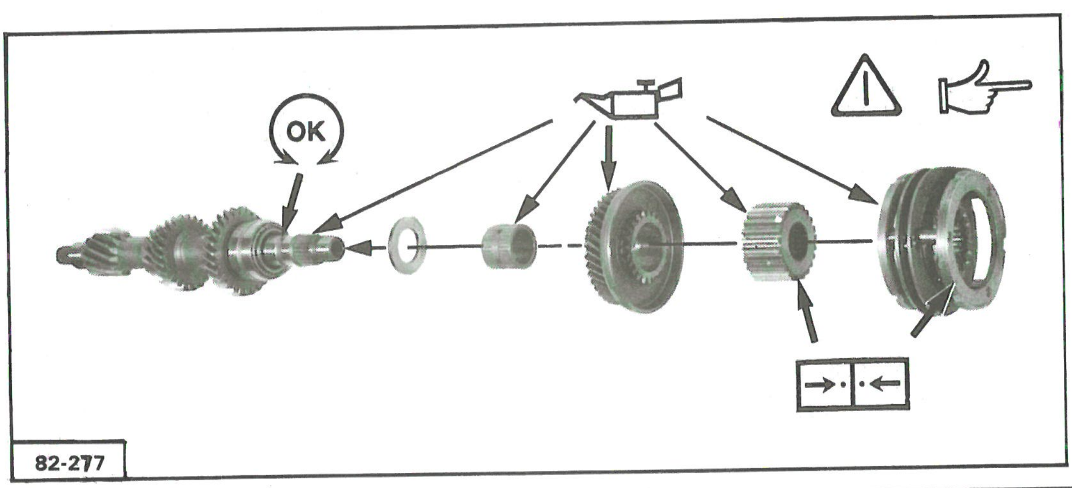

82-243



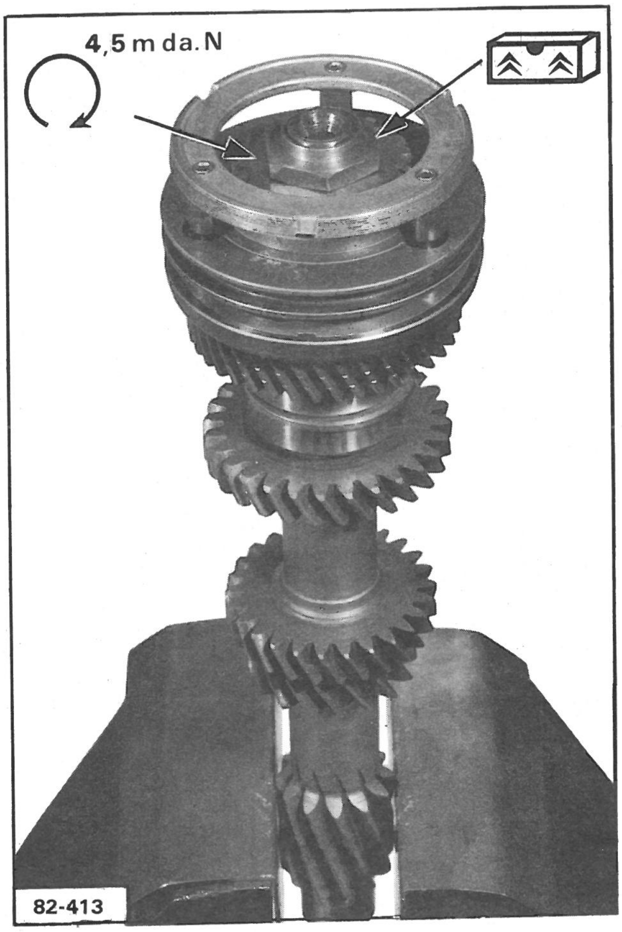
82-243

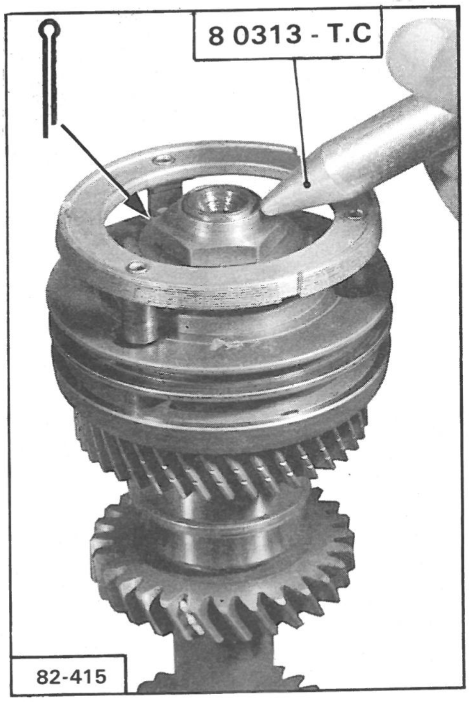


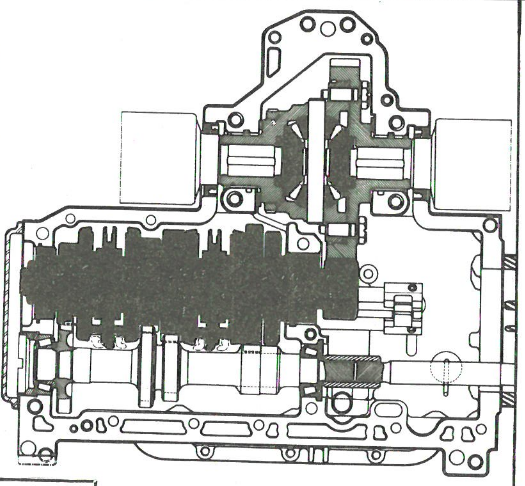
82-272



82-277

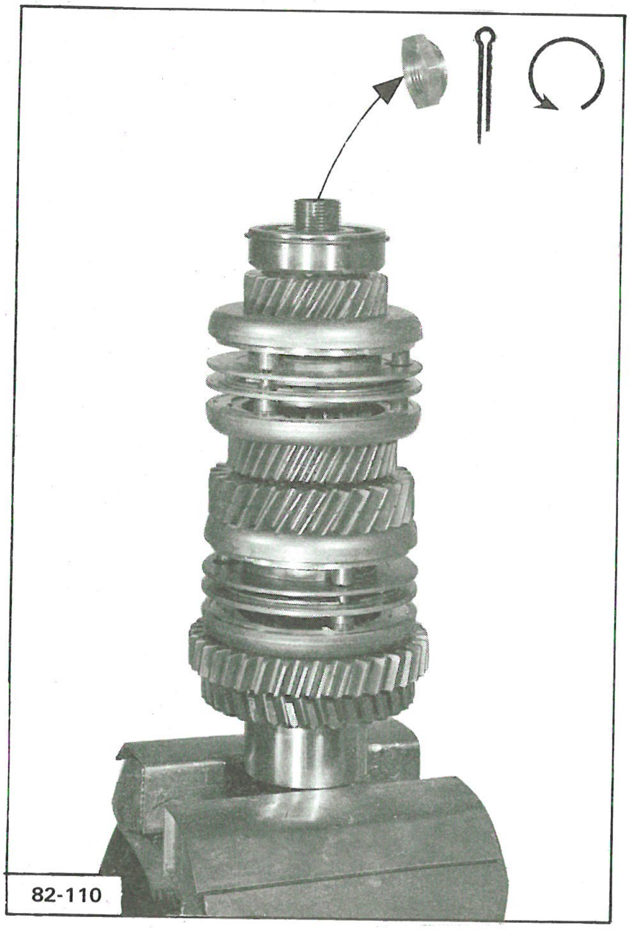

4,5 m da.N
82-413


8 0313 - T.C
82-415



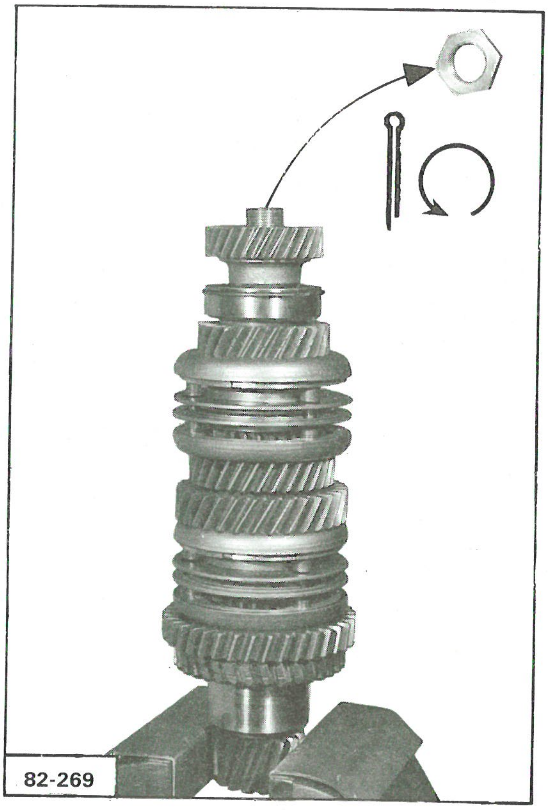
82-1018

4

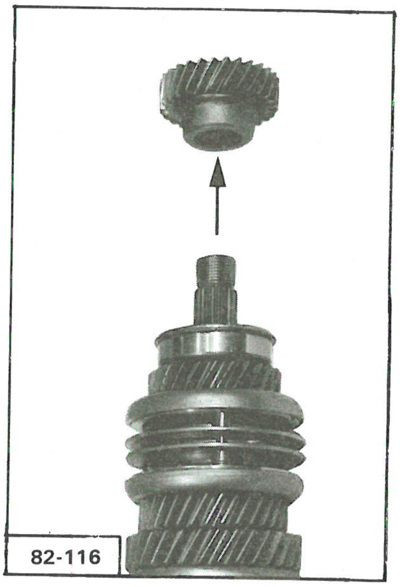


82-110

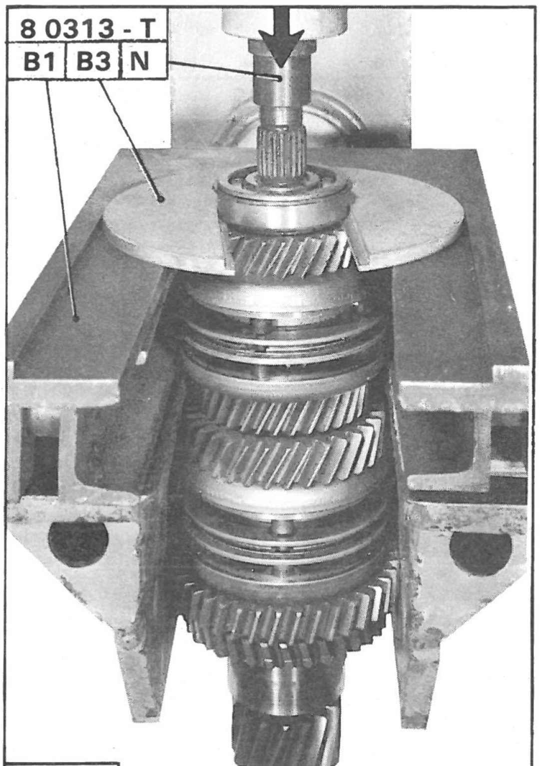
5



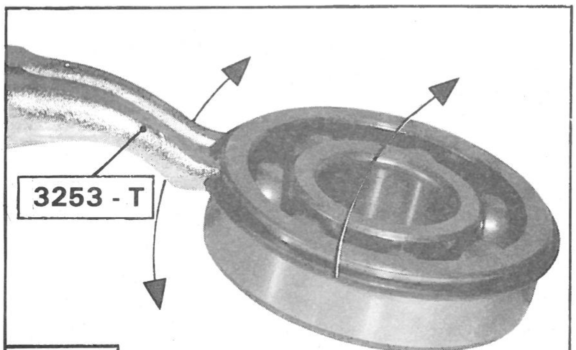
82-269



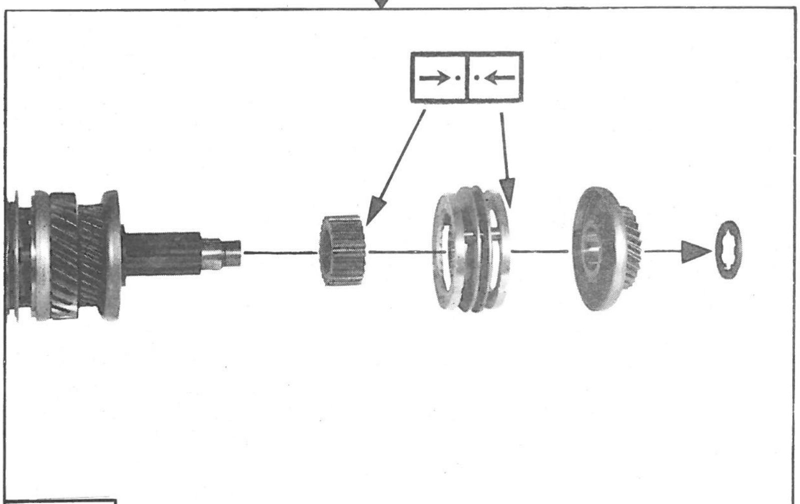
82-116



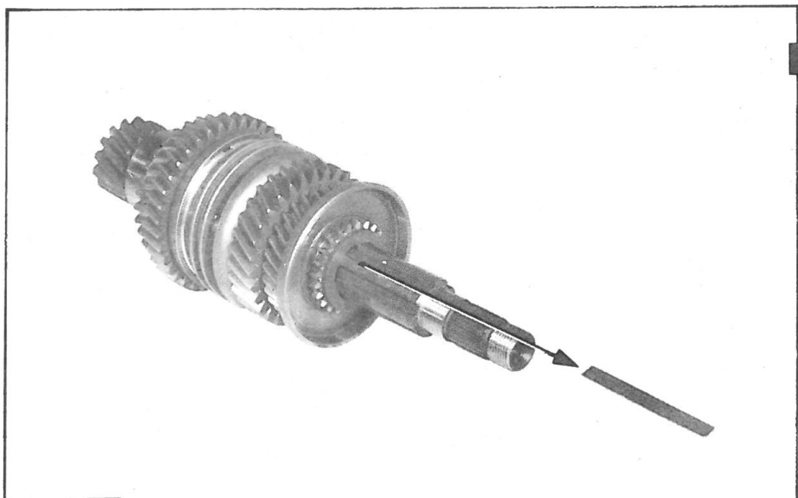
82-117



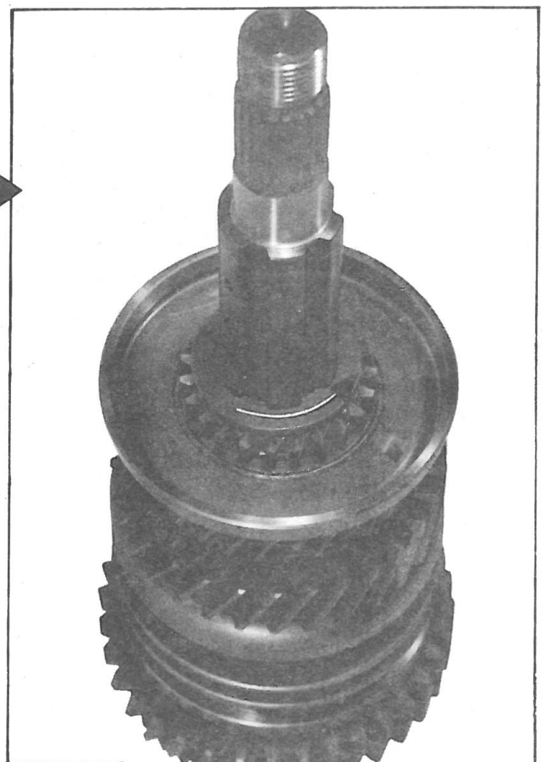
82-417



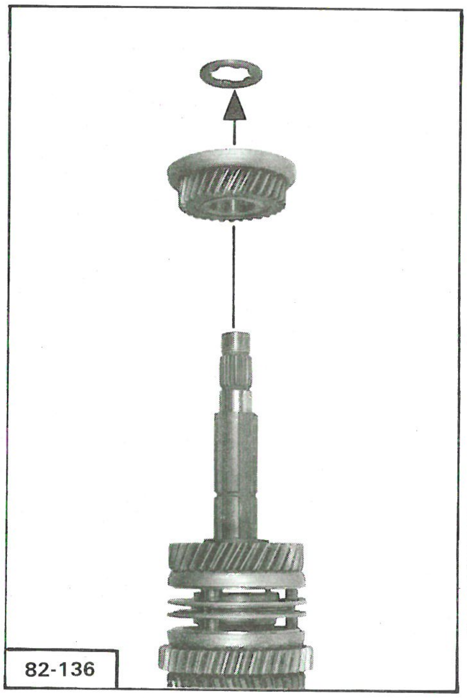
82-120

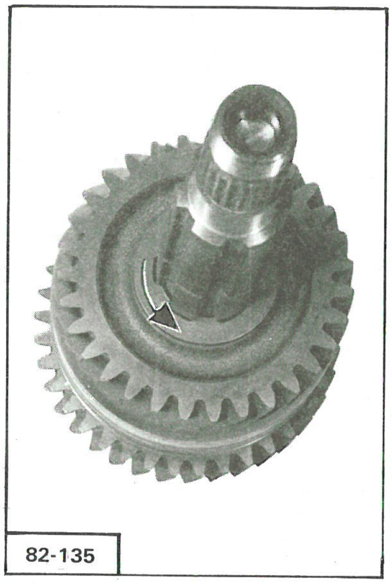


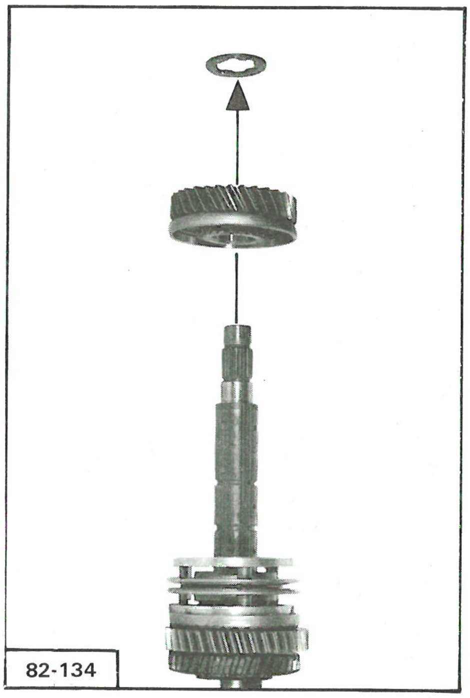
82-270

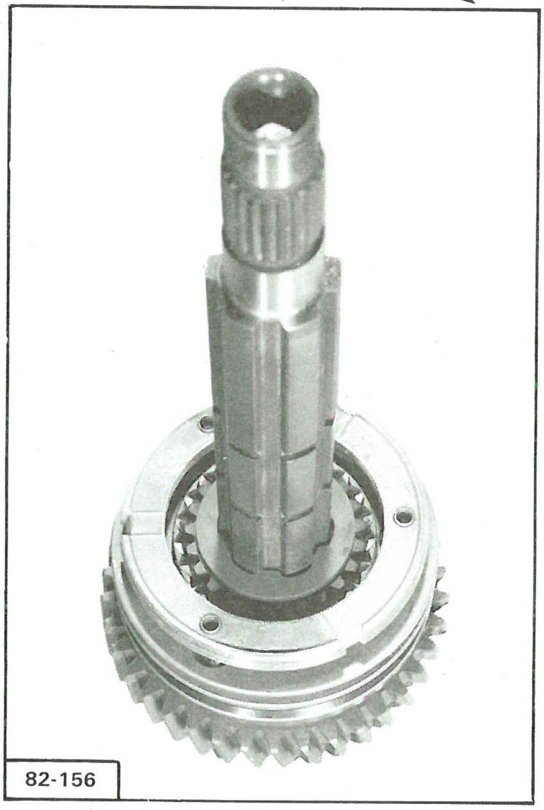


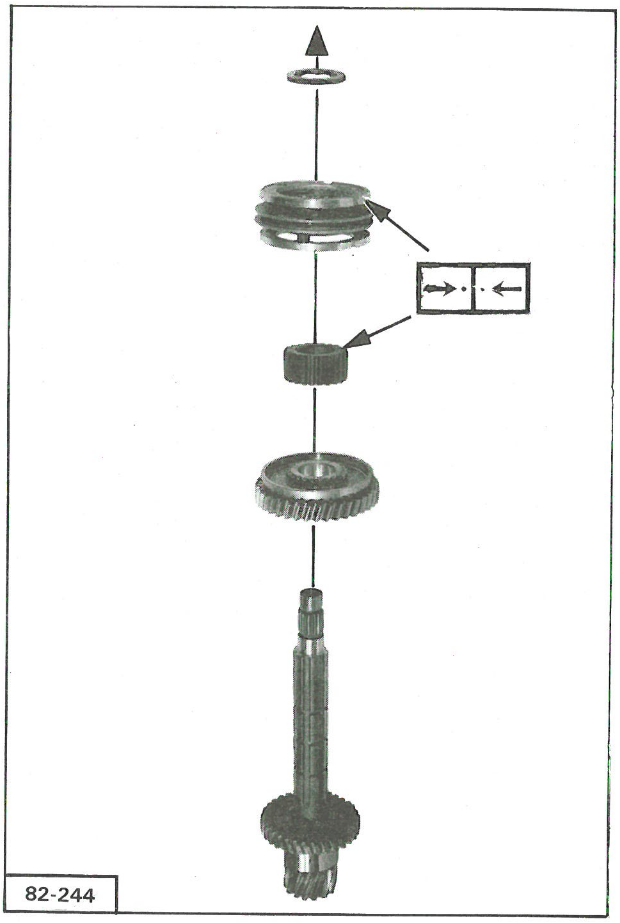
82-133

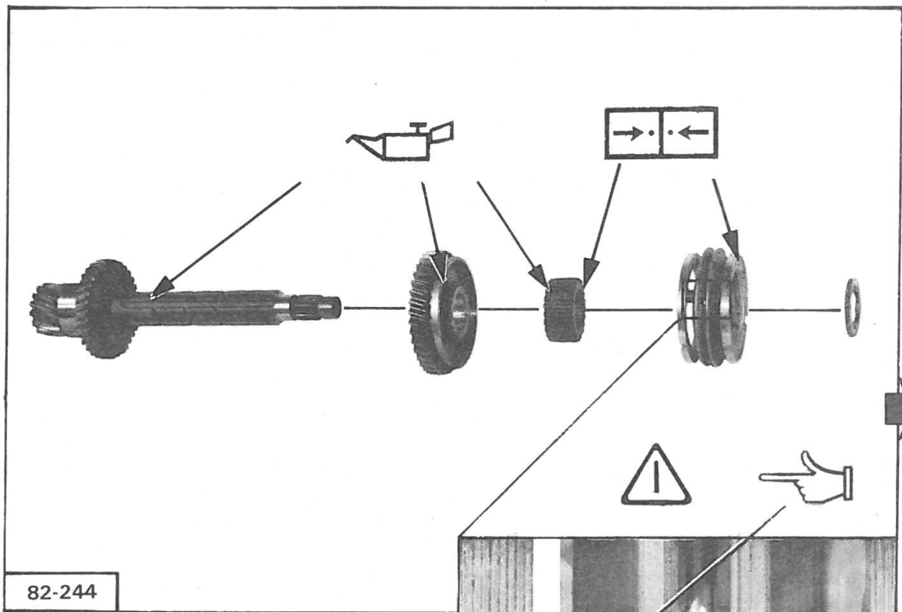

82-136

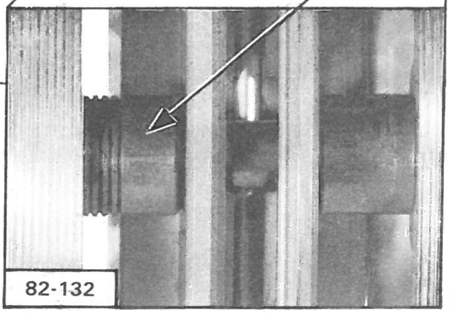

82-135

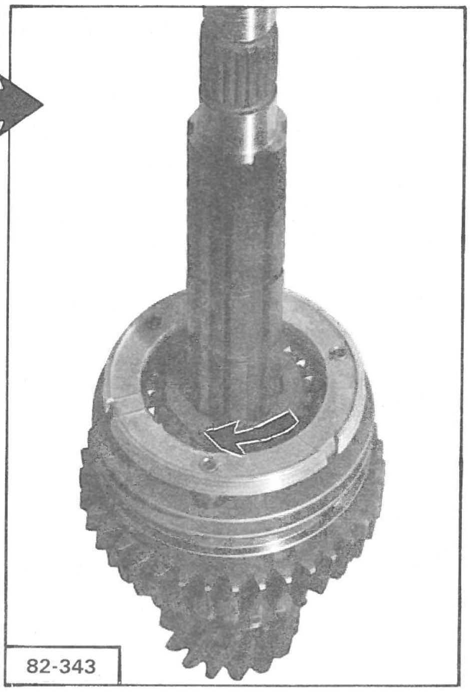

82-134

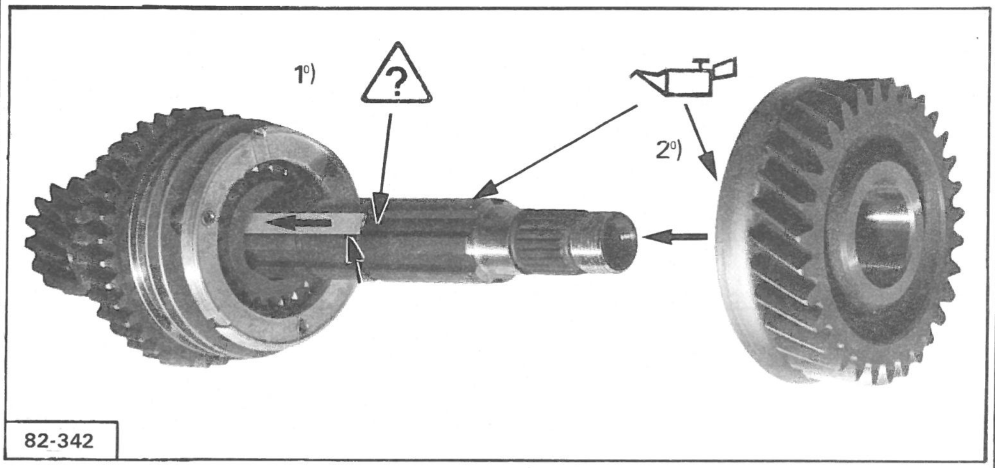

82-156


82-244

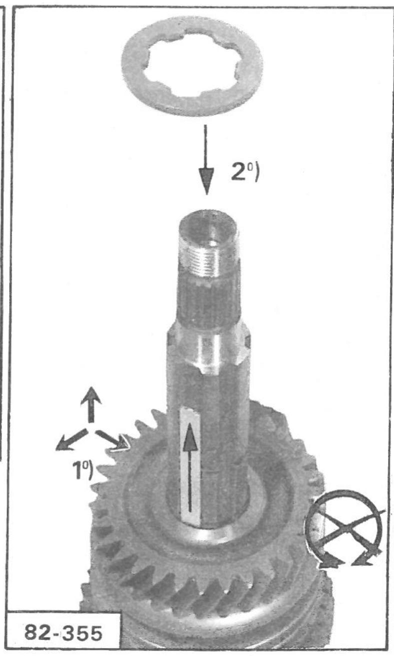

82-244


82-132

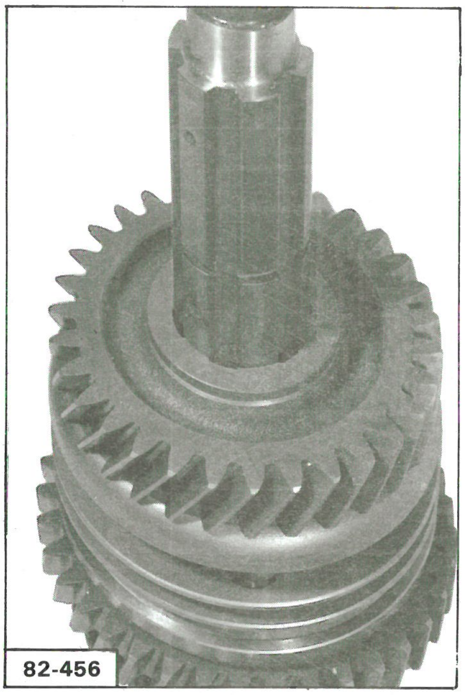

82-343



82-342

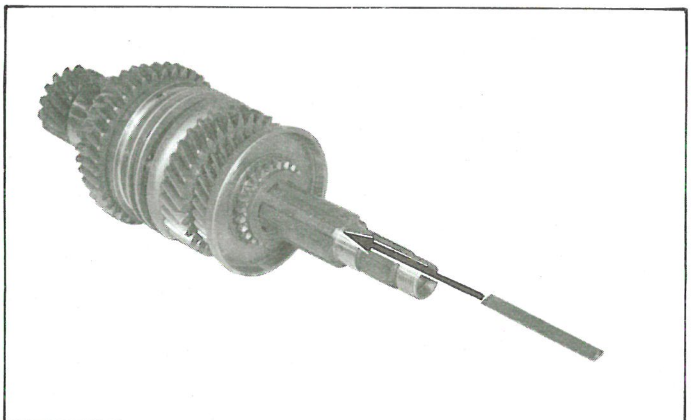


82-355

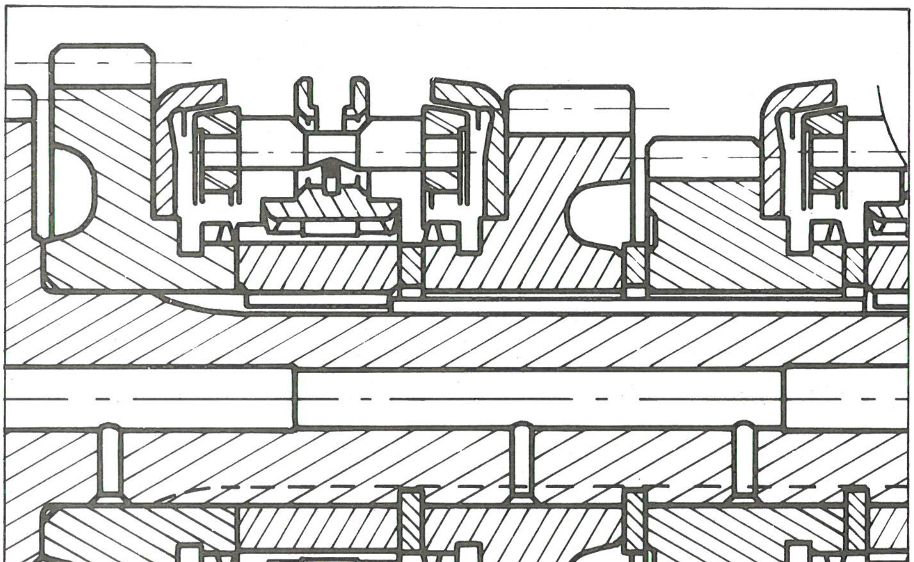


82-456

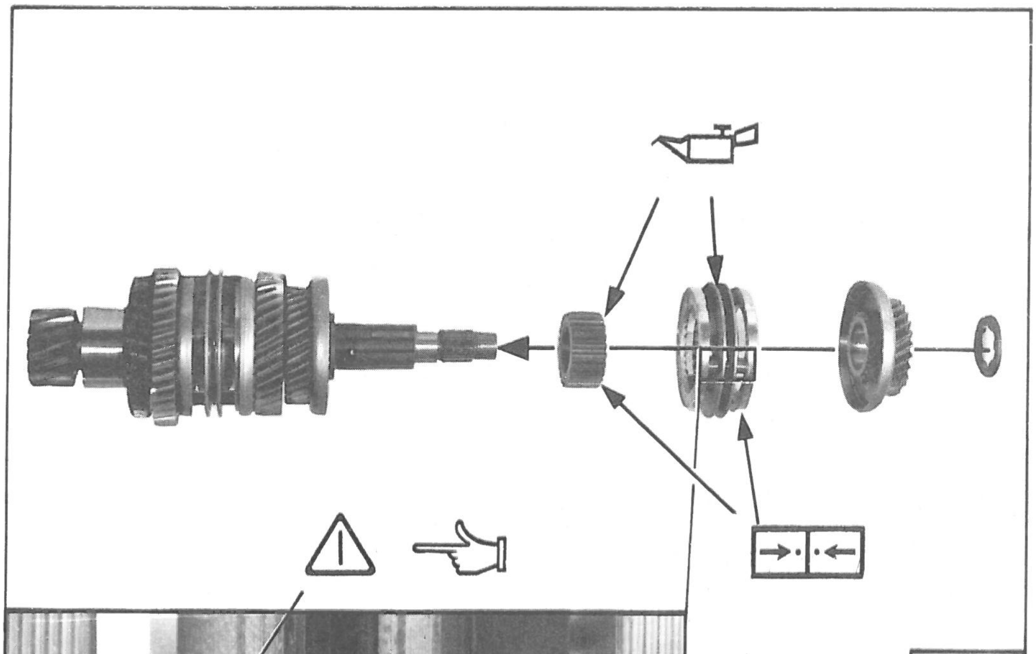
82-136



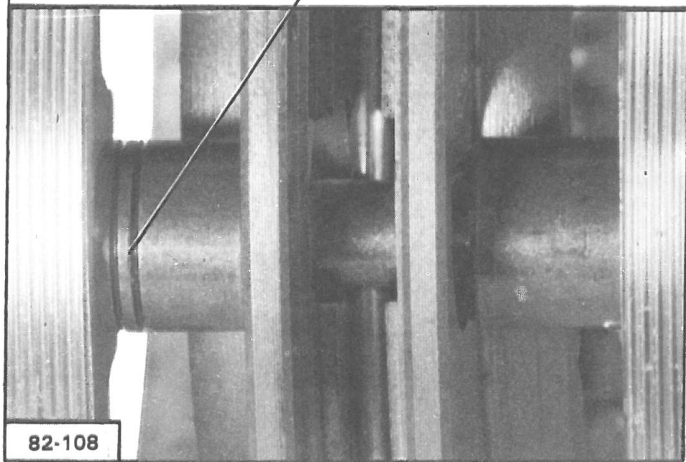
82-270



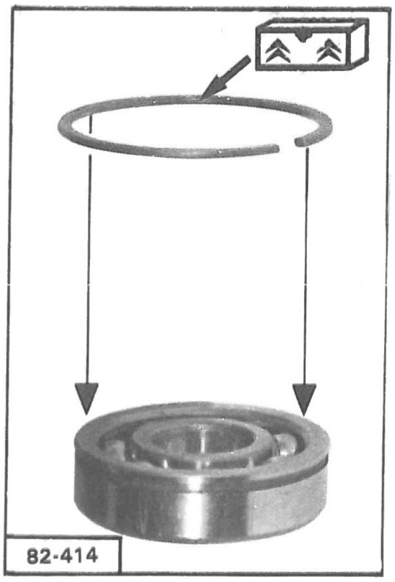
BX 33-13



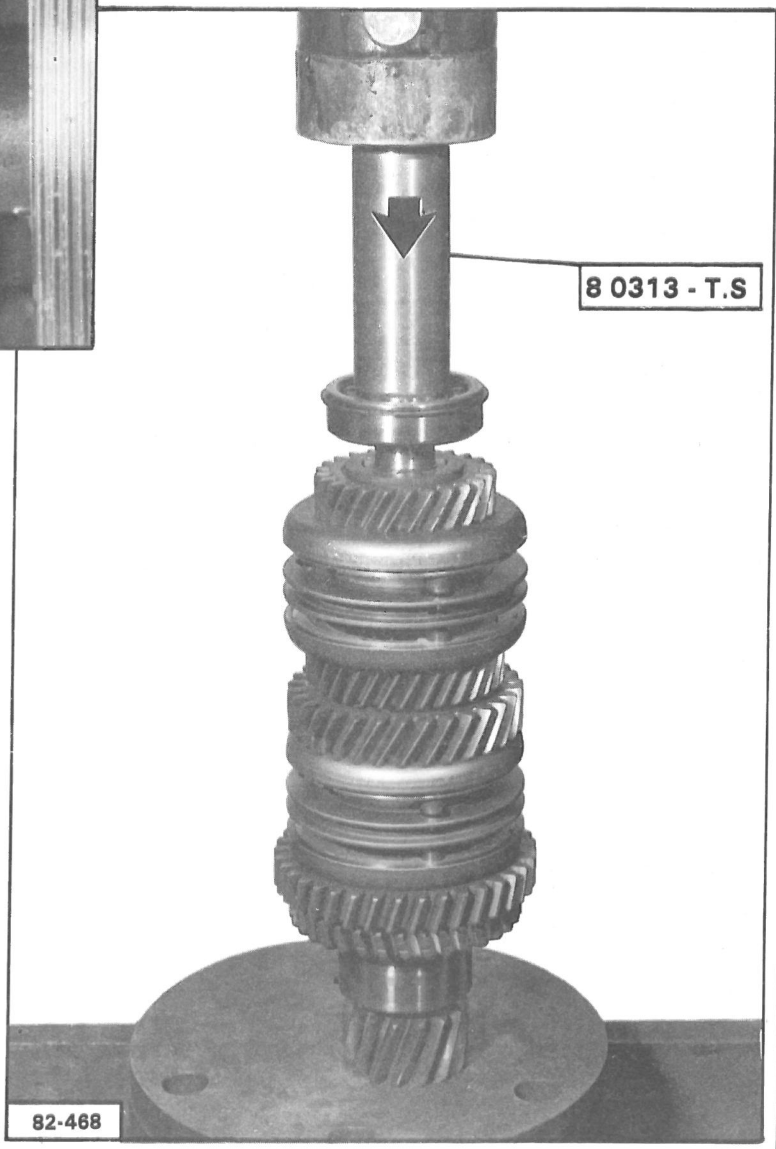
82-121



82-108

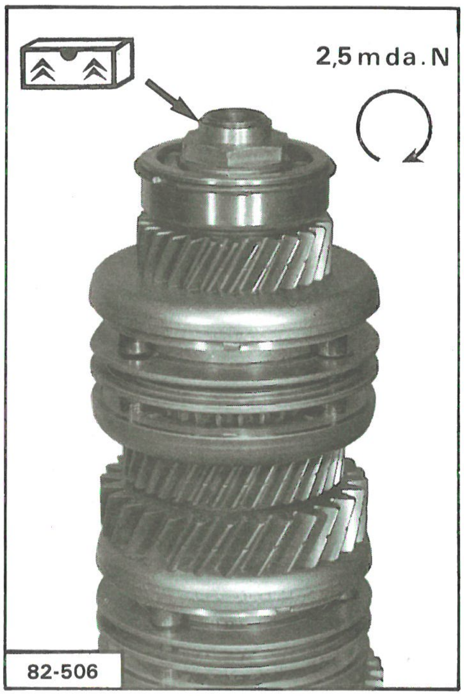


82-414

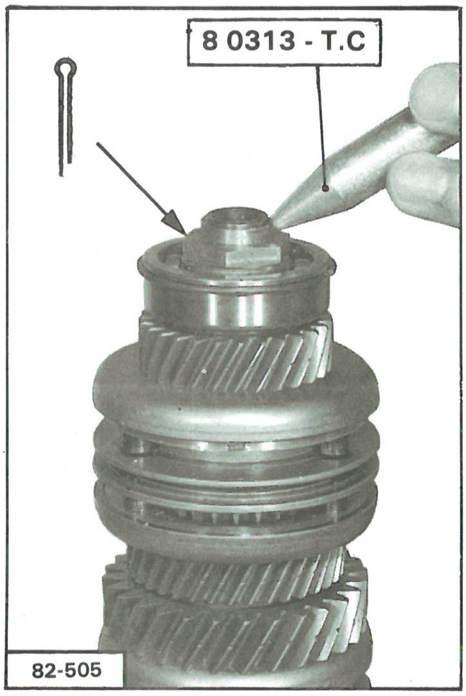


82-468

4

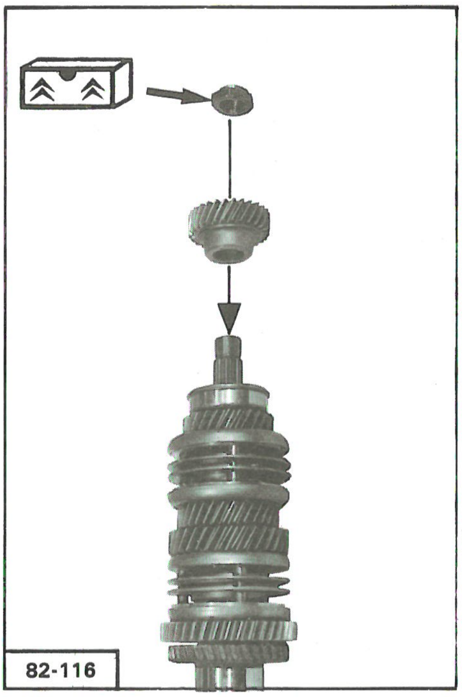


82-506

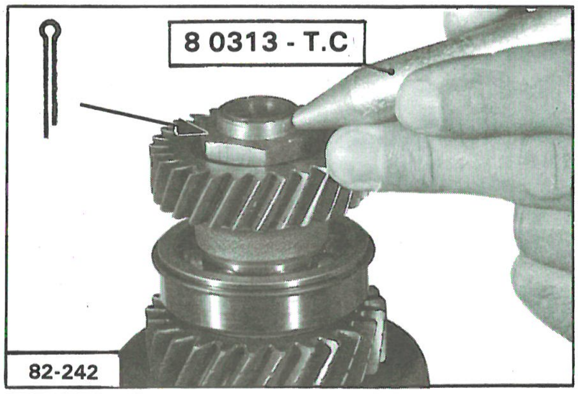


82-505

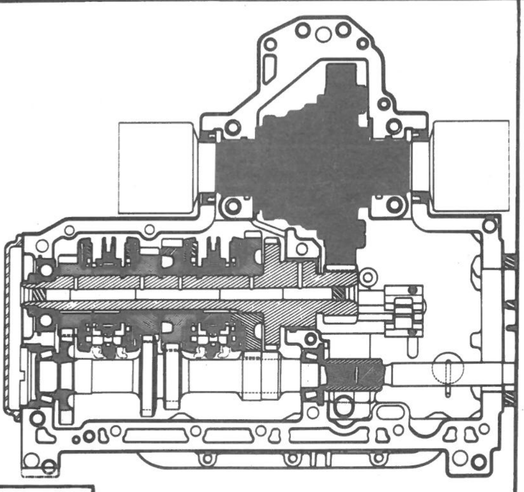
5


82-116

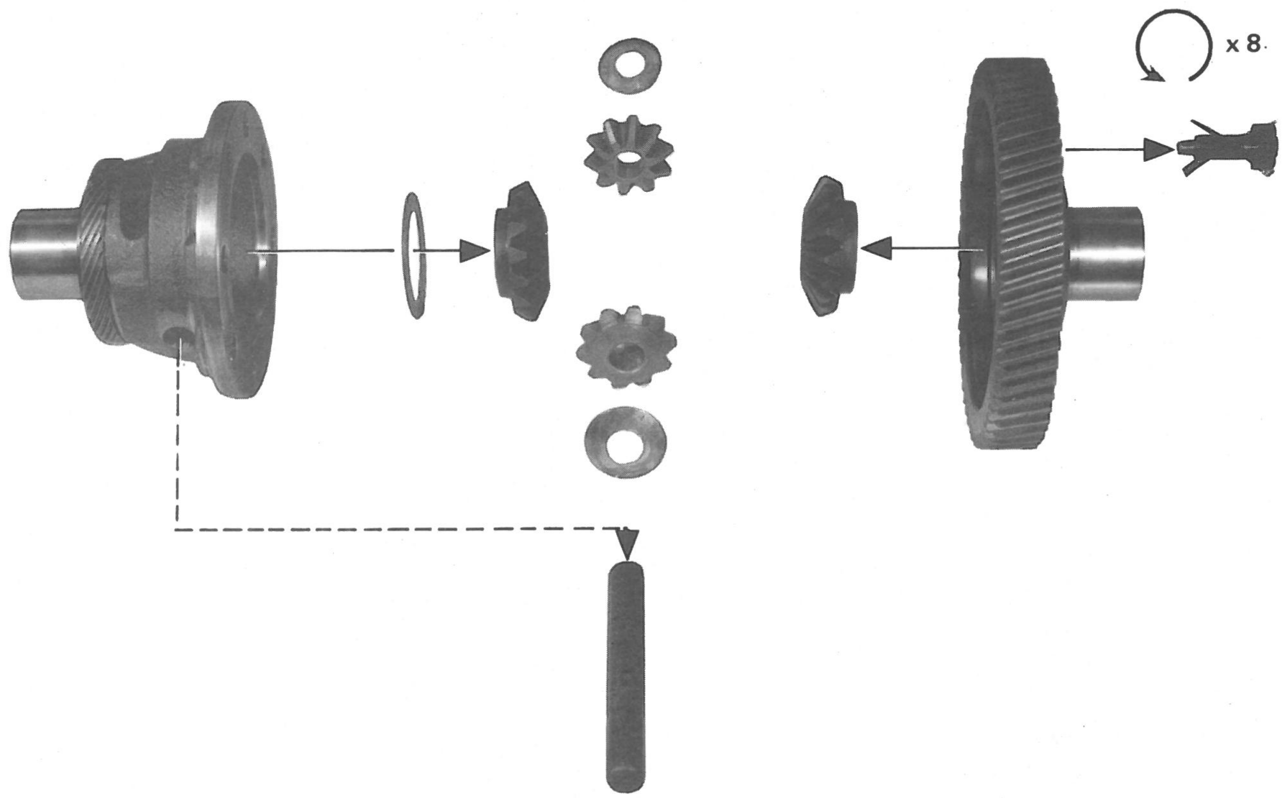
82-352



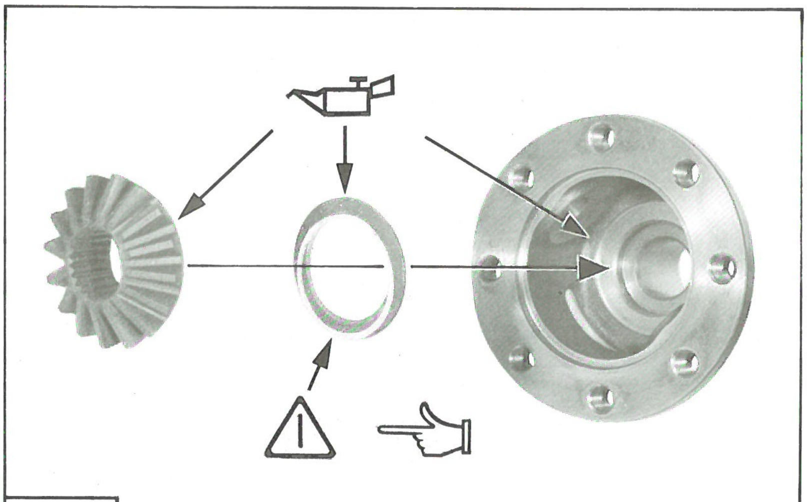
82-242



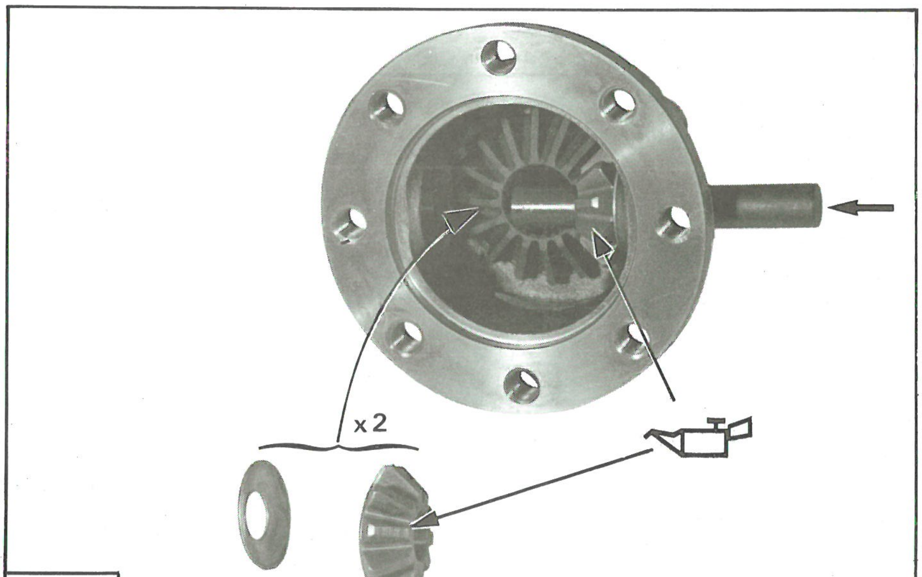
82-1018



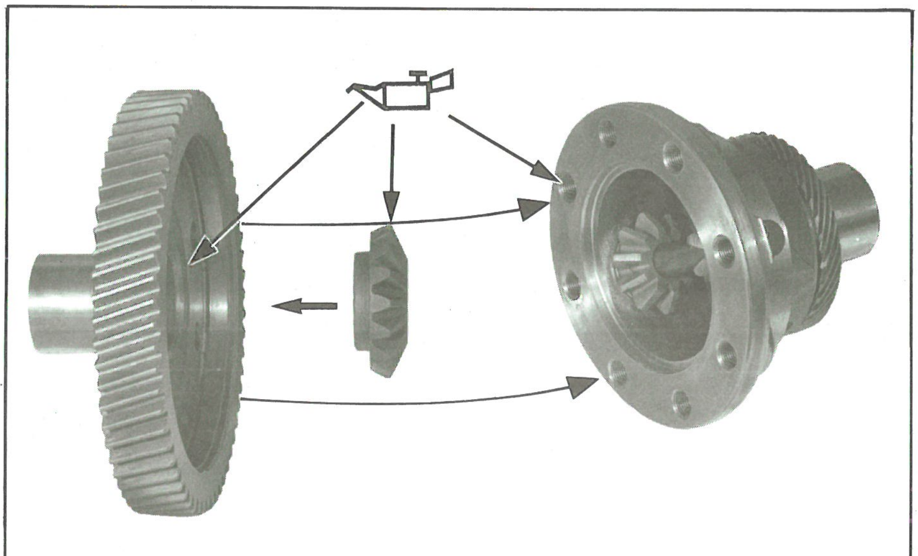
82-245



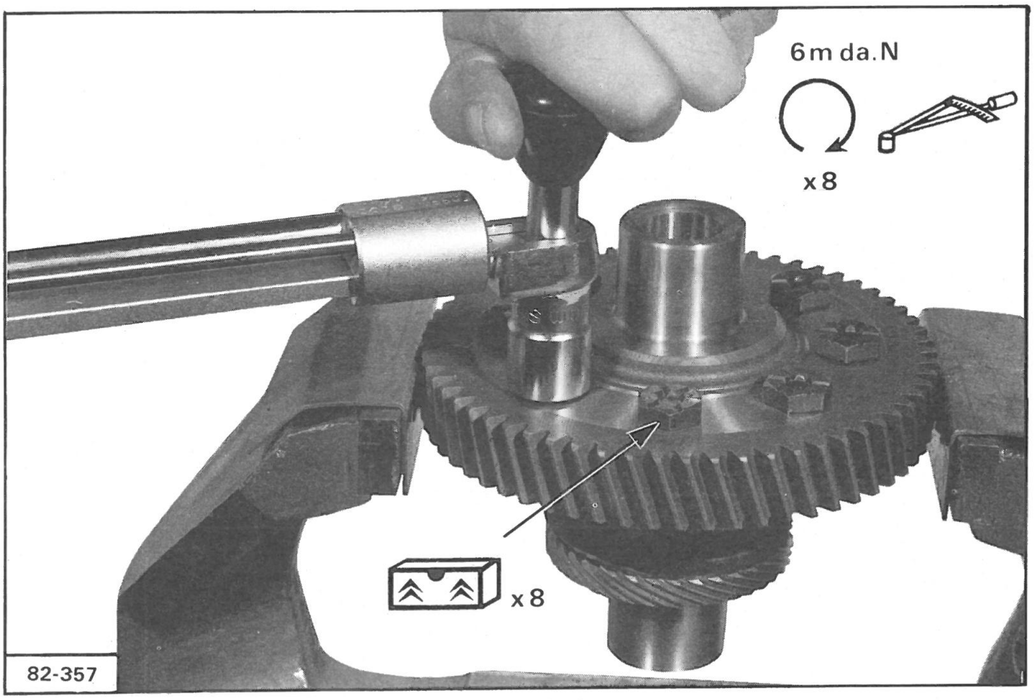
82-356



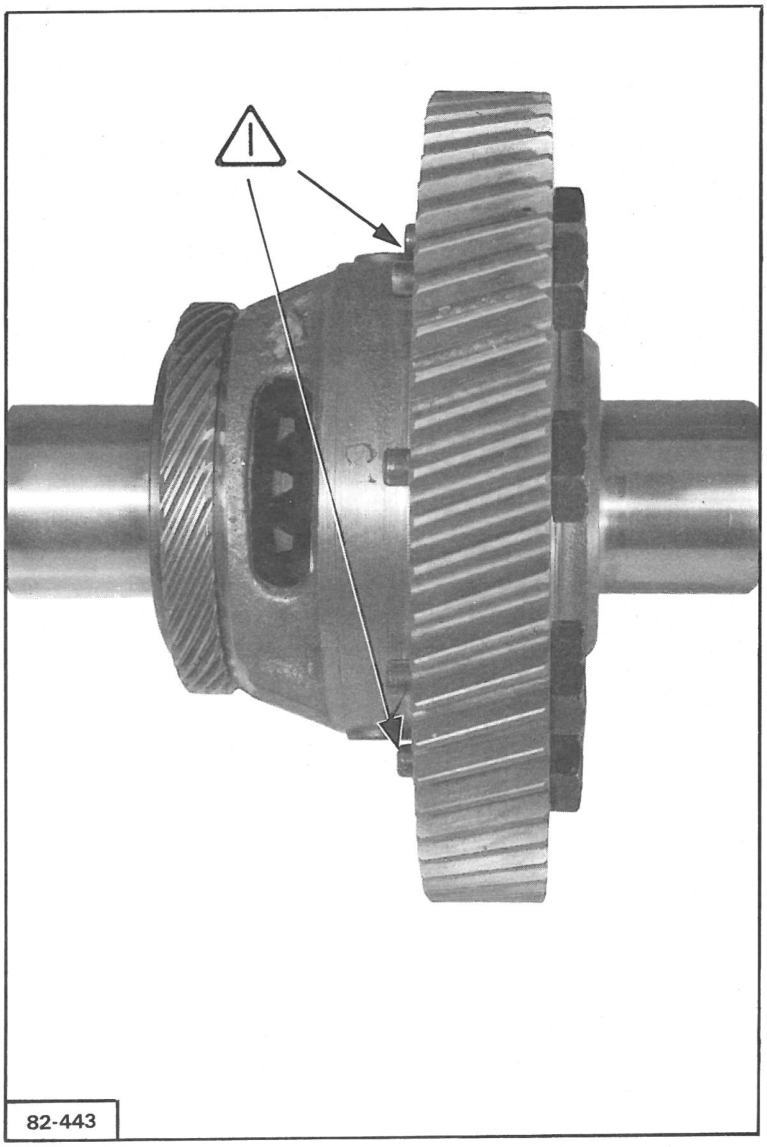
82-340



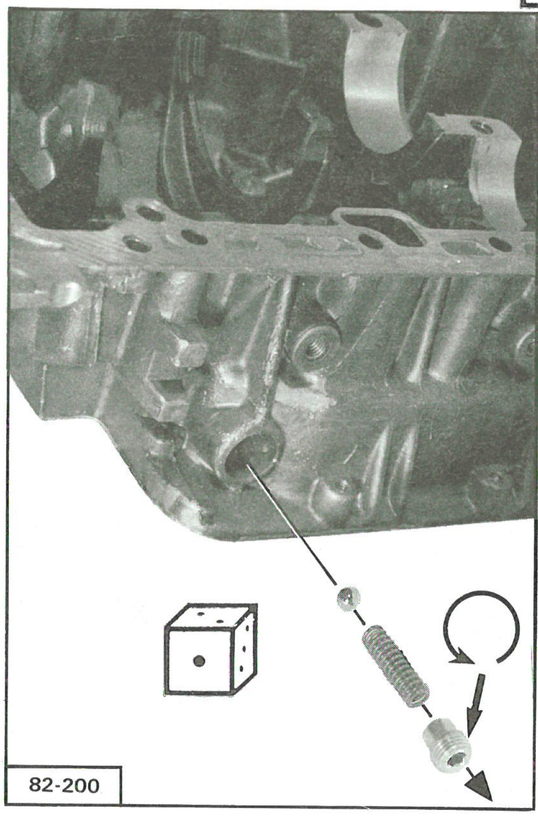
82-341



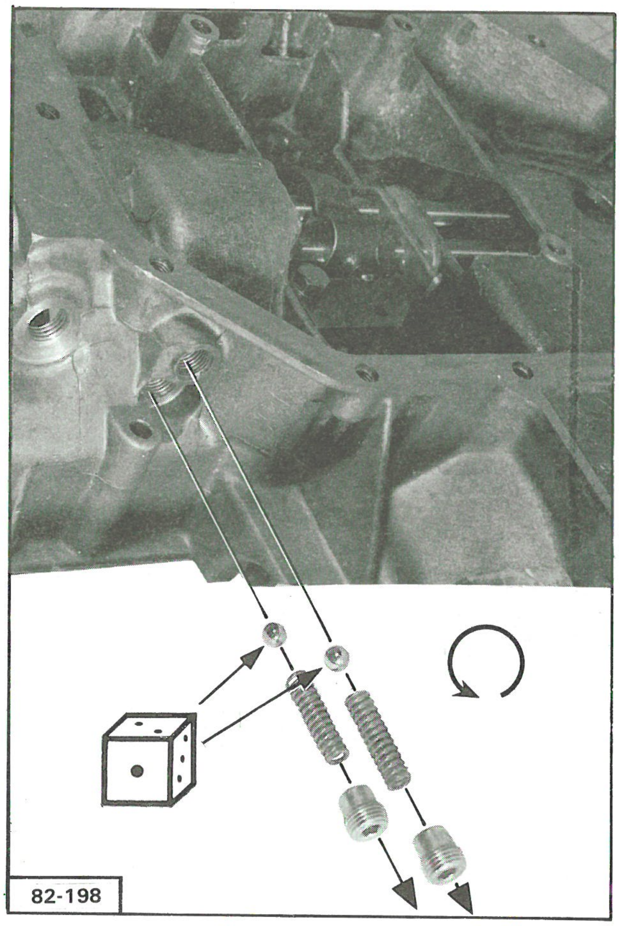
82-357



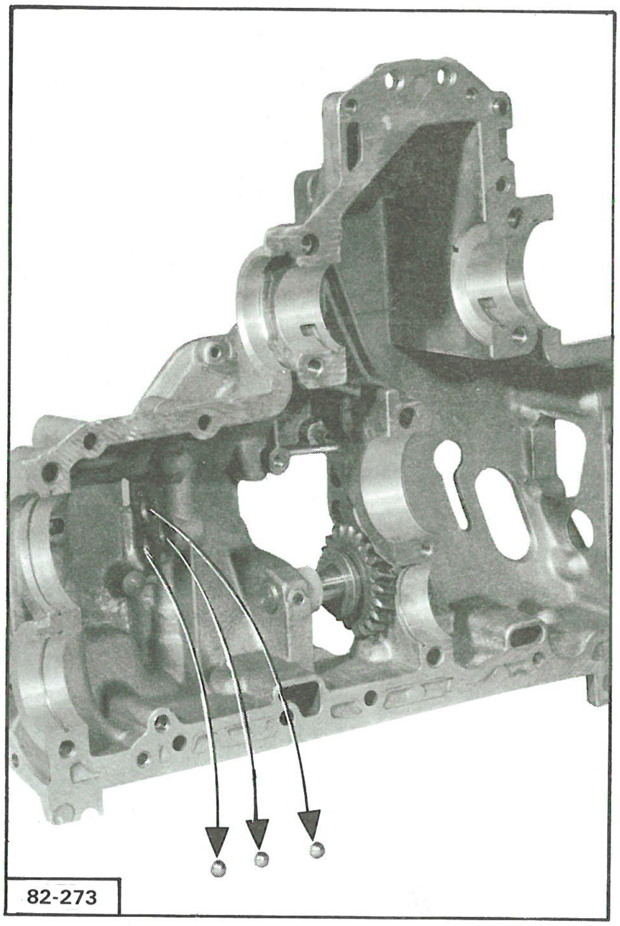
82-443



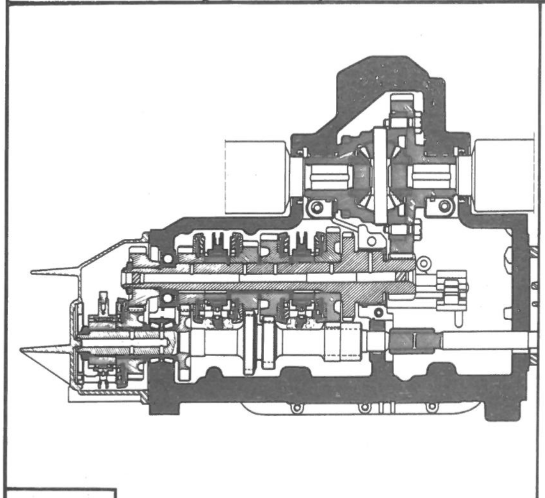
82-200



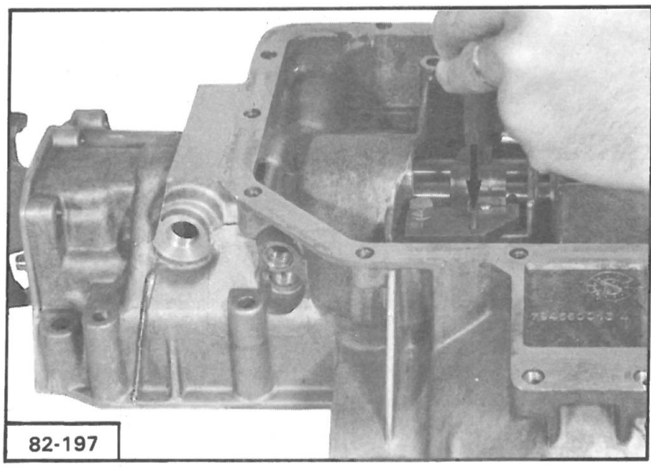
82-198



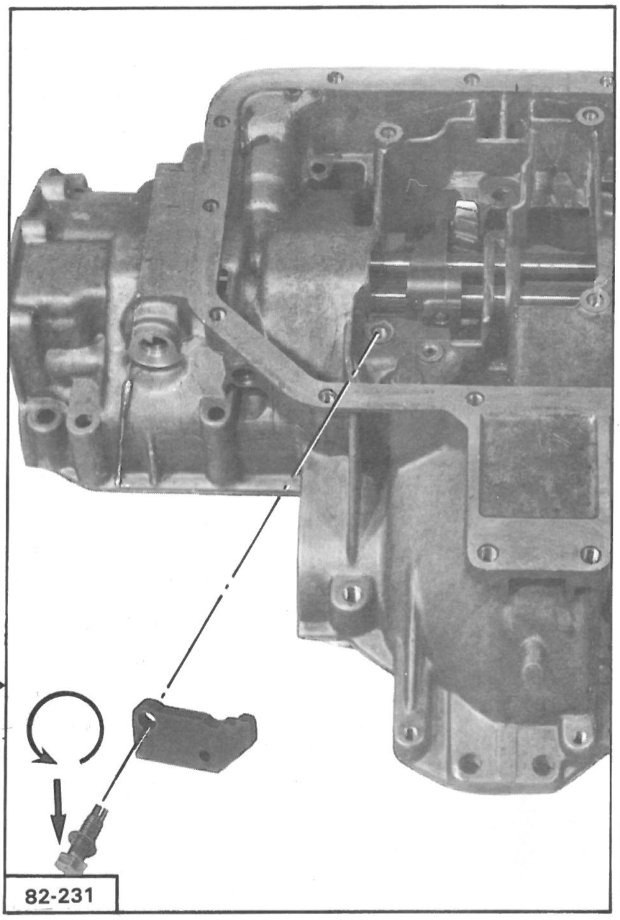
82-273



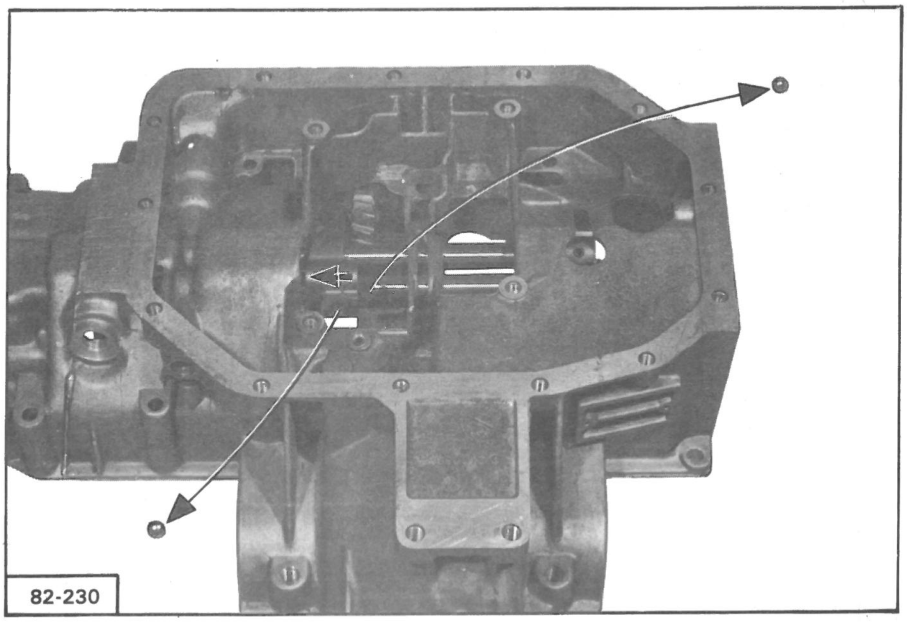
82-1019



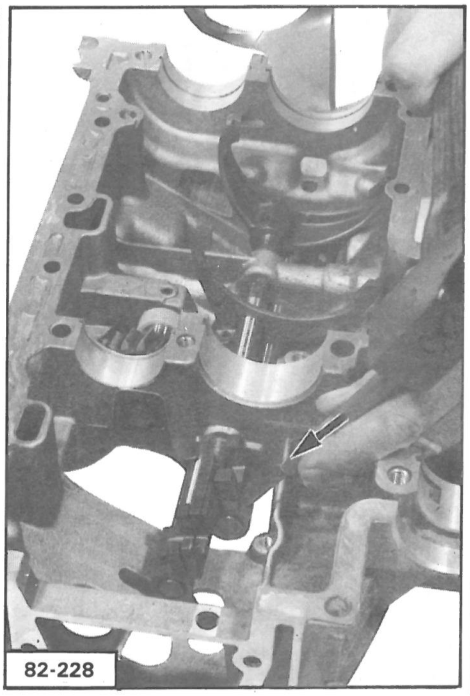
82-197



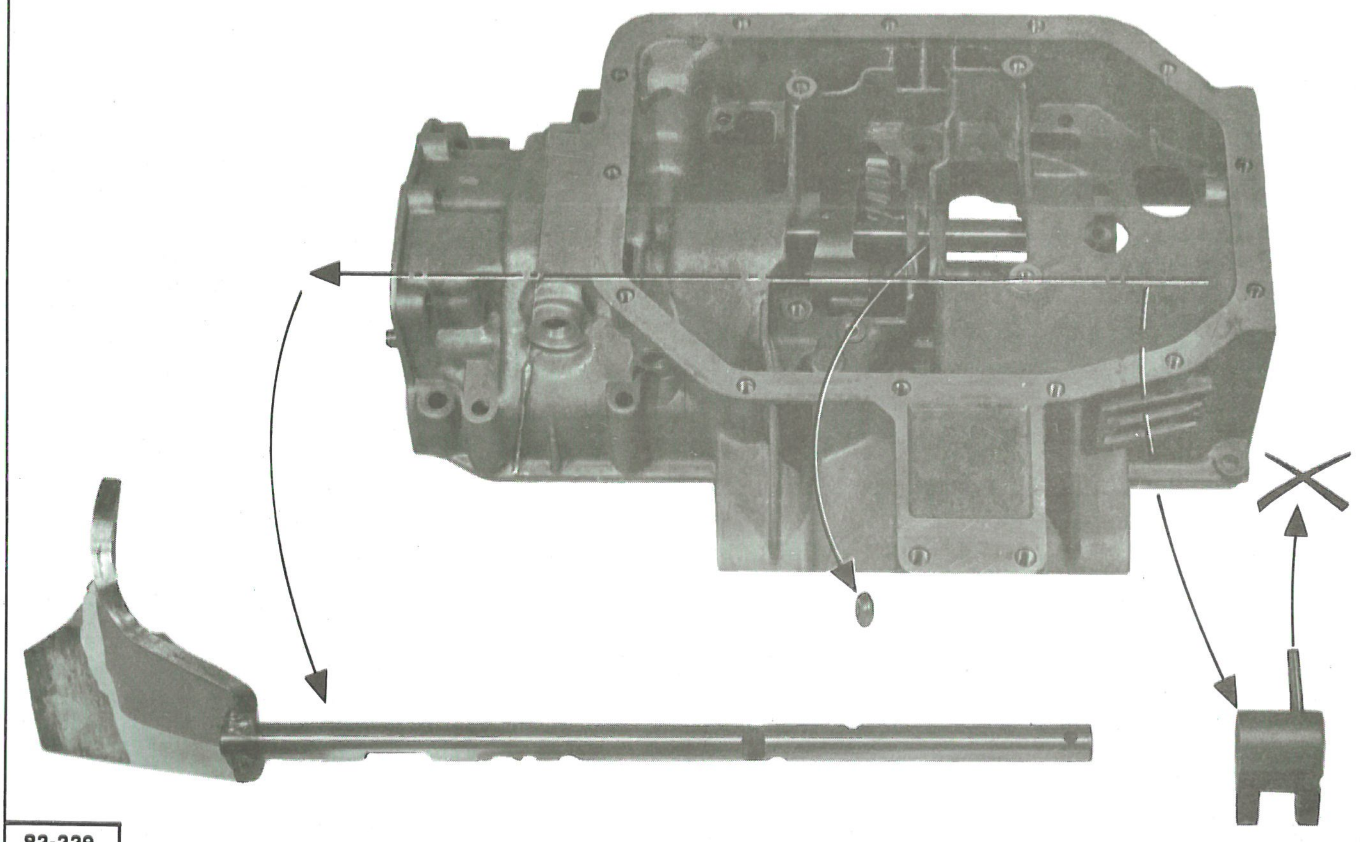
82-231



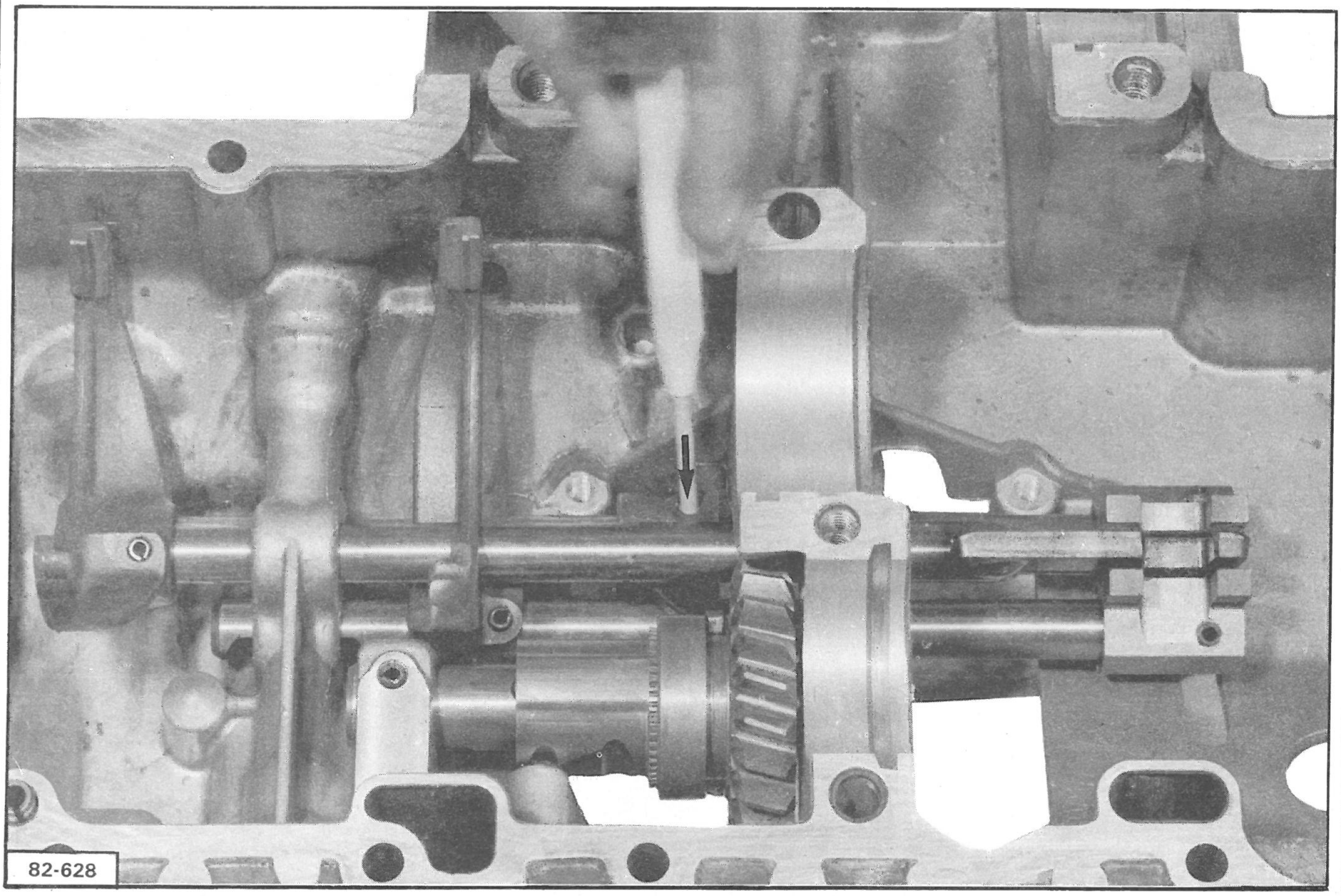
82-230



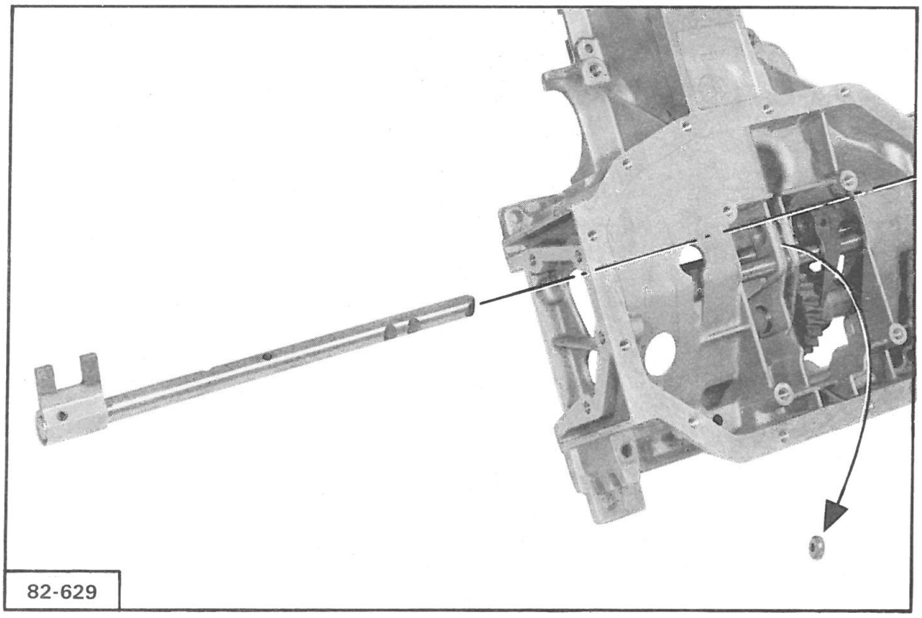
82-228



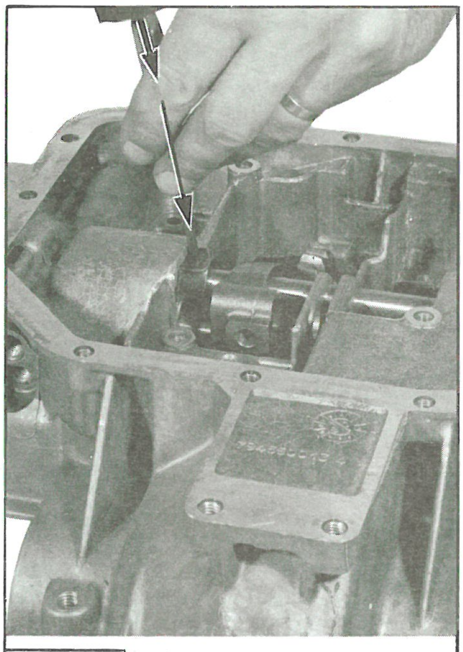
82-229



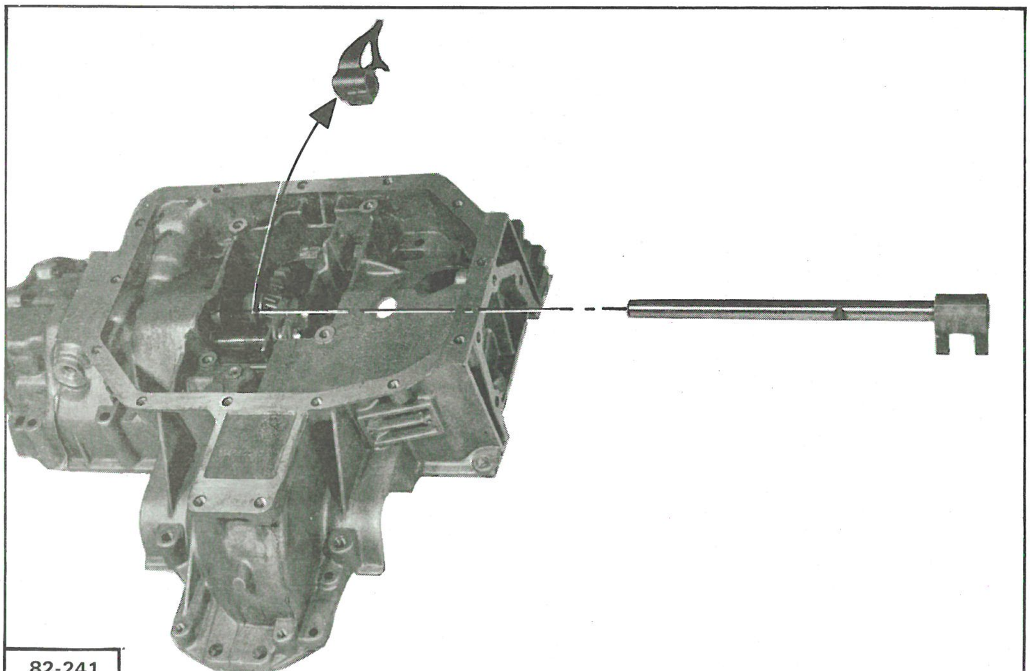
82-628



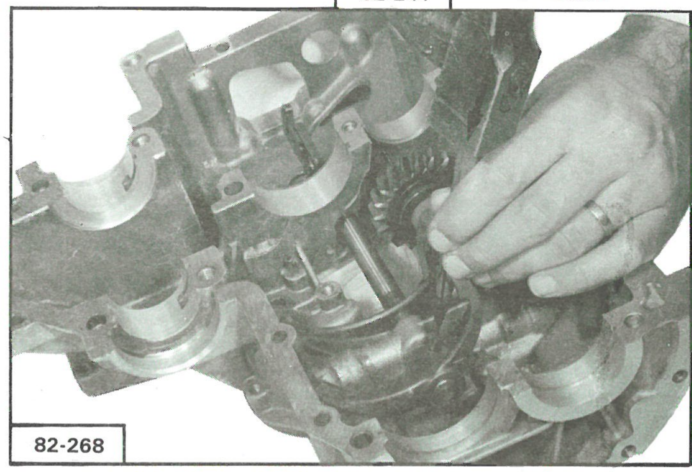
82-629



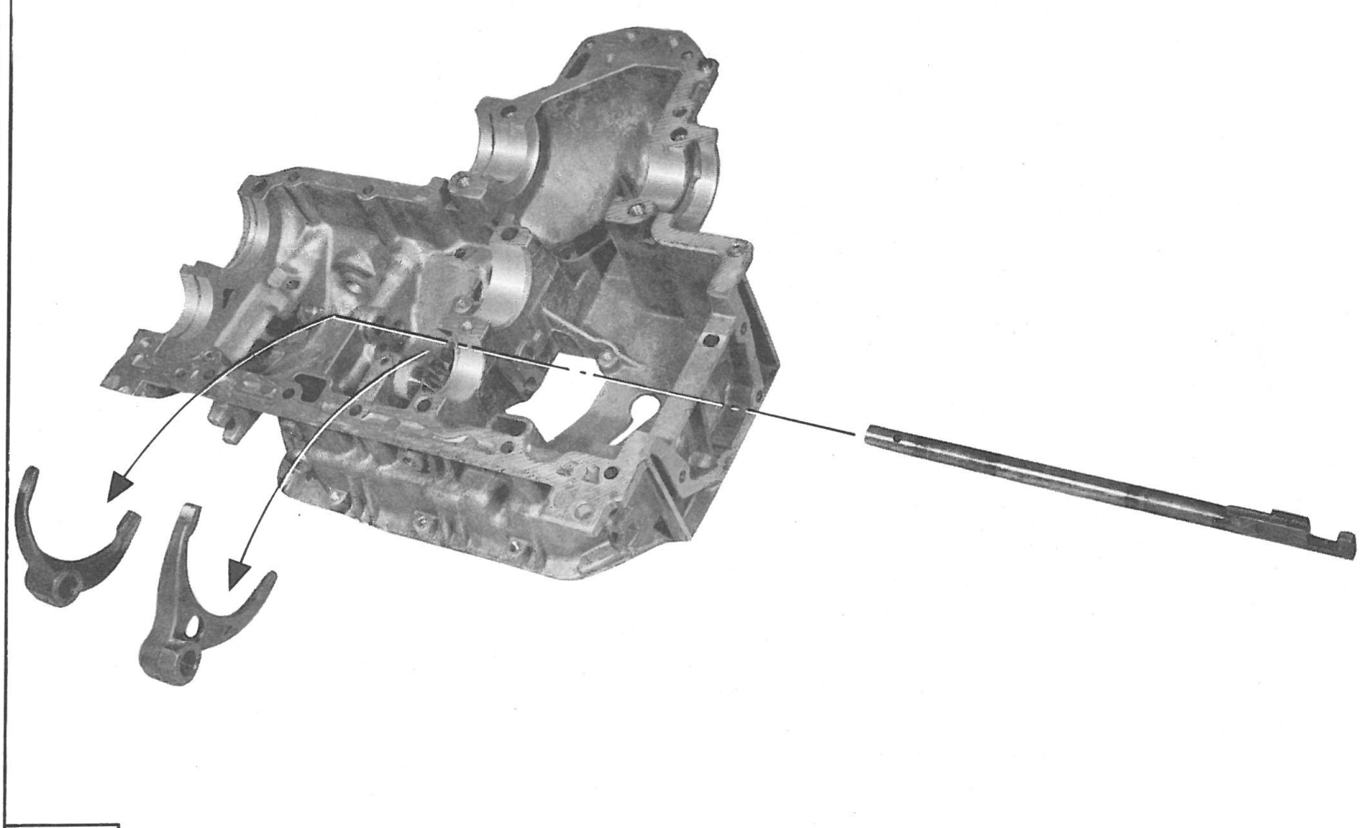
82-240



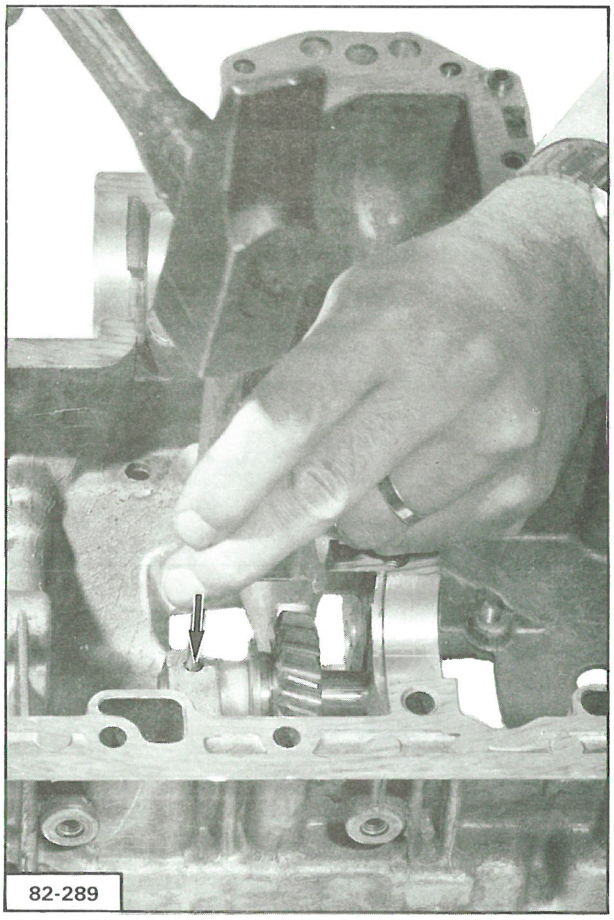
82-241



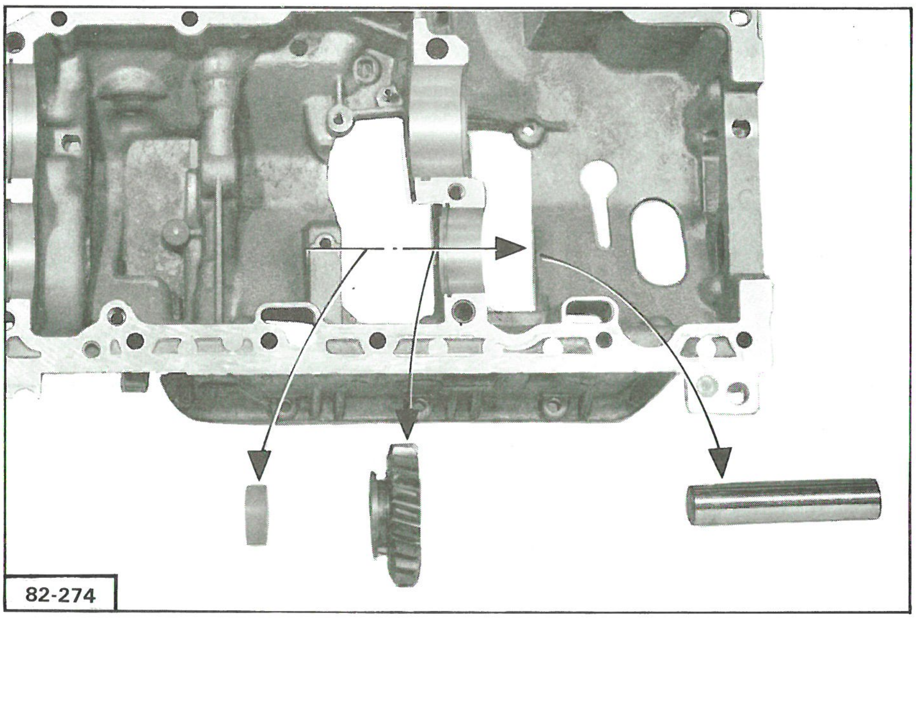
82-268



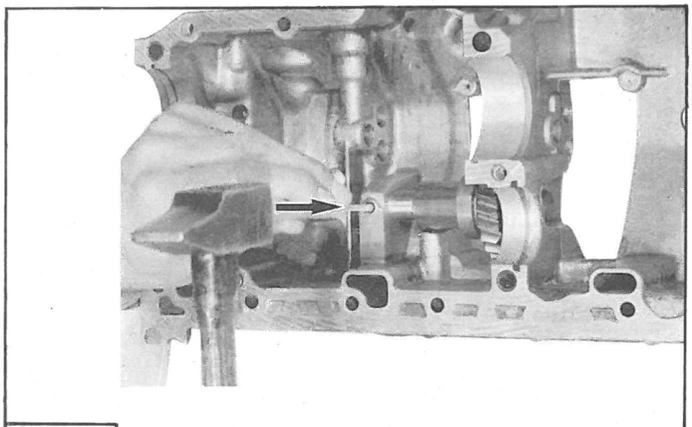
82-290



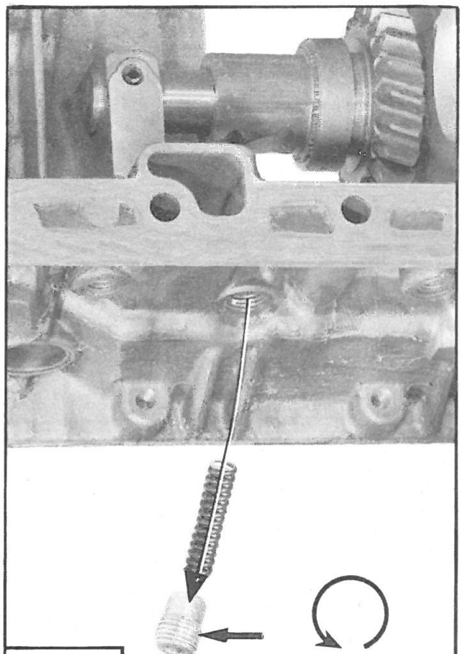
82-289



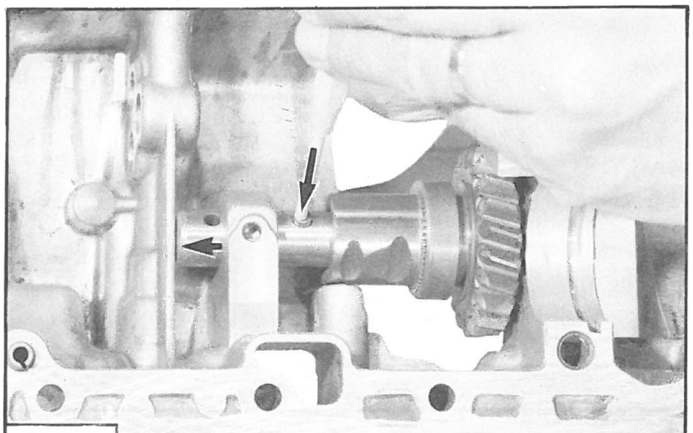
82-274



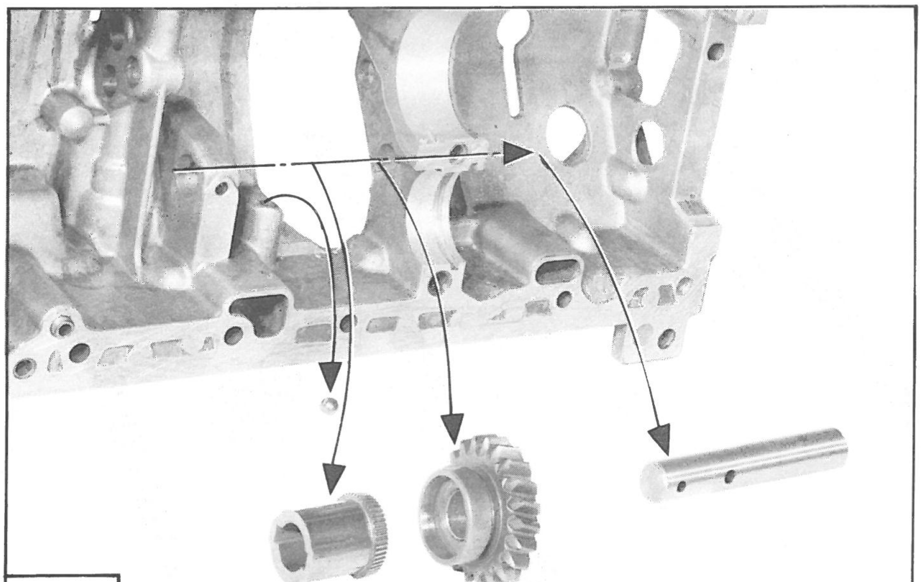
82-660



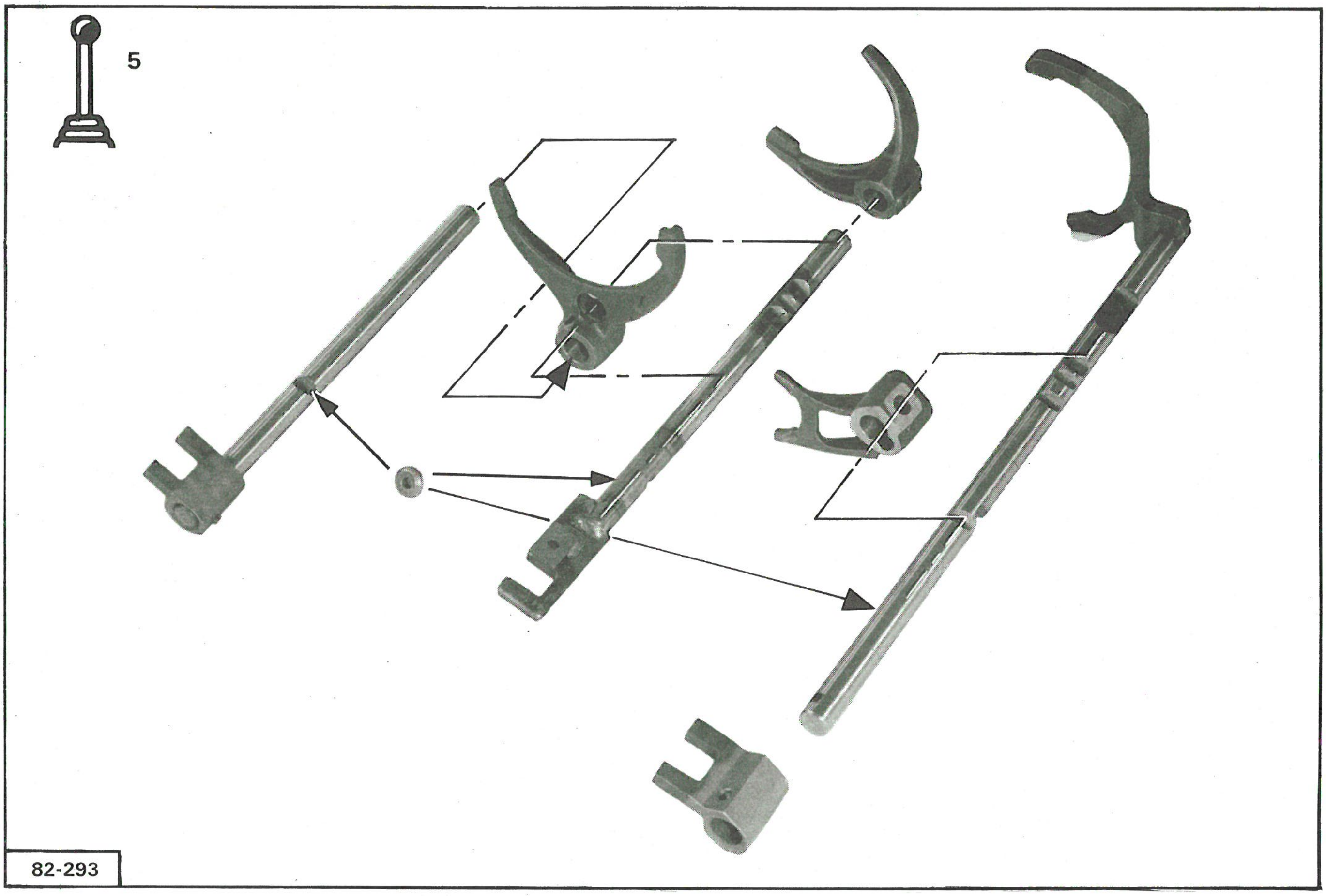
82-661



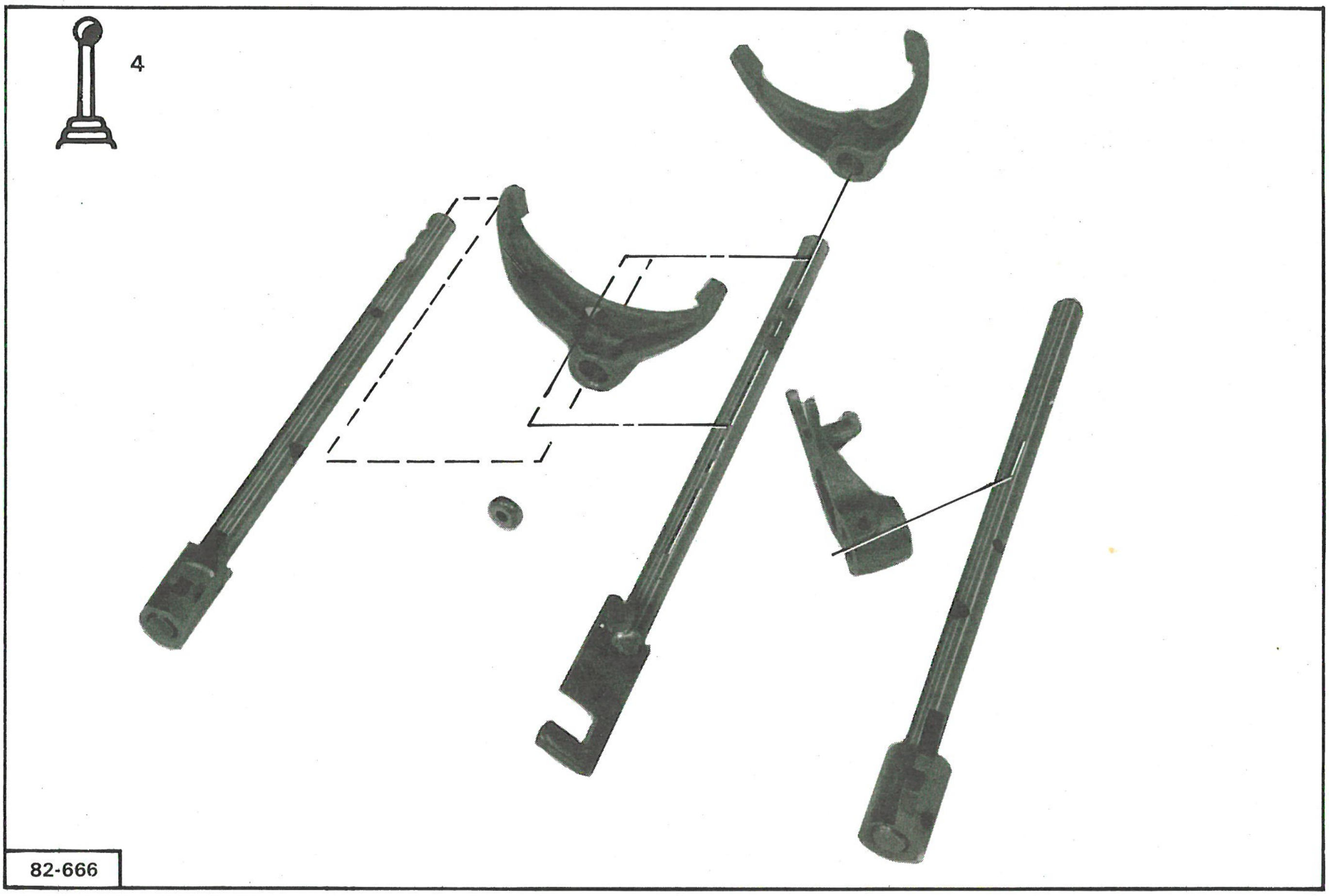
82-659



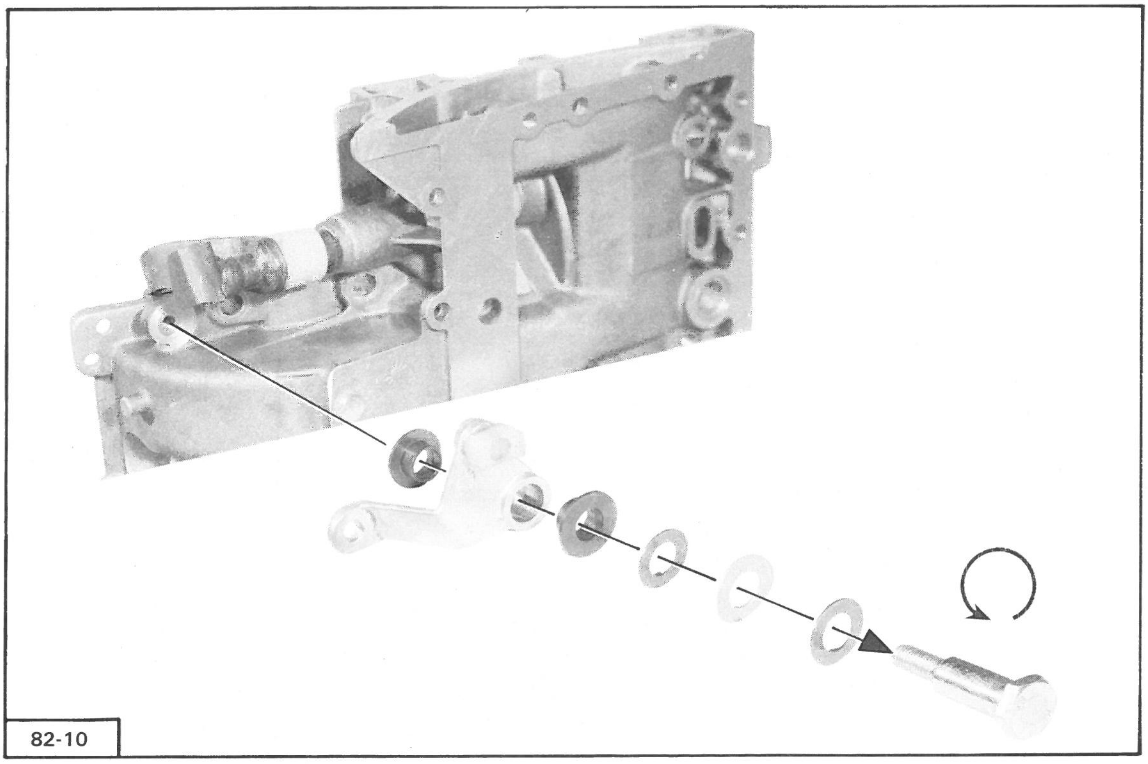
82-658

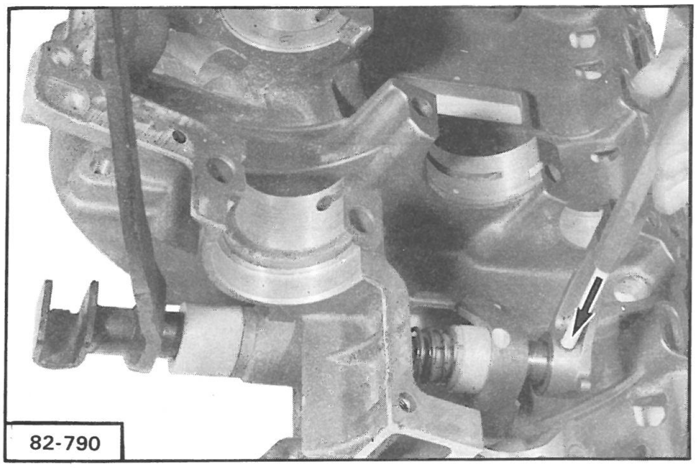


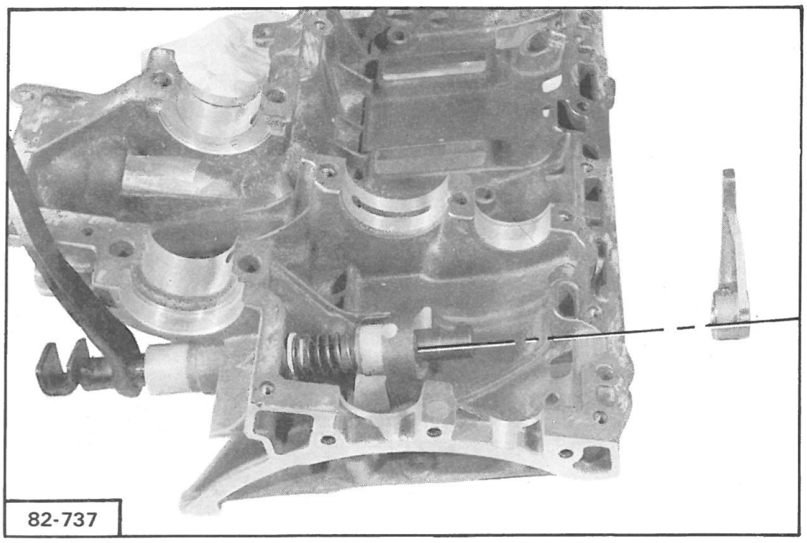
82-293

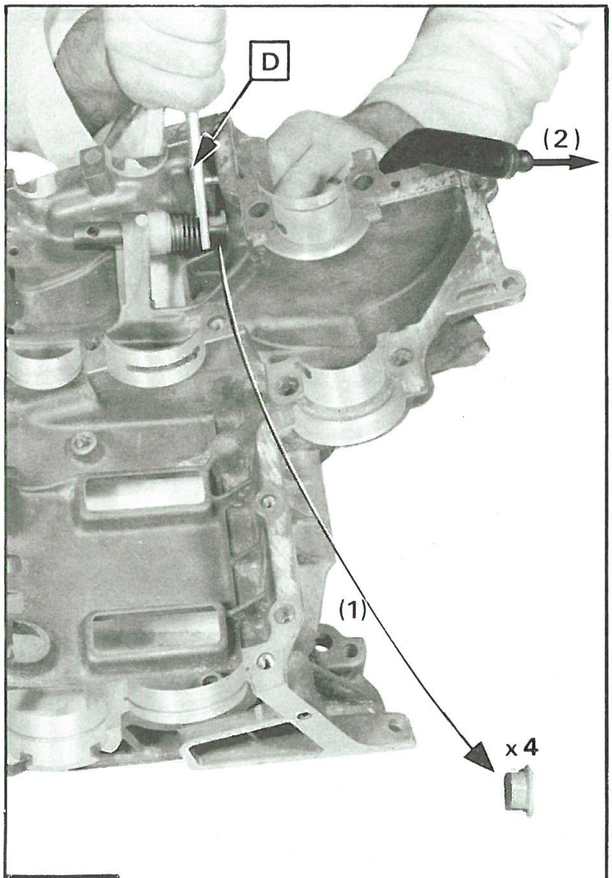


82-666

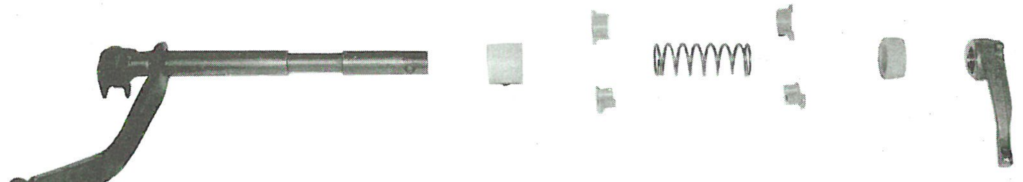

82-10


82-790

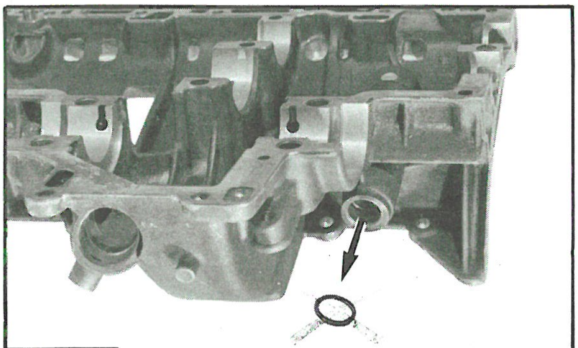

82-737



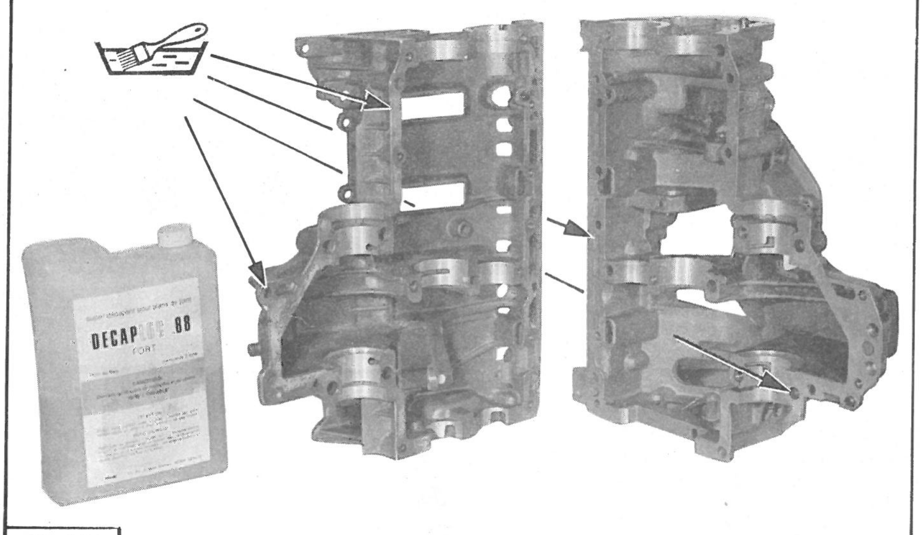
82-739



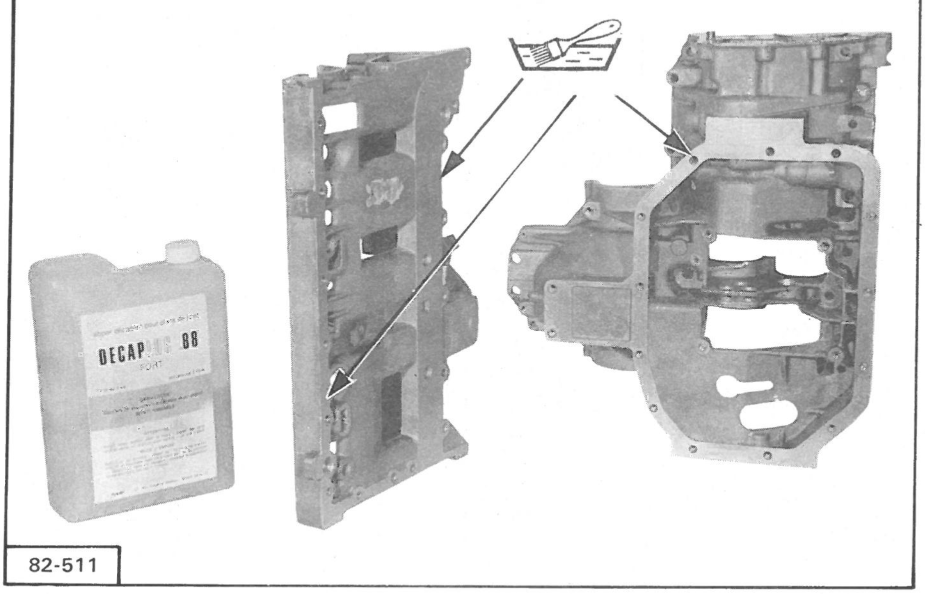
82-711



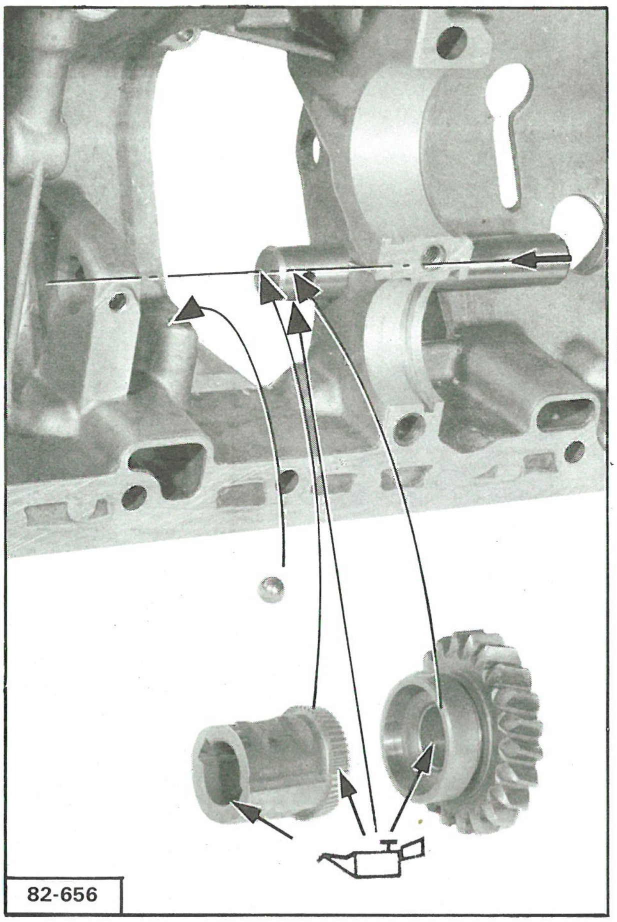
82-16



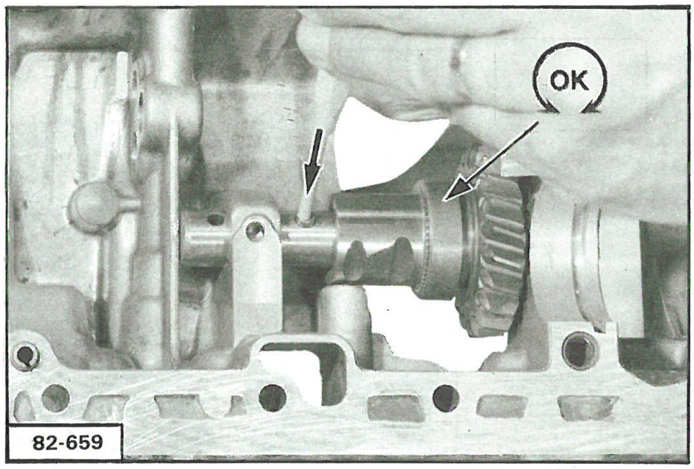
82-477



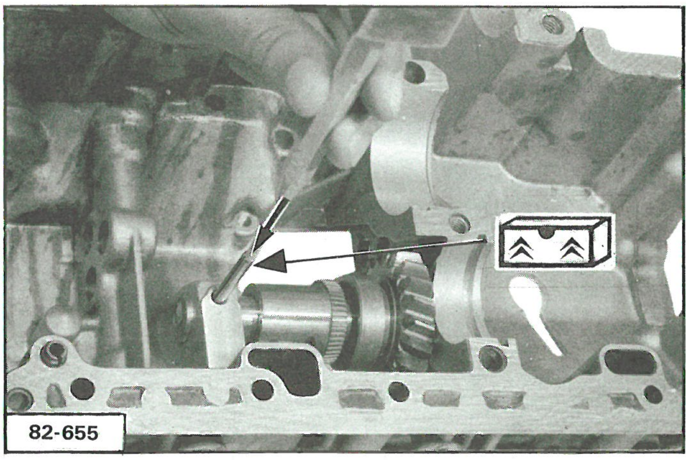
82-511



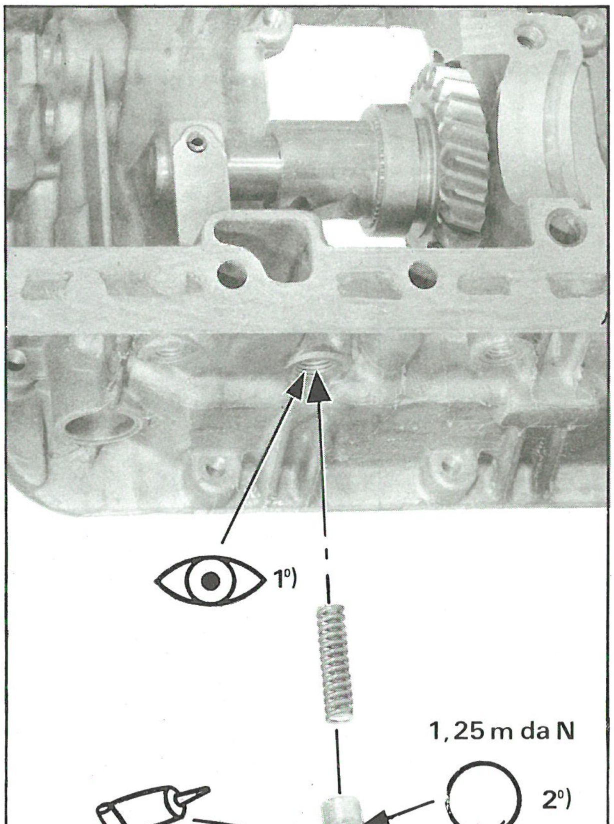
82-656



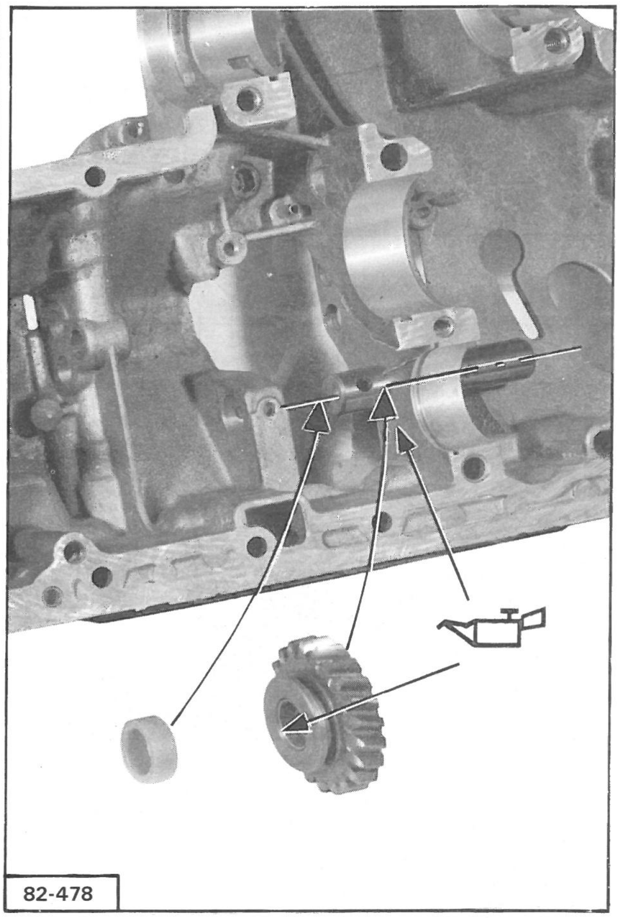
82-659

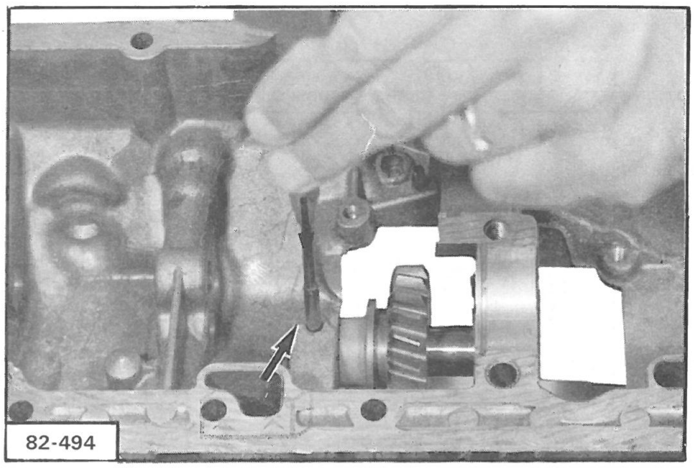


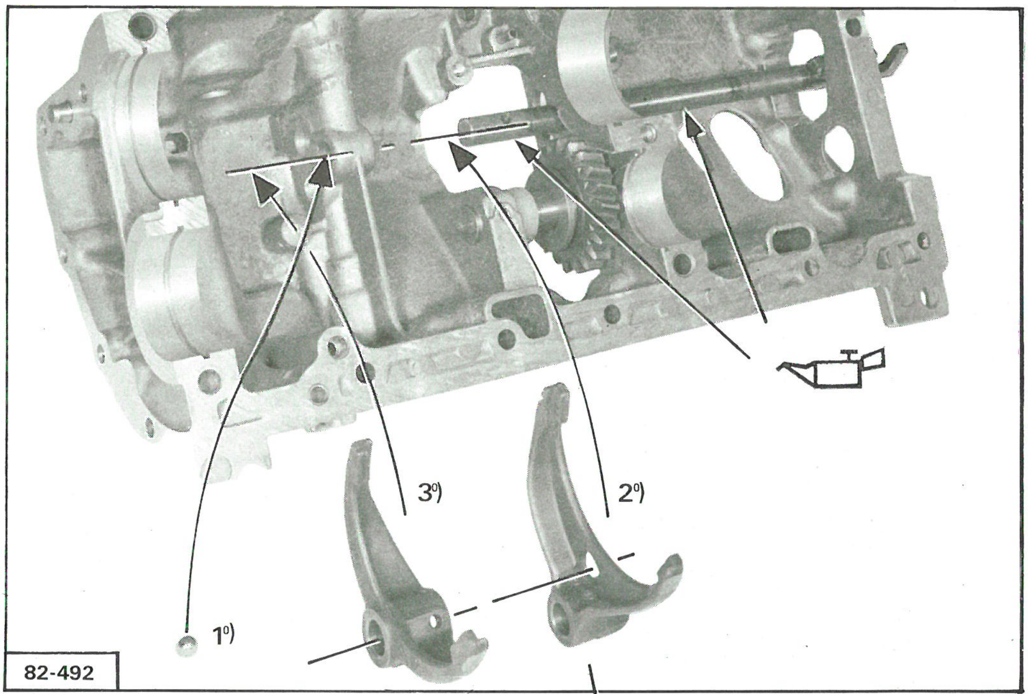
82-655



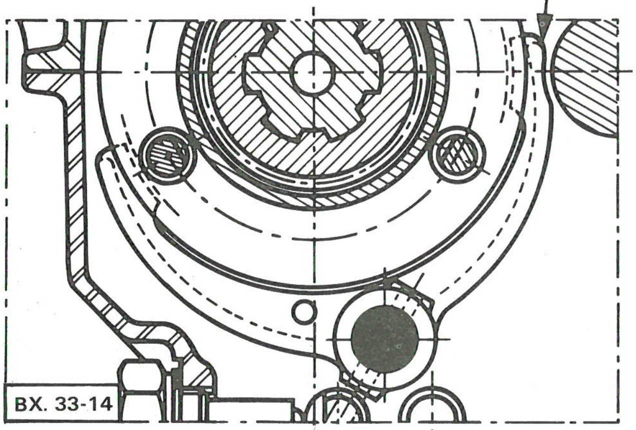
82-661

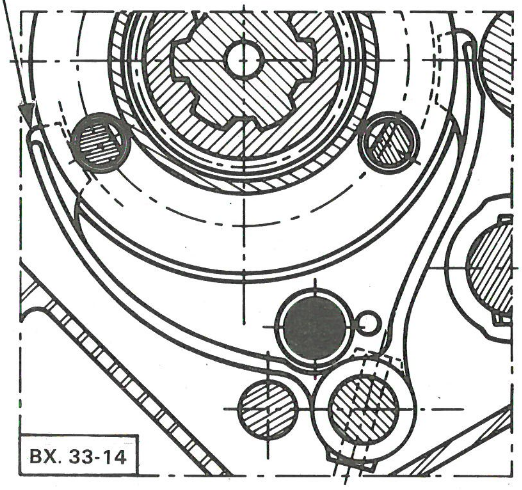

82-478

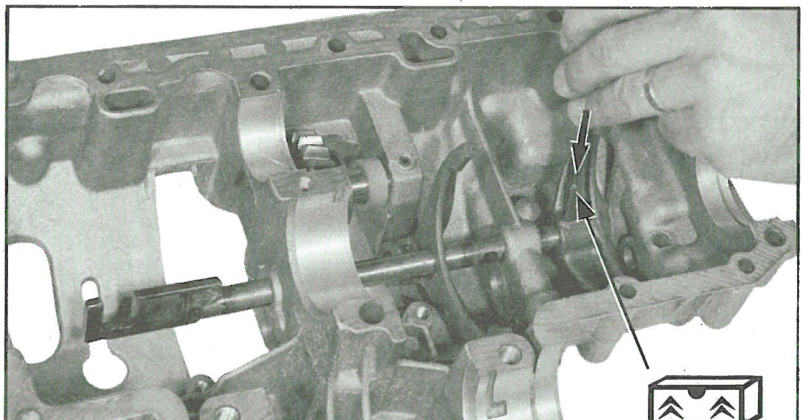

82-494

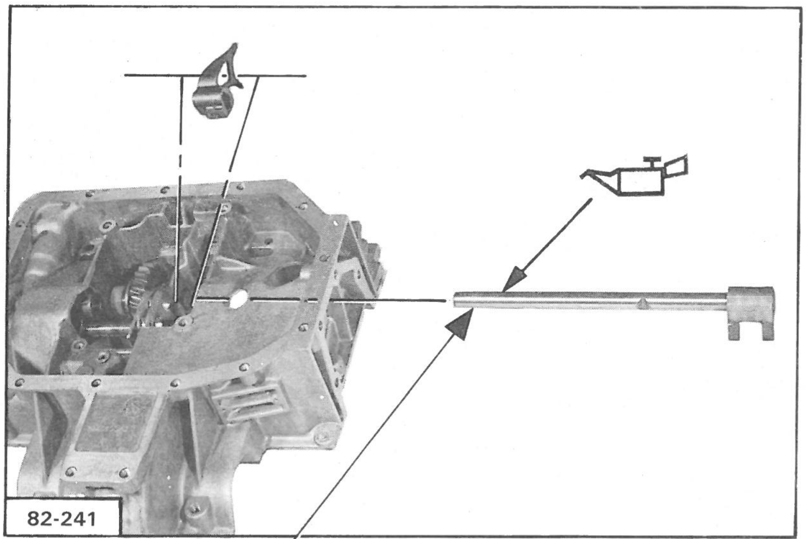


82-492

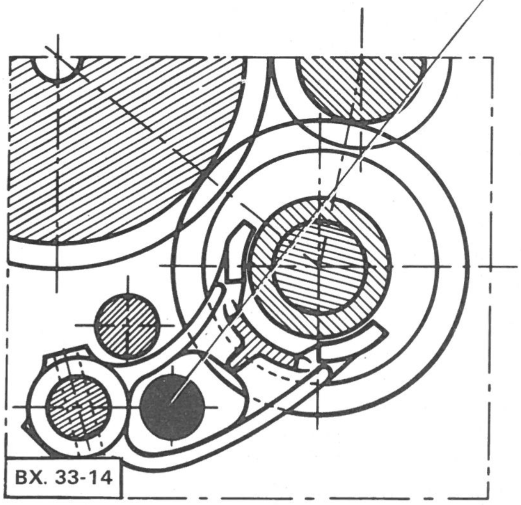

BX. 33-14


BX. 33-14

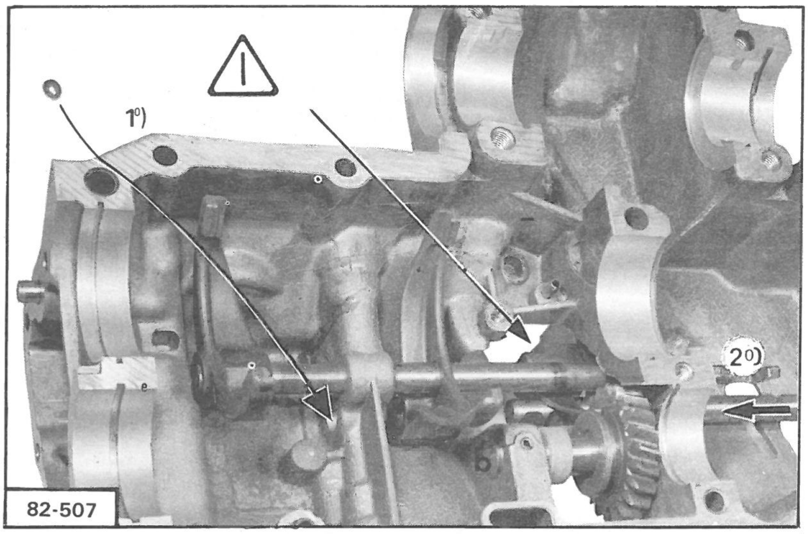

82-493



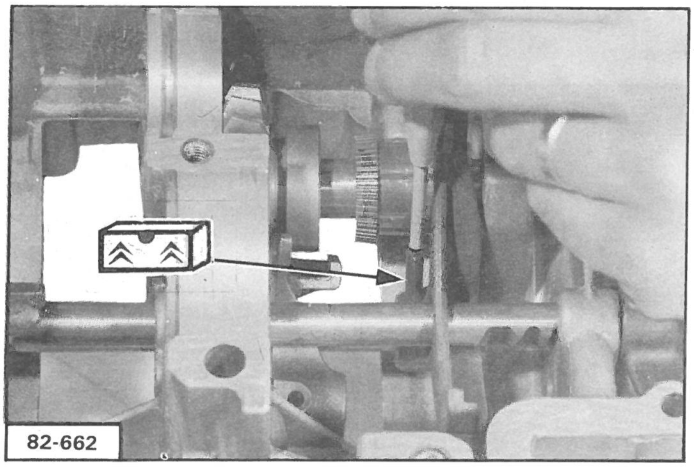
82-241



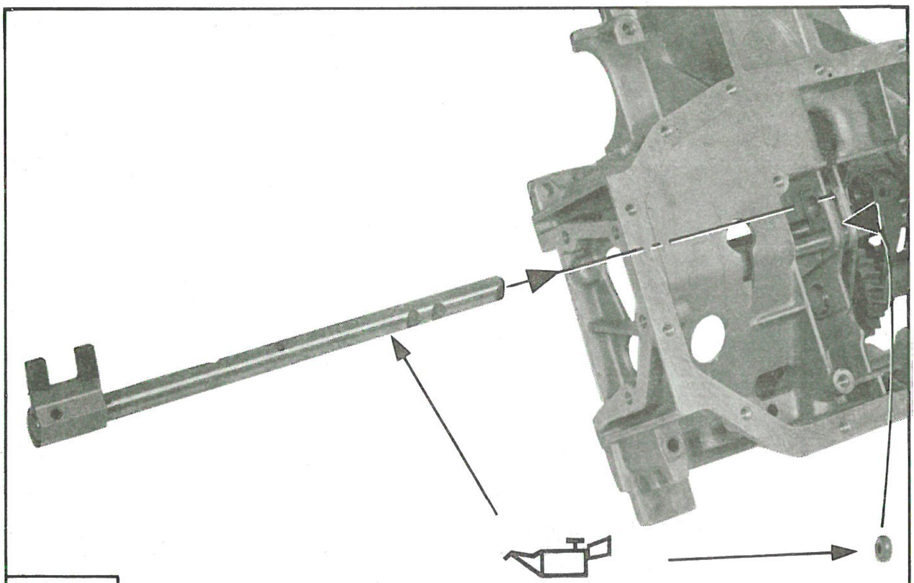
BX. 33-14



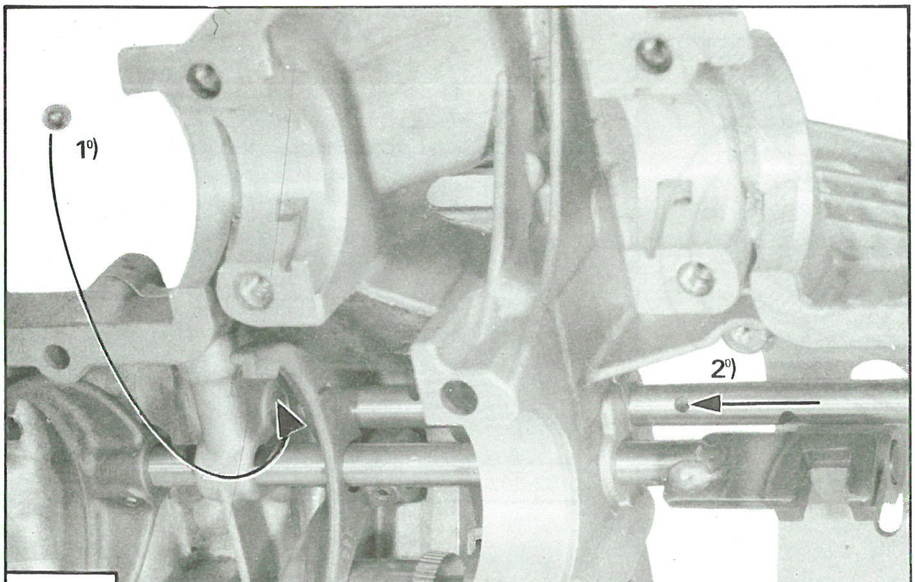
82-507



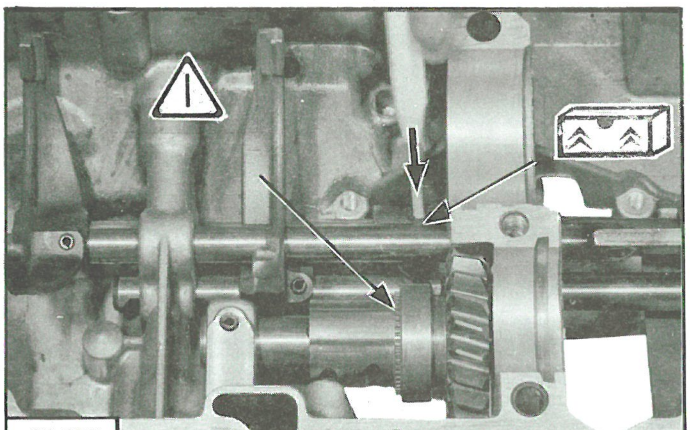
82-662



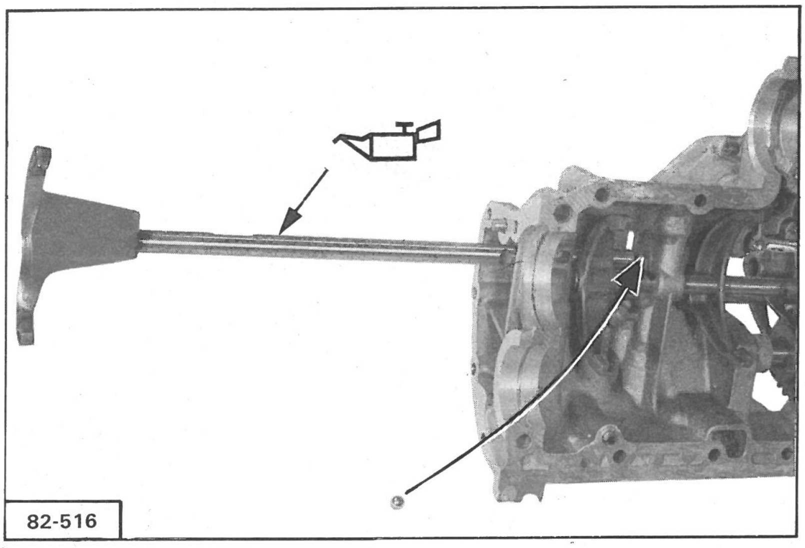
82-629

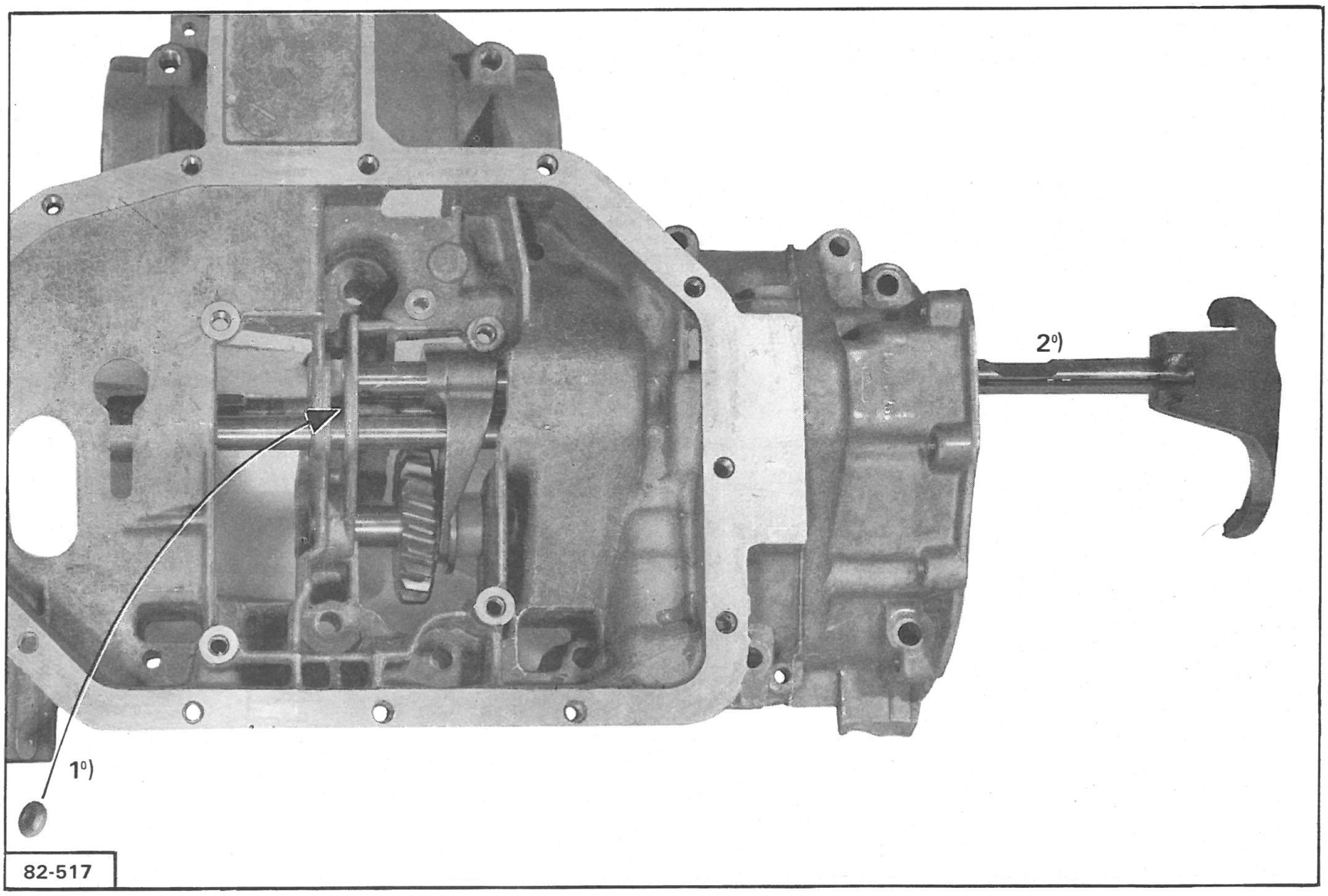


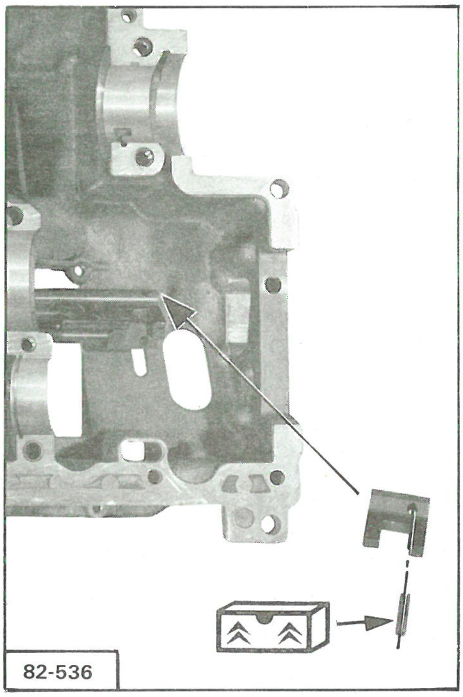
82-663

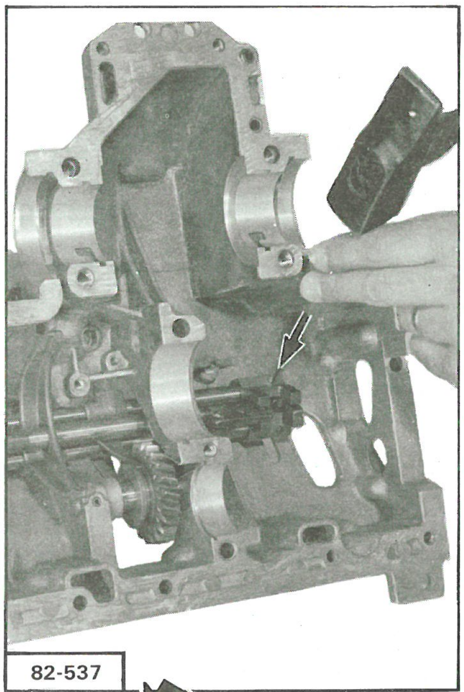


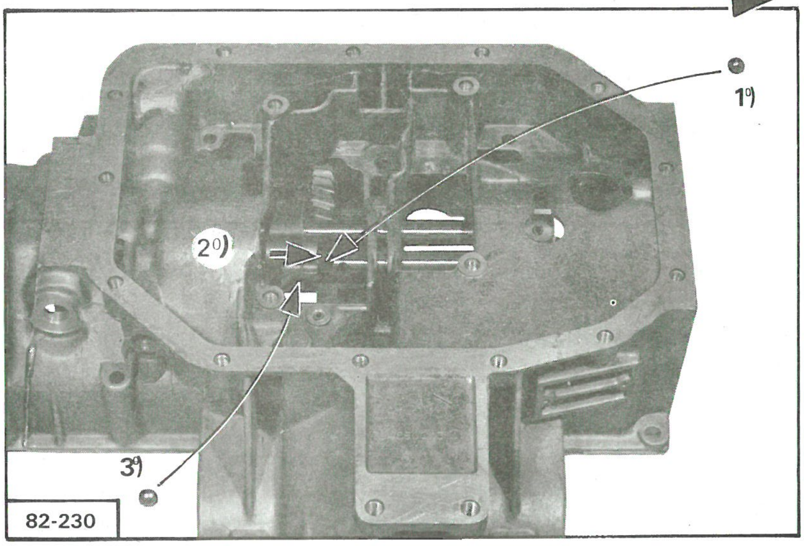
82-628


82-516

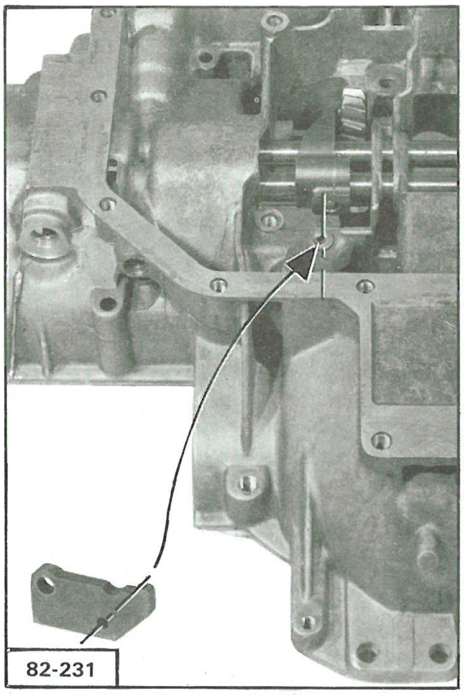

2°)
1°)
82-517

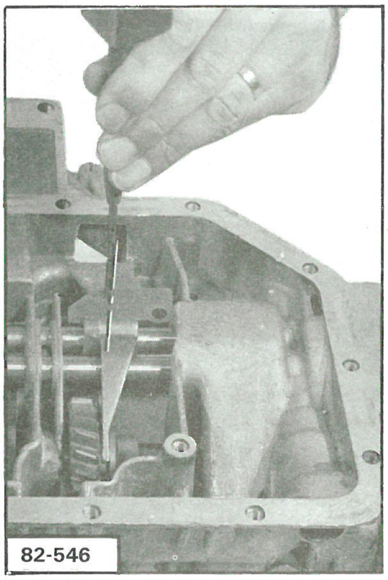

82-536

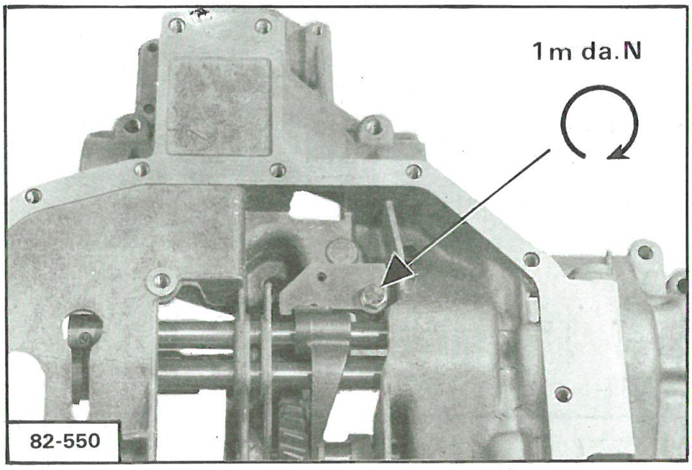

82-537



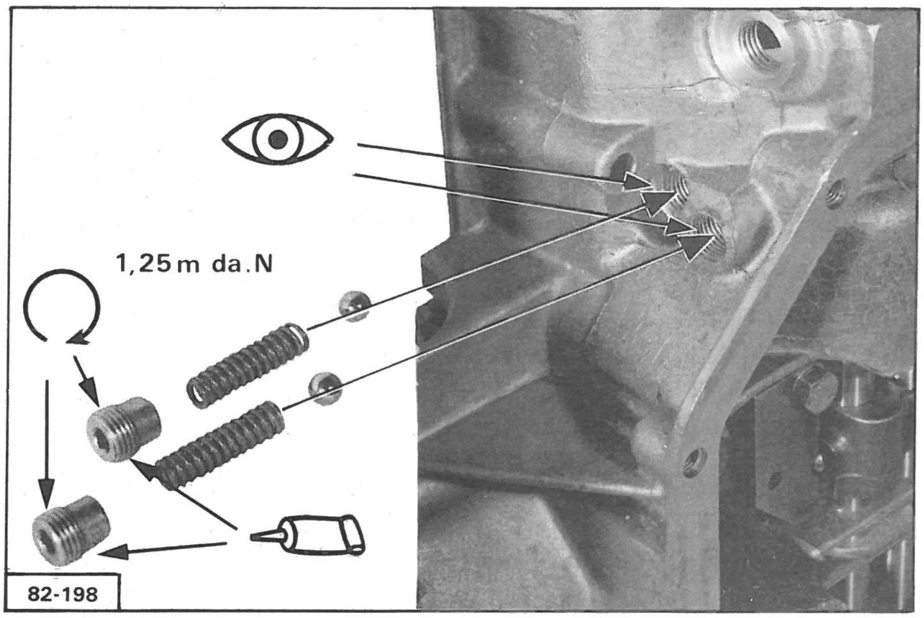
82-230


82-231

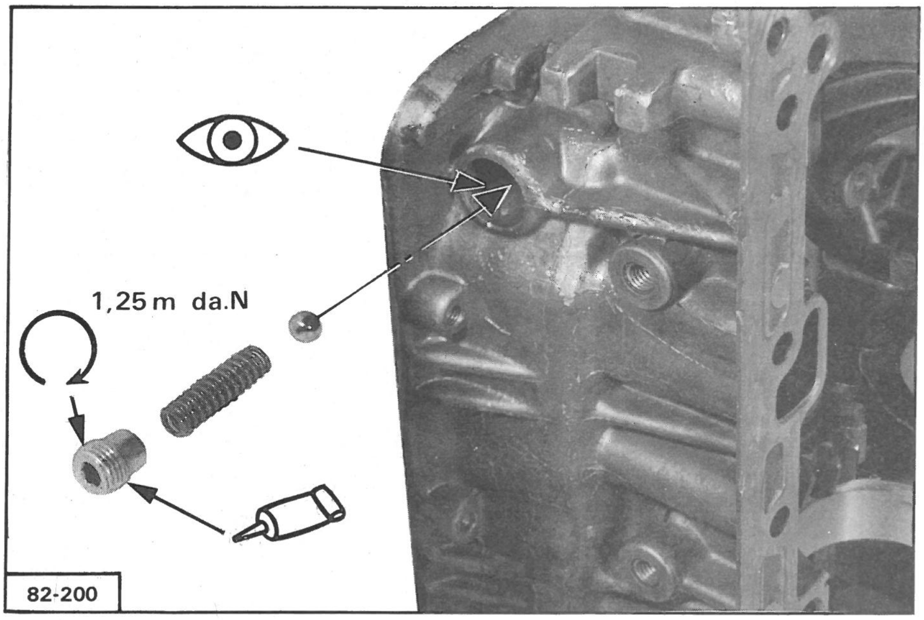

82-546



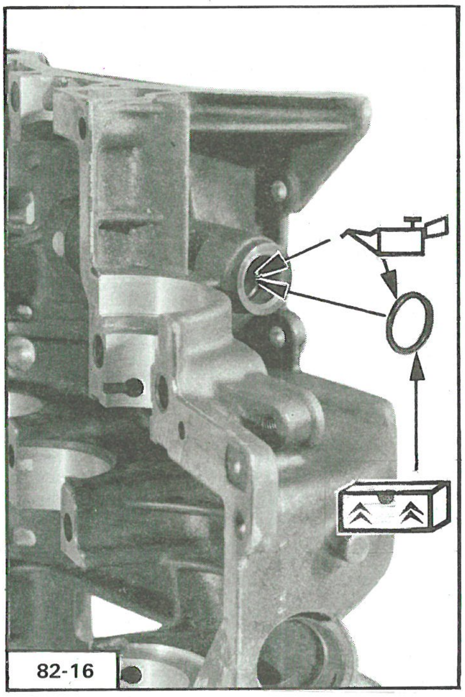
82-550



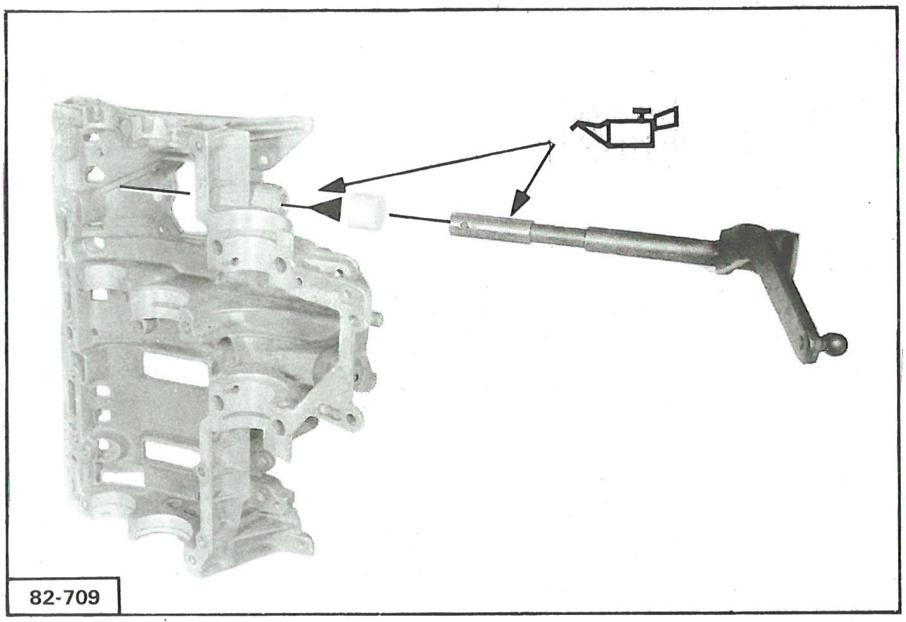
82-198



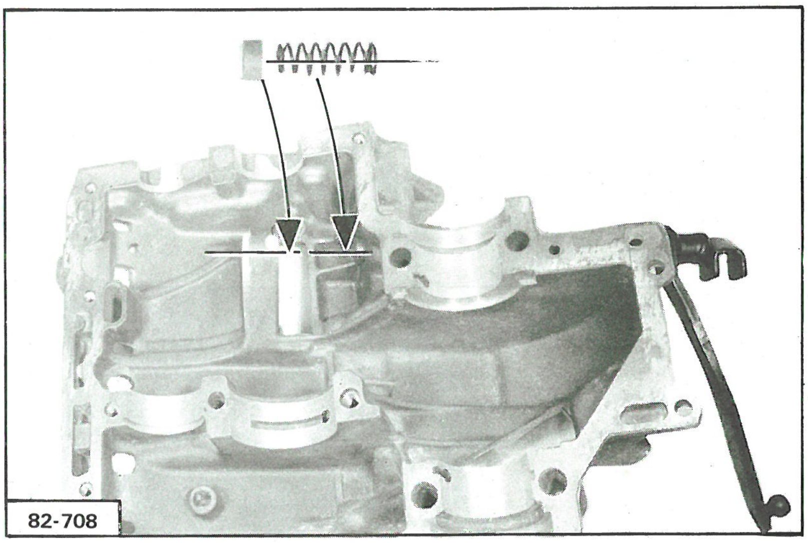
82-200



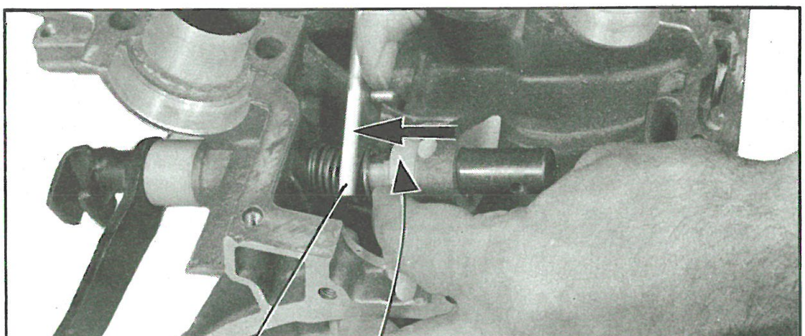
82-16



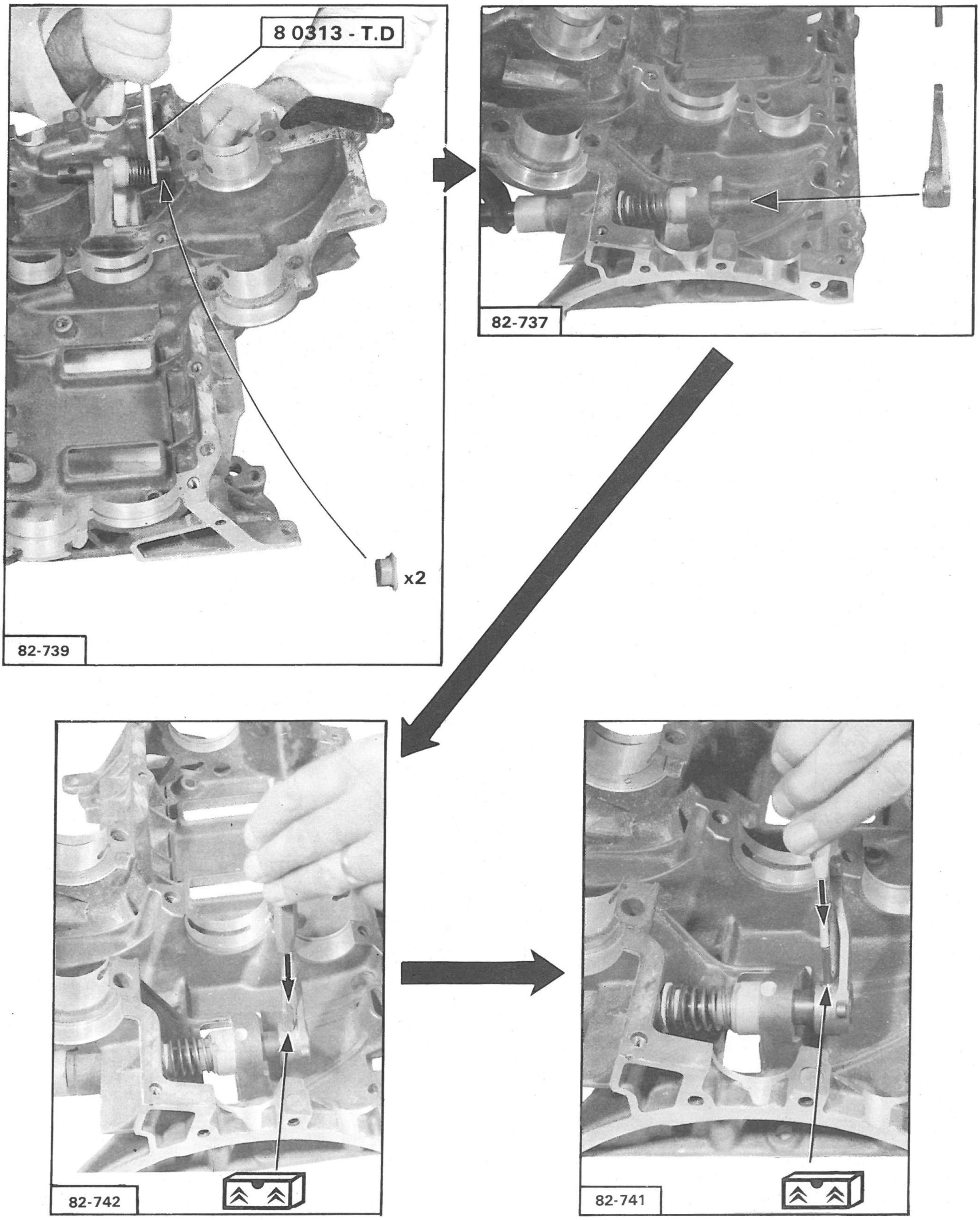
82-709

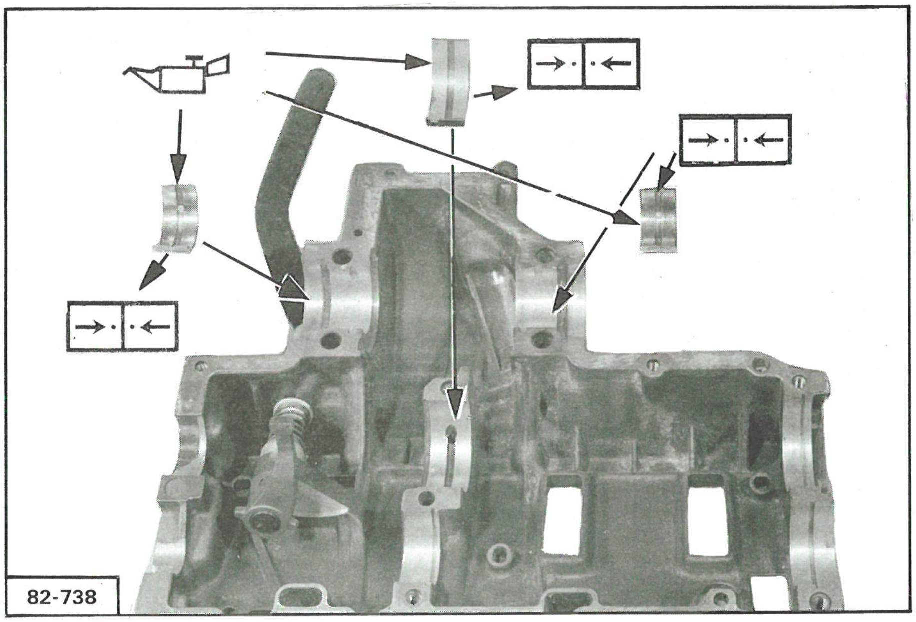


82-708

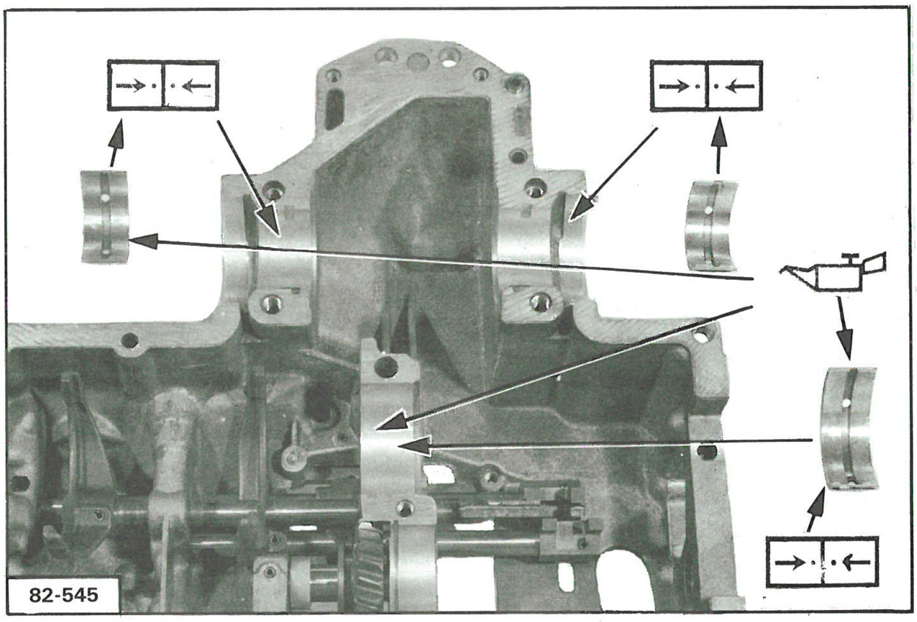


82-744

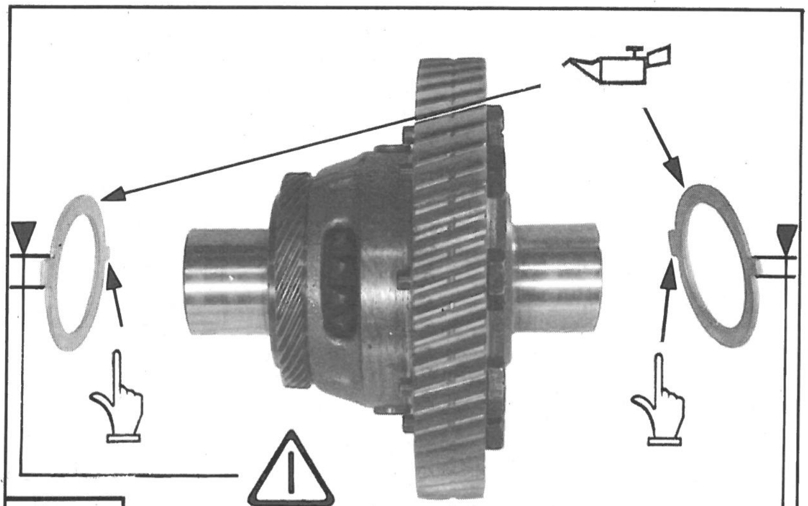

8 0313 - T.D
x2
82-739
82-737
82-742
82-741



82-738



82-545



82-549

(D) Die seitlichen Einstellscheiben so einbauen, dab die verkupferte Seite zum Ausgleichgetriebe und die Zapfen (▲) nach oben zeigen.

(DK) Sidelejernes flanger skal monteres med kobbersiden mod differentialet. Stoppene (▲) vendes opad.

(E) Las placas de topes laterales se montarán con la superficie de cobre hacia el lado del diferencial. Los espárragos (▲) hacia arriba.

(GB) The thrust-rings are to be fitted with their coppered faces towards the differential. The lugs (▲) upwards.

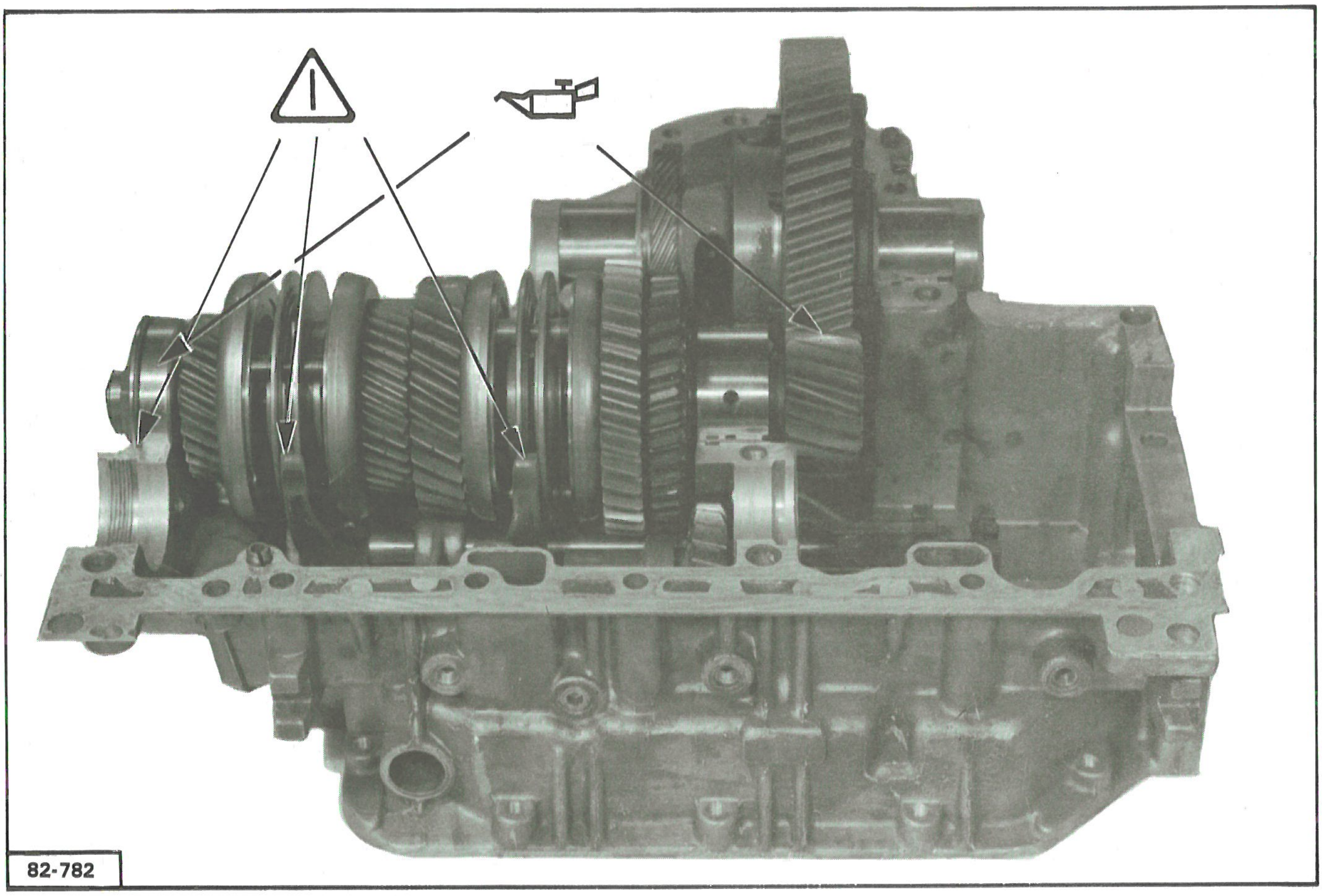
(I) I coperchi degli arresti loterali saranno montati con la superficie ramato rivolta verso il differenziale. I pernetti (▲) verso l'alto.

(NL) De drukringen aan weerszijden van het differentieel moeten met de verkoperde zijde naar het differentieel gemonteerd worden. De nokken (▲) naar boven.

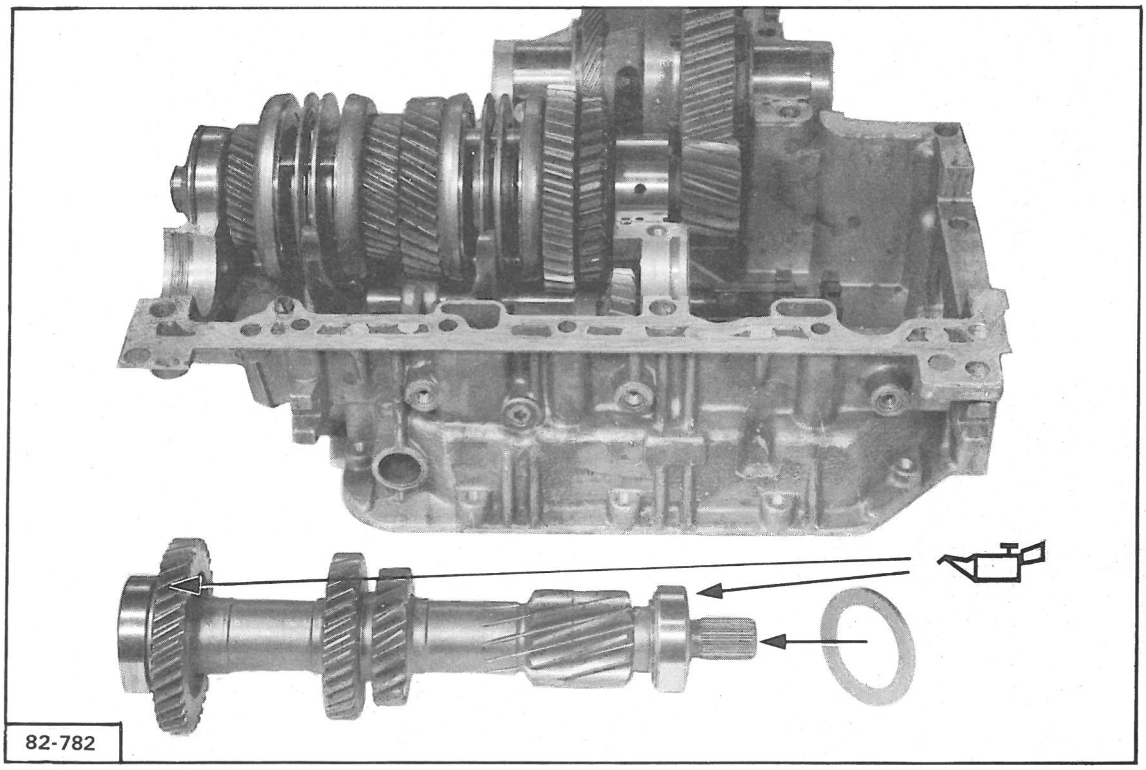
(P) As anilhas de encosto laterais serão montadas, face cobreada do lado do diferencial. As saliencias (▲) para cima.

(S) Axialstoppsbrickorna skall monteras med den förkopprade sidan vänd mot differentialen. Tungorna (▲) uppåt.

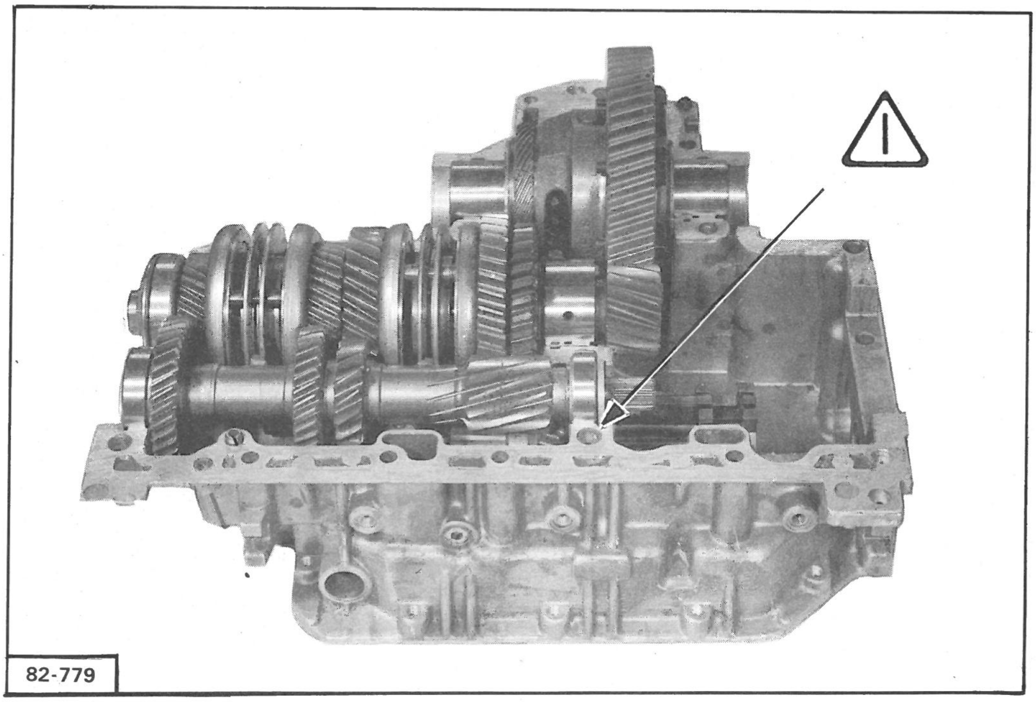
(F) Les flasques de butées latérales seront montées, face cuivrée côté différentiel. Les ergots (▲) vers le haut.



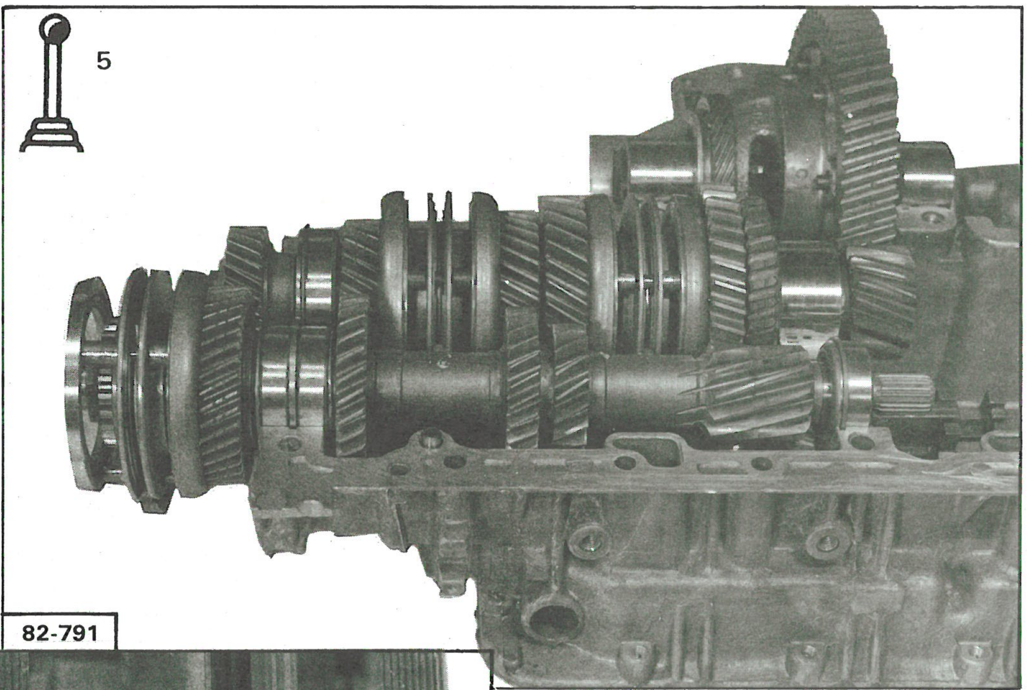
82-782



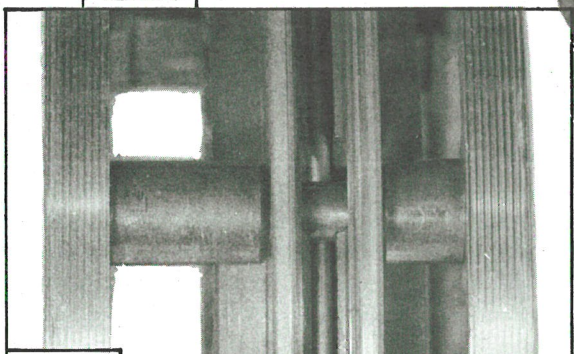
82-782



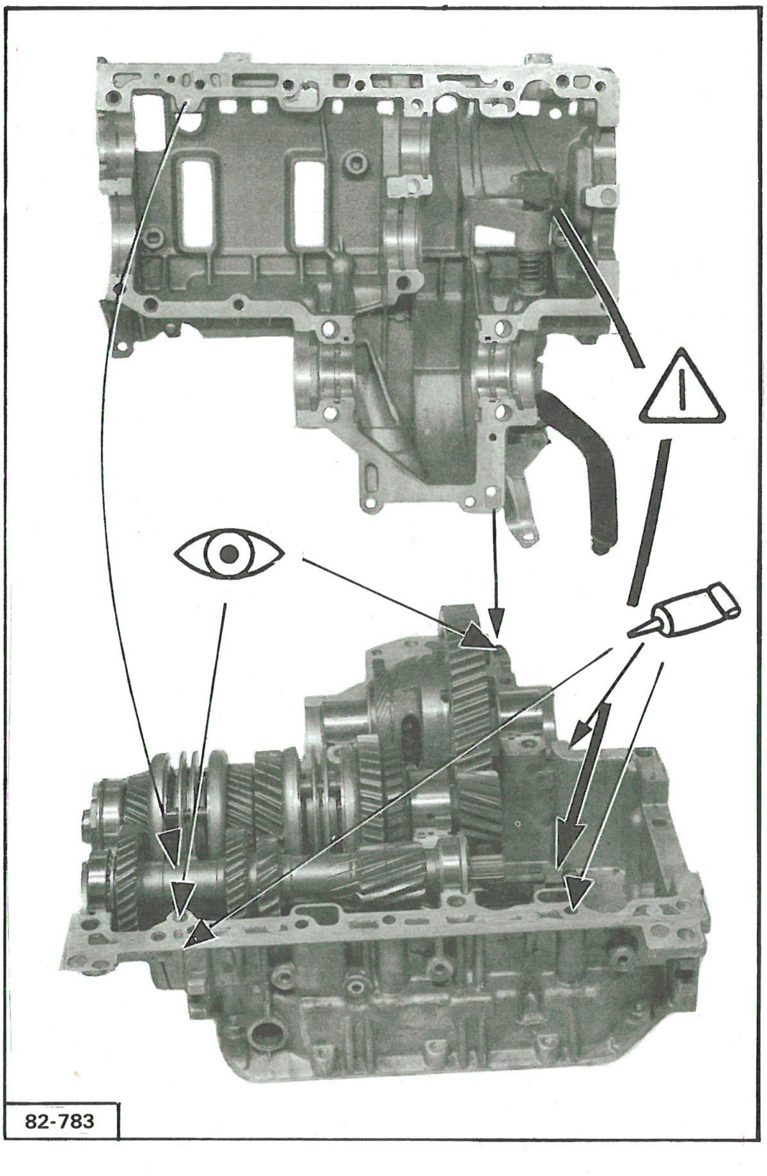
82-779



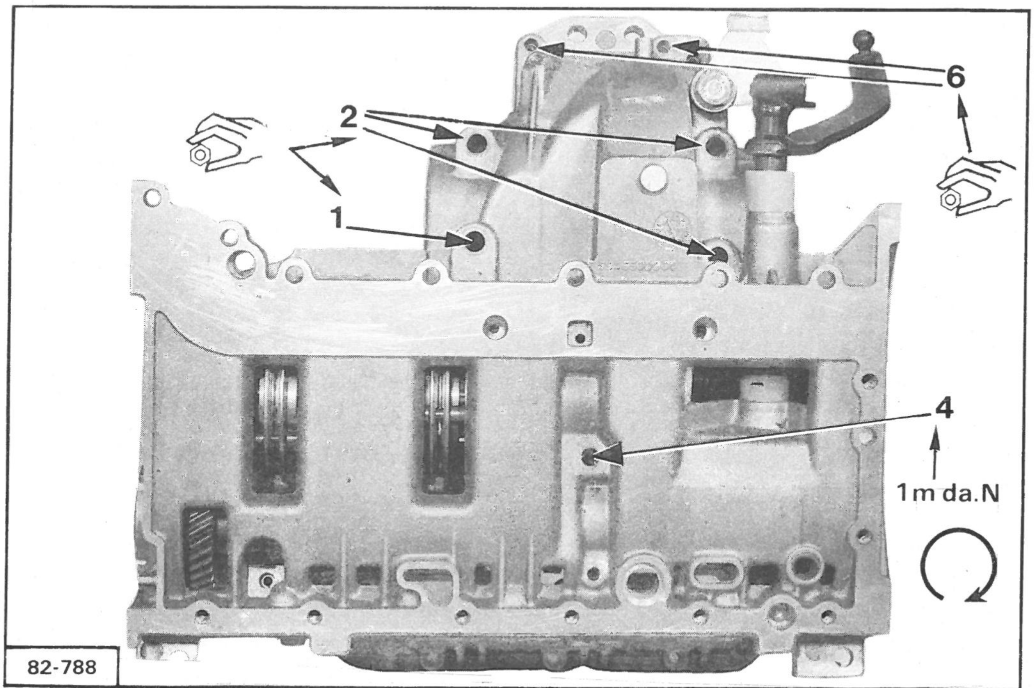
82-791



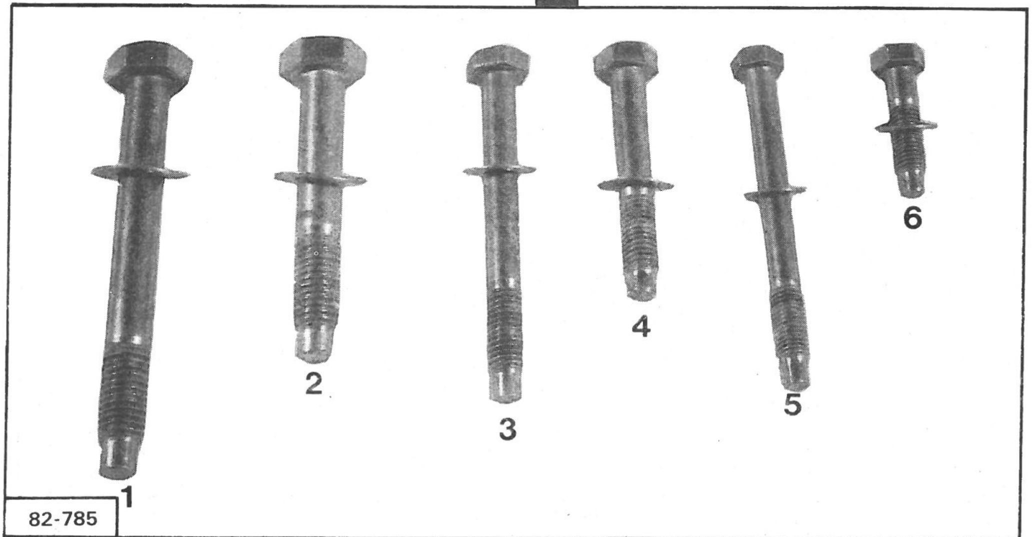
82-787



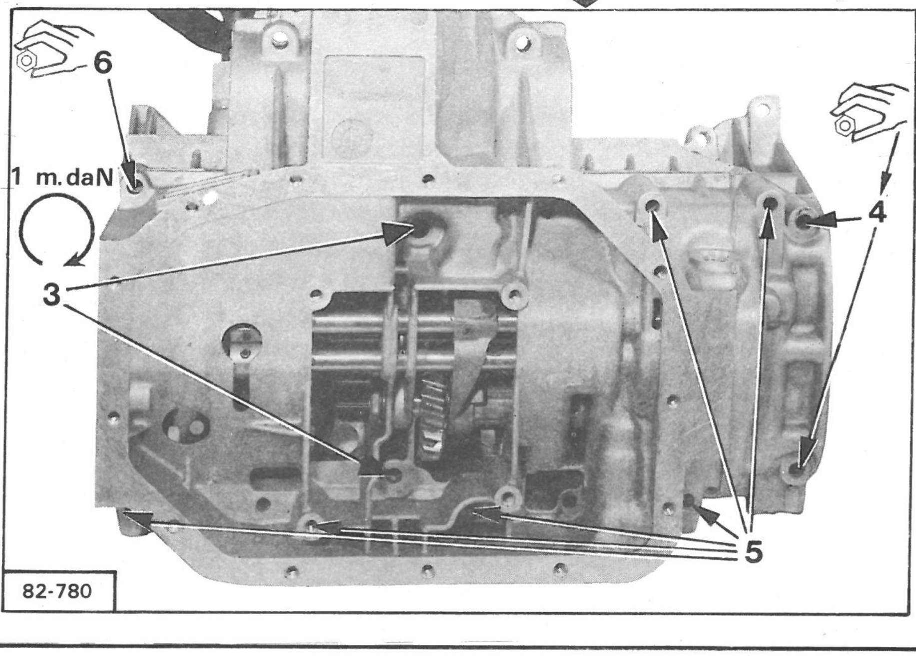
82-783



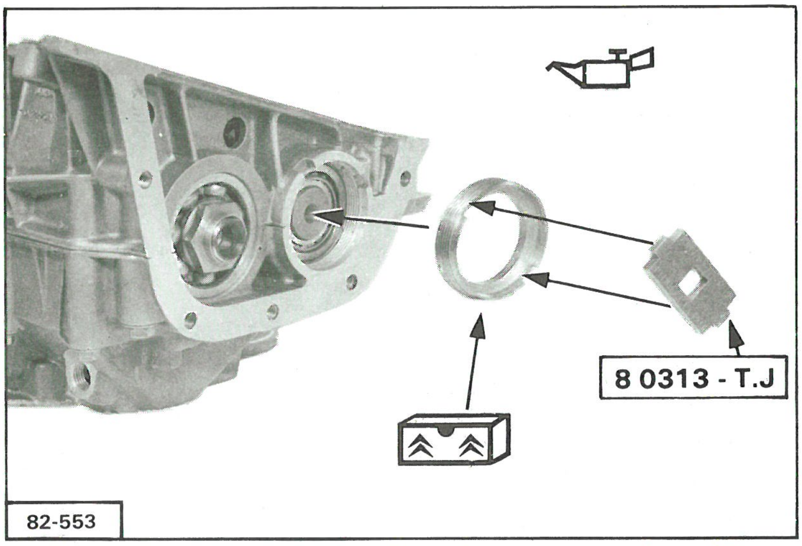
82-788



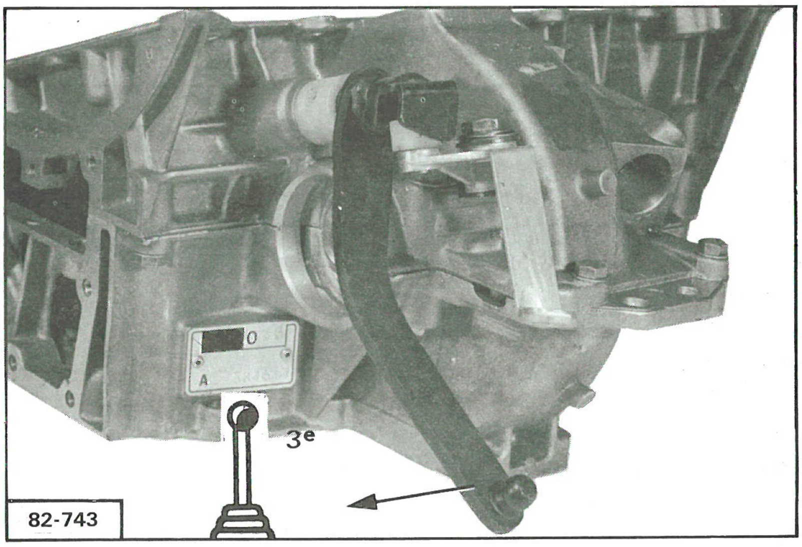
82-785



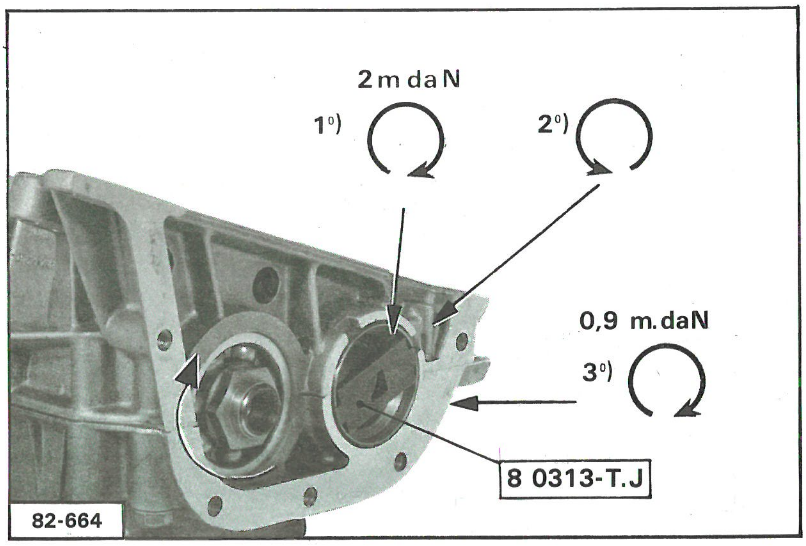
82-780



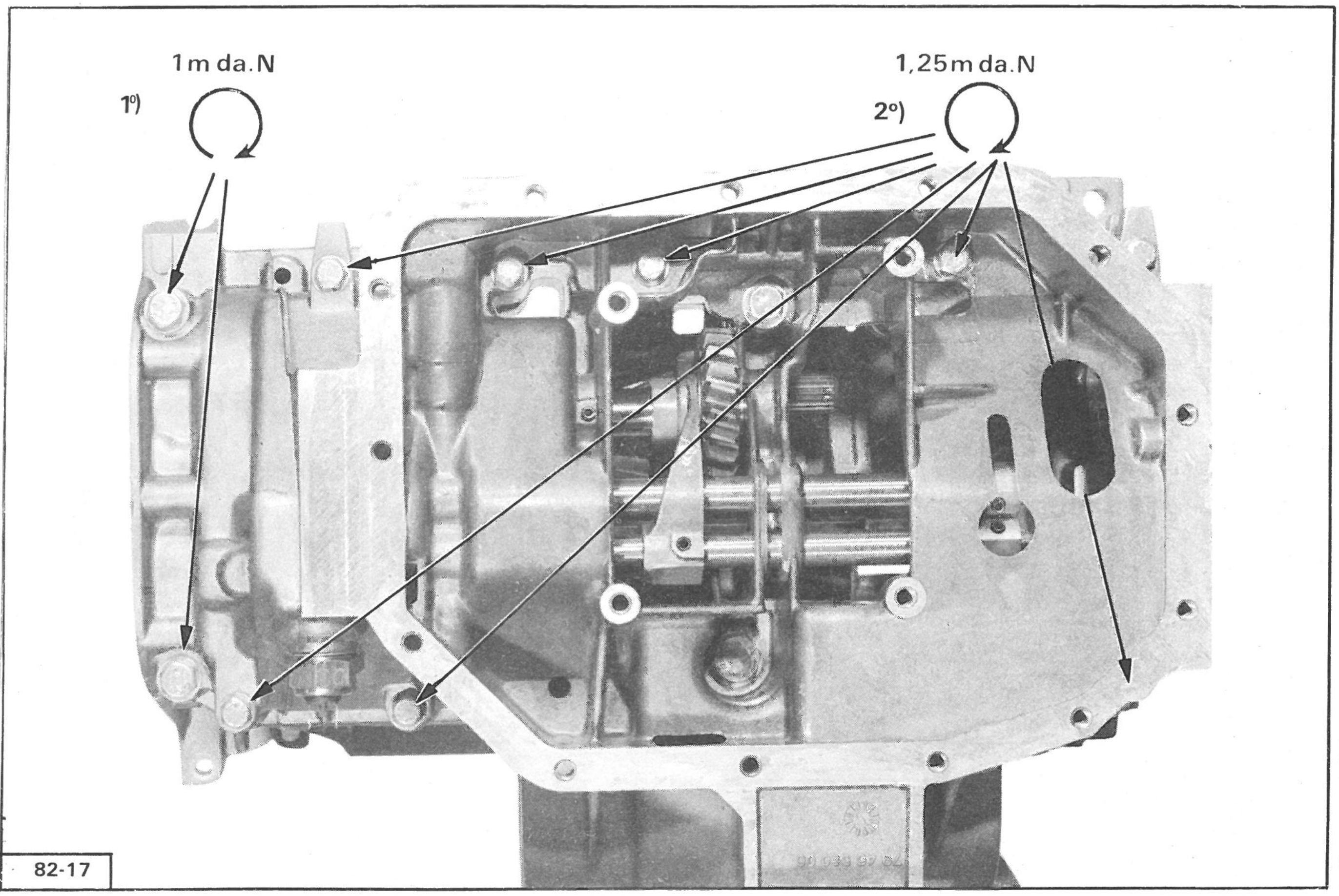
82-553



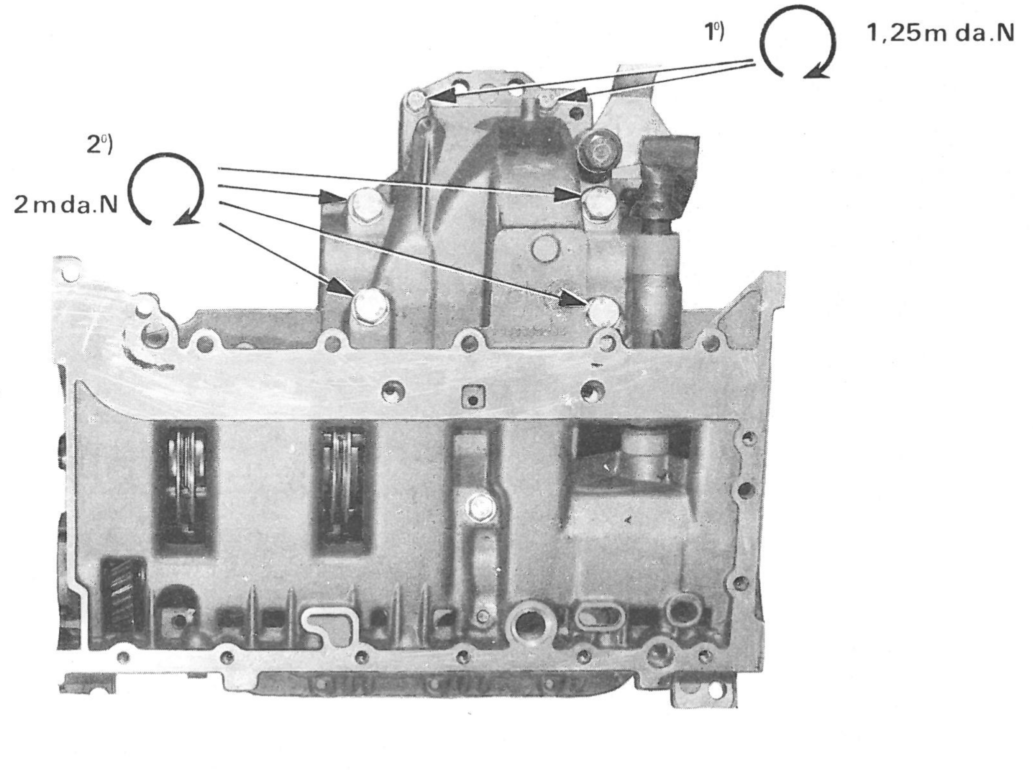
82-743



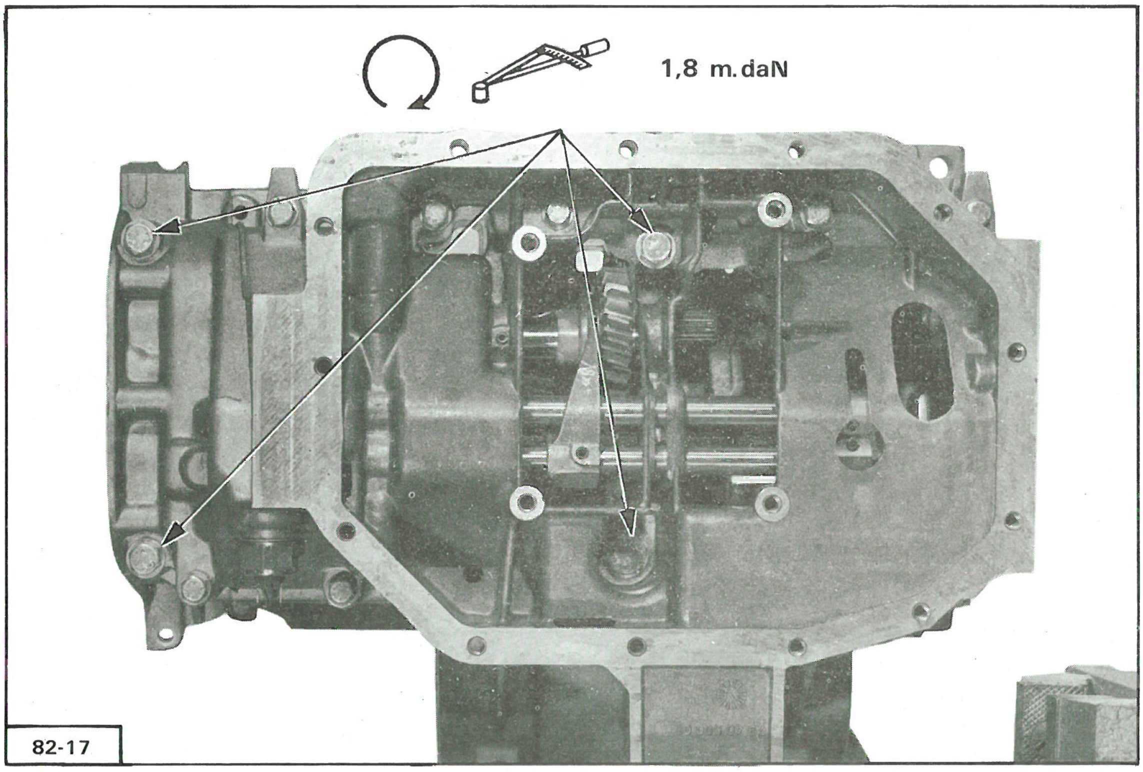
82-664



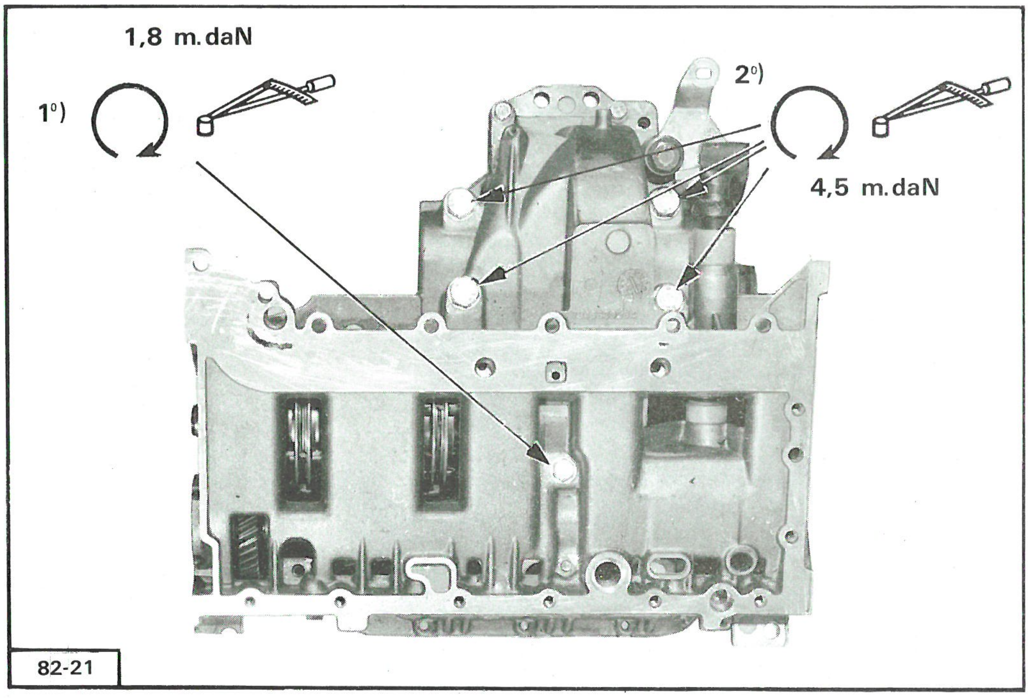
82-17



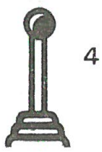
82-21

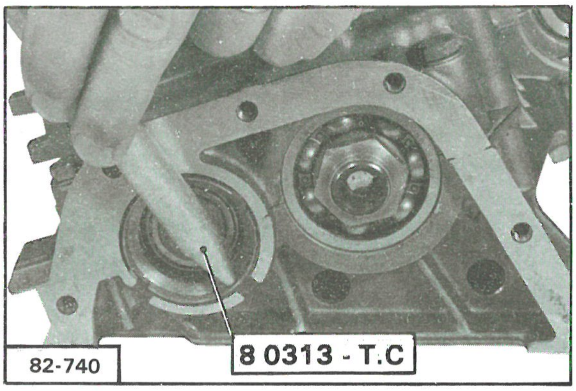


82-17

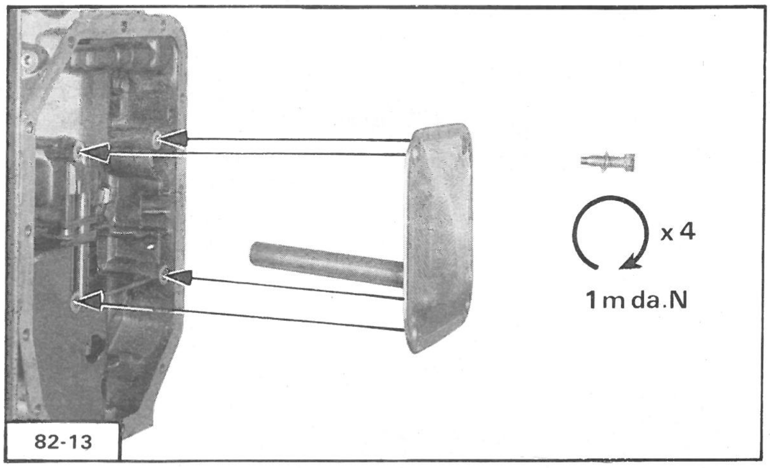


82-21

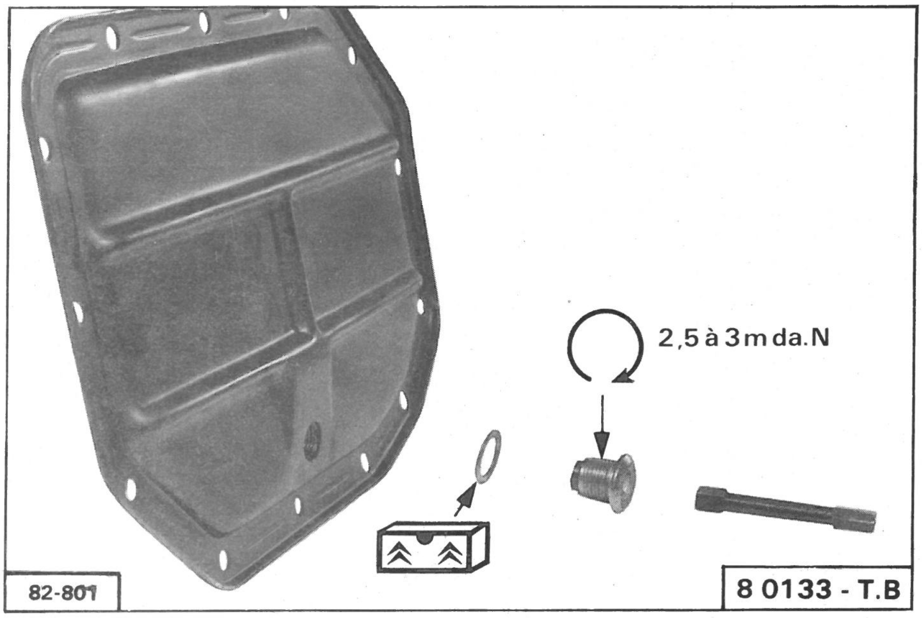




82-740

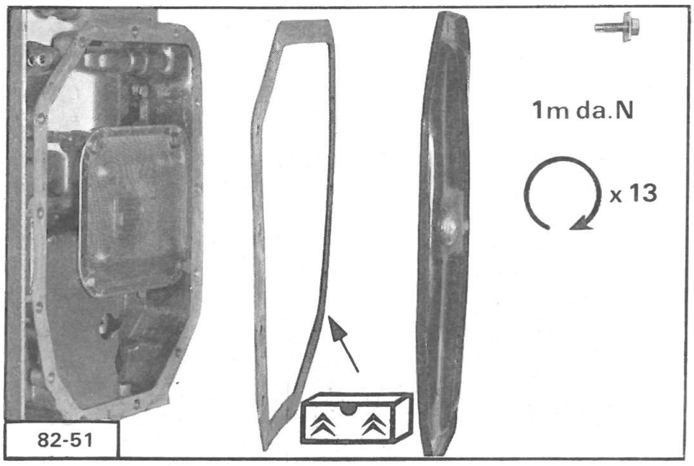


82-13

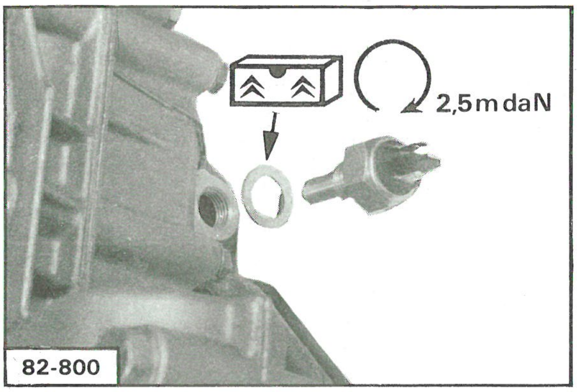


82-801

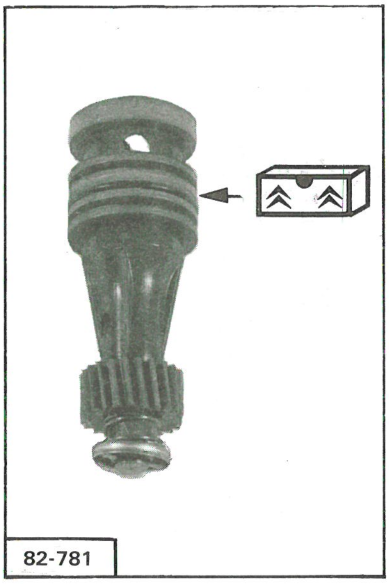
8 0133 - T.B



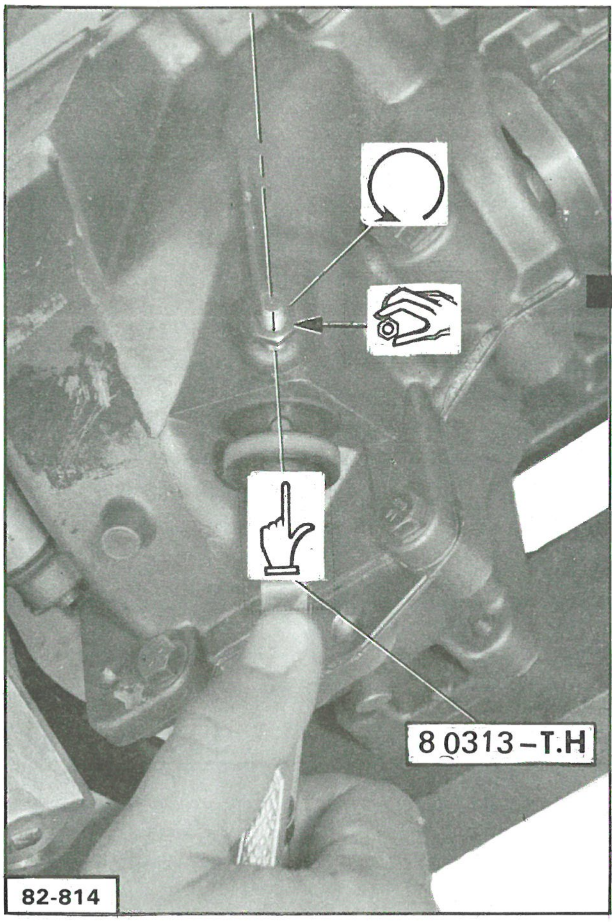
82-51



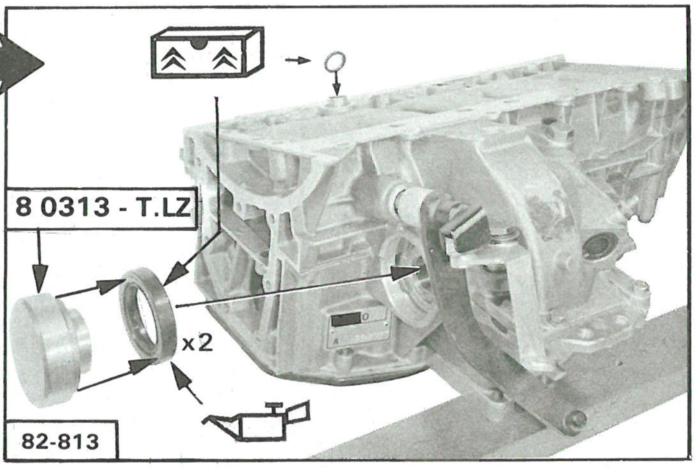
82-800



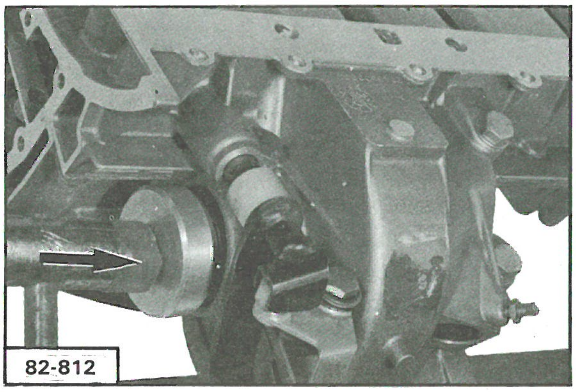
82-781



82-814



82-813



82-812

REMOVING AND FITTING A GEARBOX

REMOVAL.

Chock the front of the vehicle, wheels hanging free (the rear of the vehicle should also be chocked, so that the vehicle may be set in a horizontal position).

Remove :
- the battery,
- the air filter and its support.

Uncouple :
- the battery negative cable (1),
- the clutch control cable (2) *(keep connecting rod (4),*
- the three link-rods controlling the gear shifting at **« a », « b »**, and **« c », Fig. III,**
- the speedometer cable.

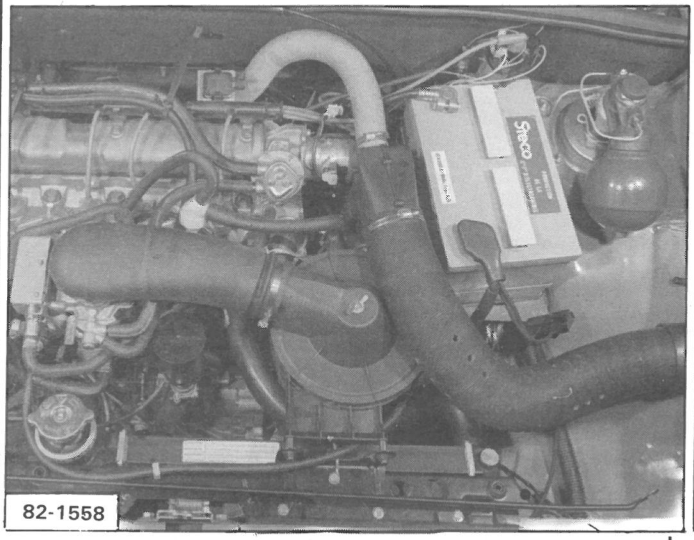
Disconnect the reversing lamp wiring harness (3).

Remove the wing protector (5).

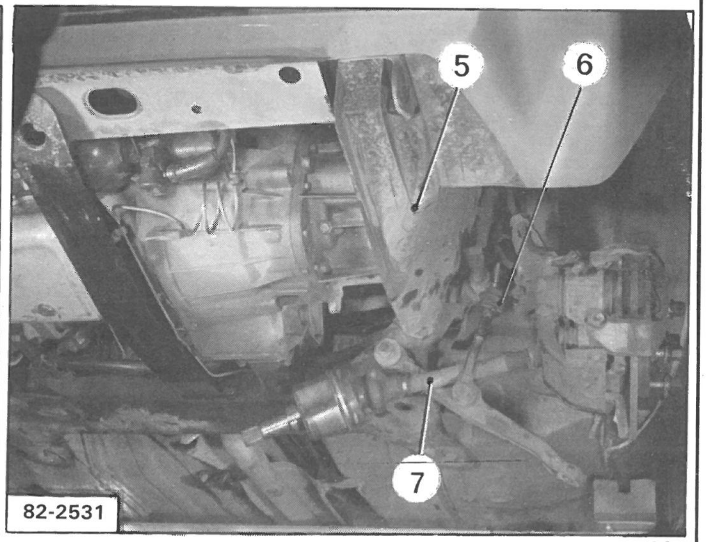
Uncouple the L.H. side drive-shaft (7), Fig. IV :
Uncouple the lower arm from the ball-joint.
Use the ball-joint puller **1892-T** *(leave the nut in position to protect the ball-joint stem).*
Uncouple link-rod (6) from the anti-roll bar.
Move the swivel apart and release the drive-shaft from the gearbox *(be careful : an oil leak may result from this operation).*

When removing the R.H. drive-shaft, IT IS NECESSARY to fit tools 7101-T.N and M in the differential outlet Fig. V, to avoid the rotation of the sun gears.
The R.H. drive-shaft should be re-engaged in the differential before removing the tools.

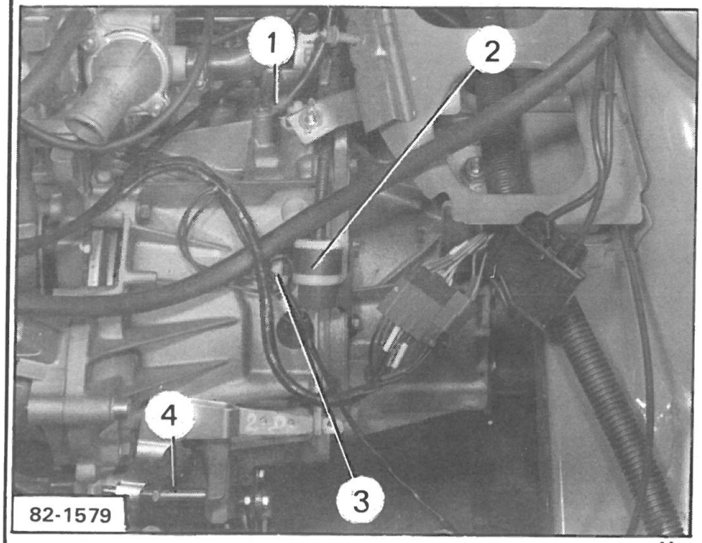
Uncouple the R.H. drive-shaft, Fig. VI :
Remove the two nuts (8) of the drive-shaft bearing.
Uncouple lower arm (9) from the ball-joint.
Move the swivel apart and release the drive-shaft from the gearbox.
Keep the swivel aside using a shim (10) be careful not to deteriorate the ball-joint rubber.



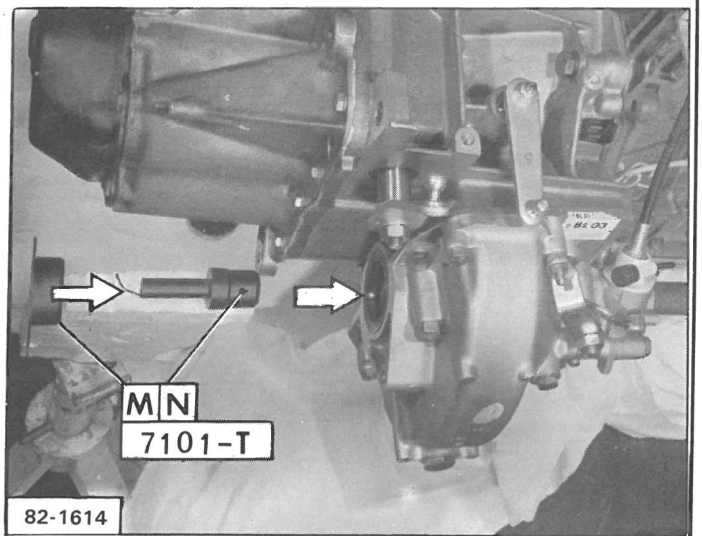
I



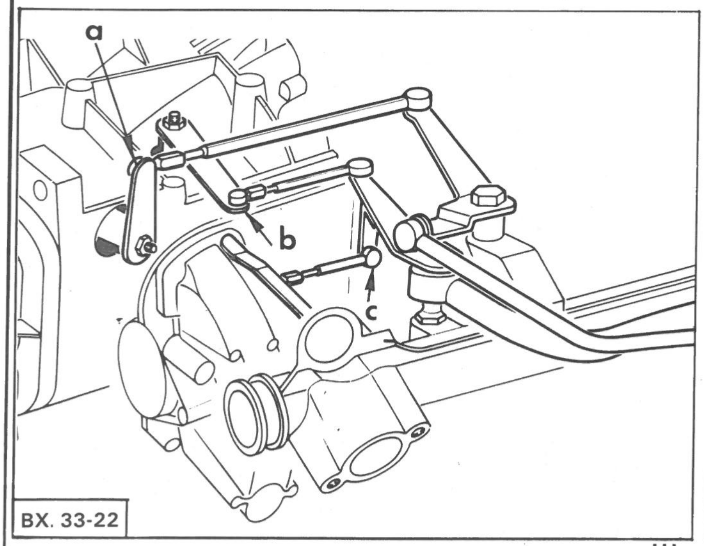
IV



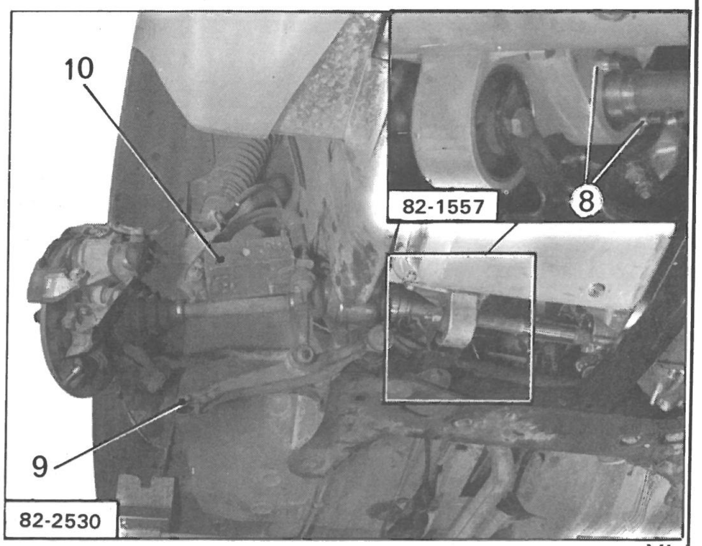
II



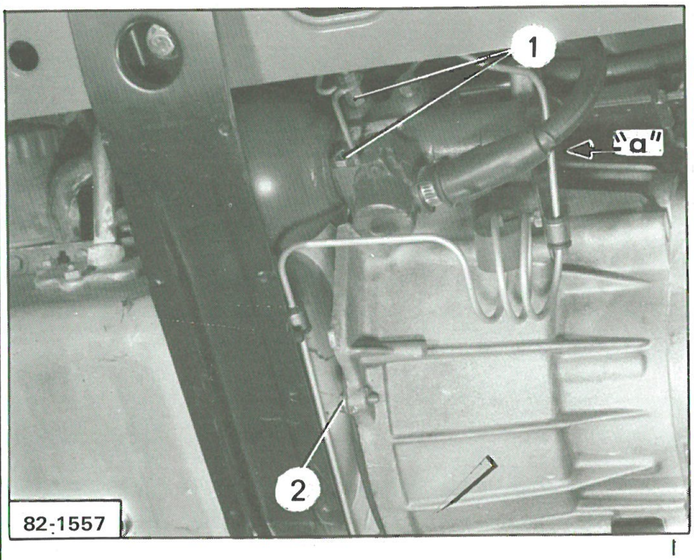
V



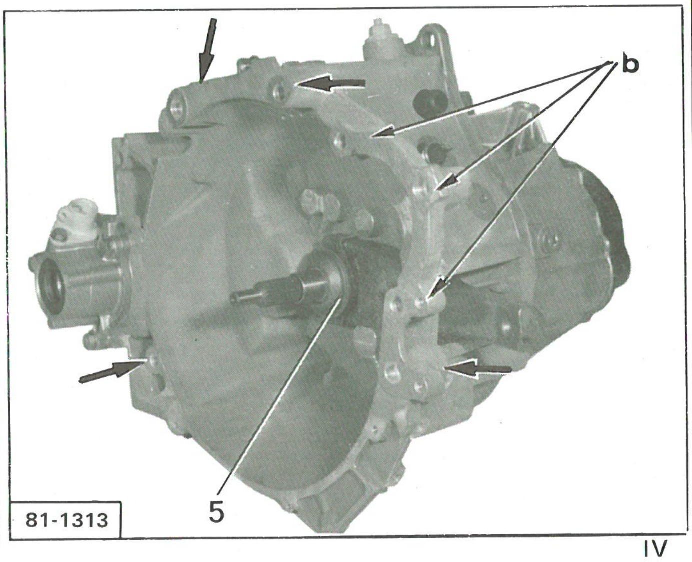
III



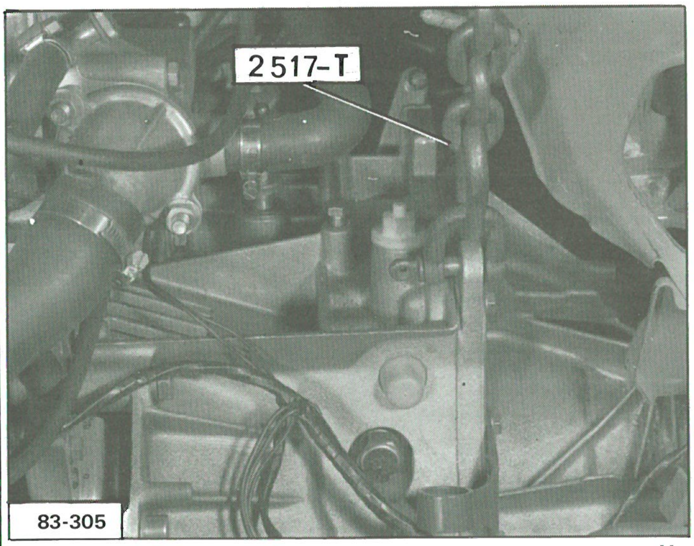
VI



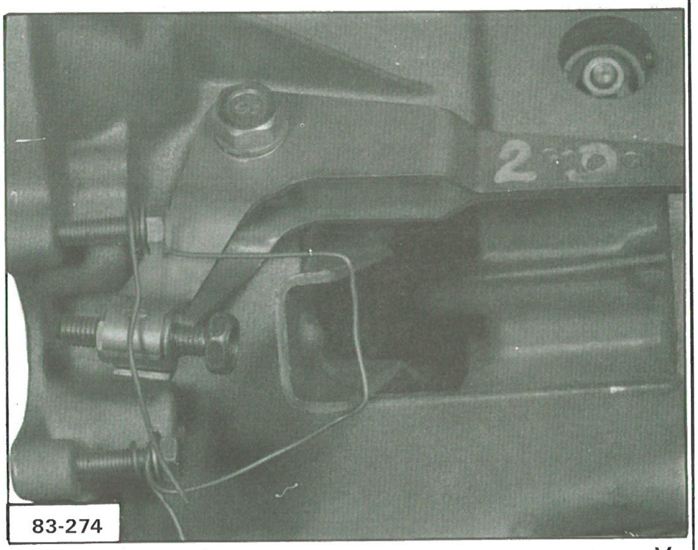
I



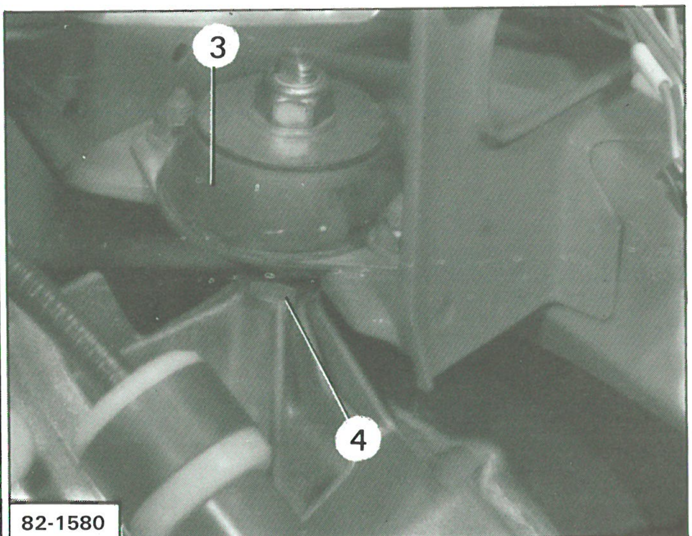
IV



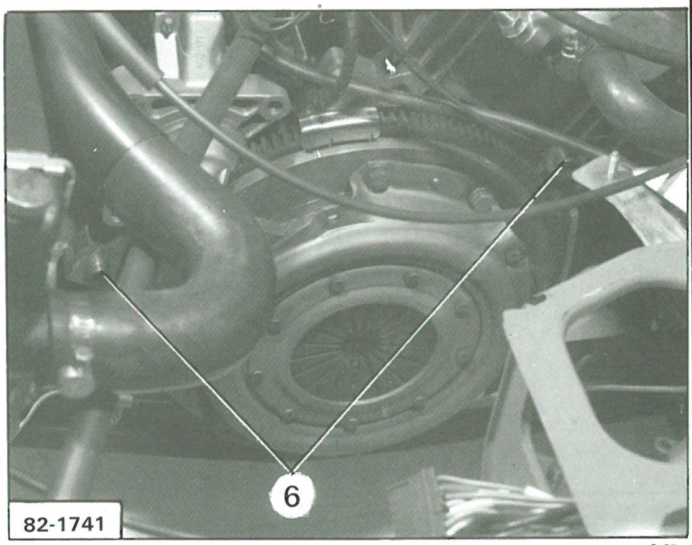
II



V



III



VI

Remove :

- screws (1) securing the pressure-regulator as well as the screw at « **a** » on the pressure regulator rear support fixed on the gearbox,
- the three screws (2) on the protective panel of the engine flywheel, **Fig. I.**

Sling the gearbox, using sling **2517-T Fig. II** and remove support (3) as well as support (4) spindle, **Fig. III.**

Fit the engine on the sidemember and remove the coupling screws, **Fig. IV.**
(4 coupling screws (➞) for the engine-gearbox unit and 3 securing screws at « **b** » for the starter motor).

Move the gearbox aside from the engine and release it from underside the vehicle.

FITTING.

When handling the gearbox, hold the clutch thrust bearing (5) in position against its guide by clamping the fork, see Fig. V.

Check that the two centring bushes (6) are in position.
Slightly lubricate the thrust bearing guide and the control shaft.

Offer up the gearbox, facing the engine.
Screw the two pilots **7105-T** inside the centring bushes (6).

If necessary, rotate the engine to insert the disc splines.
Set the upper screw and remove the pilots, set the screws coupling the engine-gearbox unit and those securing the starter motor.
Tightening torque : 4 m.daN.

Fit the gearbox-supporting shaft (4) (LOCTITE FRENETANCH on threads).
Tightening torque : 3.5 m.daN.

Set the support (3).
Nut tightening torque : 3.5 m.daN.
Screw tightening torque : 1.8 m.daN.

Couple the clutch control cable.
Fit connecting rod (3), check the correct operation of the clutch and adjust the pedal travel, **Fig. I.**

Couple :
- the link-rods controlling the gears,
- the speedometer cable,
- the battery negative cable (1).

Connect the reversing lamp wiring harness (2).

Fit :
- the protective panel of engine flywheel (4),
- the pressure-regulator,
- the air filter and its support,
- the battery.

Couple the R.H. drive-shaft, Fig. III, IV and V :
Slightly grease the outer bush of the bearing.
Orientate the screw (6) heads to enable the drive-shaft to be engaged.
Fit bush (5) on the oil seal to protect the bearing surface while inserting the splines and the drive-shaft itself, remove bush (5).
Fit the screw (6) heads in their housing and fit nuts (7).
Tightening torque : 1 m.daN.

Wipe the cone of the swivel ball-joint before fitting it into the lower arm *(do not use solvent).*
Tightening torque : 3 m.daN.

Couple the L.H. drive-shaft :

Remove tools **7101-T.M and N.**
Insert the L.H. drive-shaft.
Couple the anti-roll bar link-rod.
Wipe the cone of the swivel ball-joint before fitting it into the lower arm *(do not use solvent).*
Tightening torque :
swivel ball-joint (9) : **3 m.daN**
anti-roll bar link-rod : **4.5 m.daN**

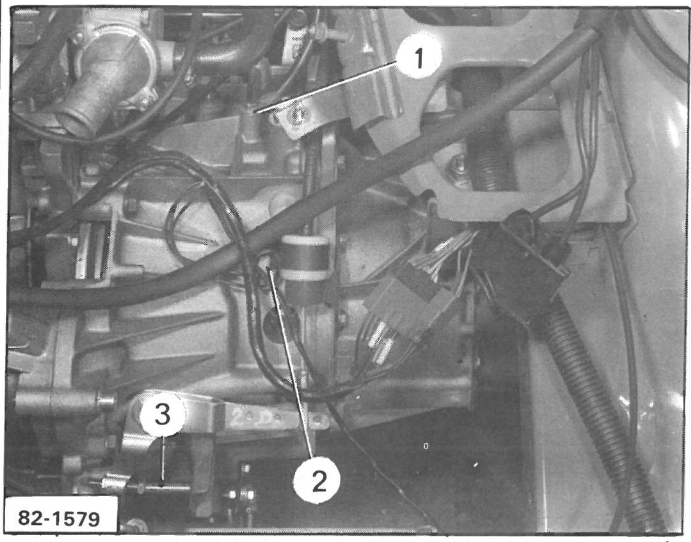
Fit the wing protector.

Lower the vehicle to the ground.

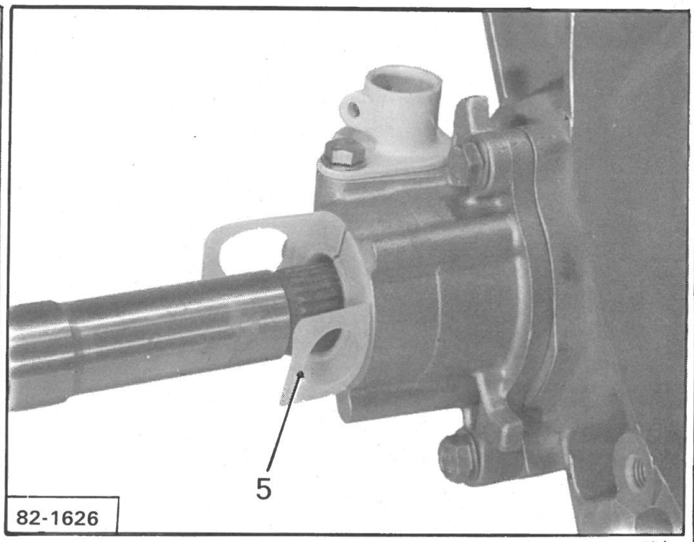
Check the gearbox oil level.

Check that all the gears engage correctly.

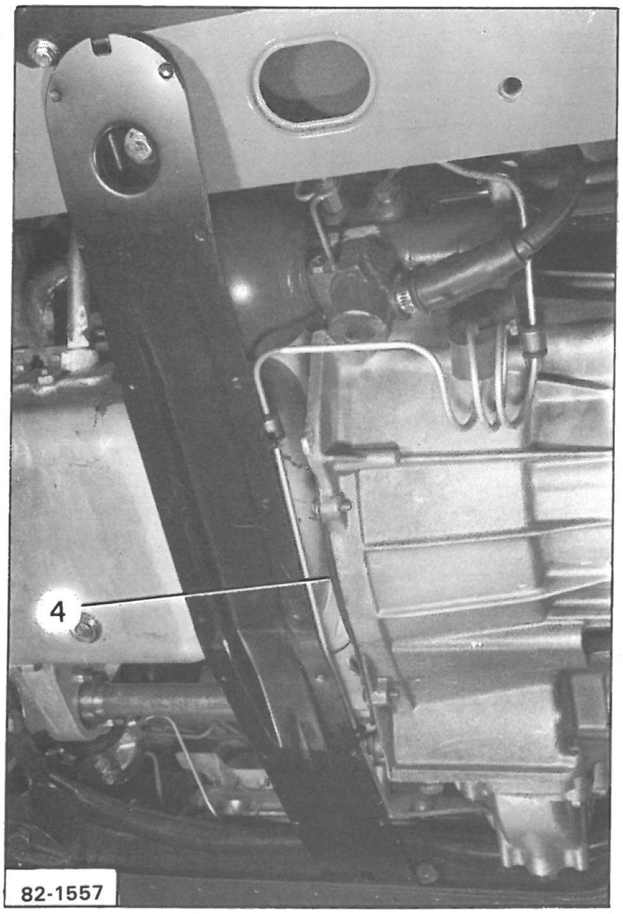
If necessary, adjust the control.



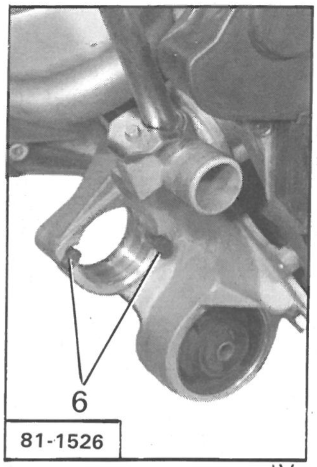
I



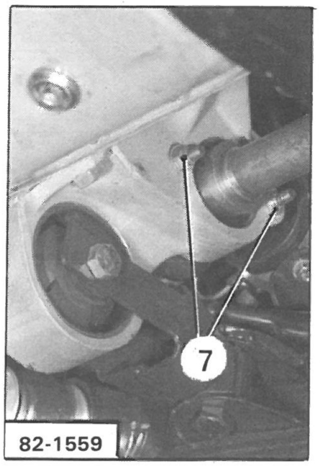
III



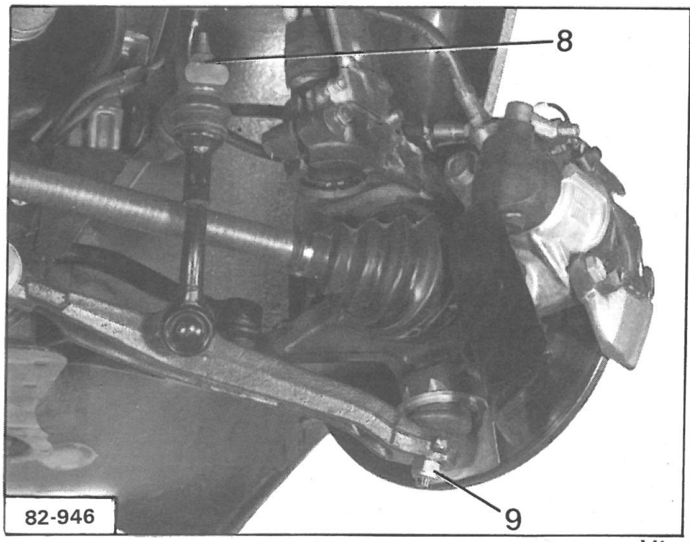
II



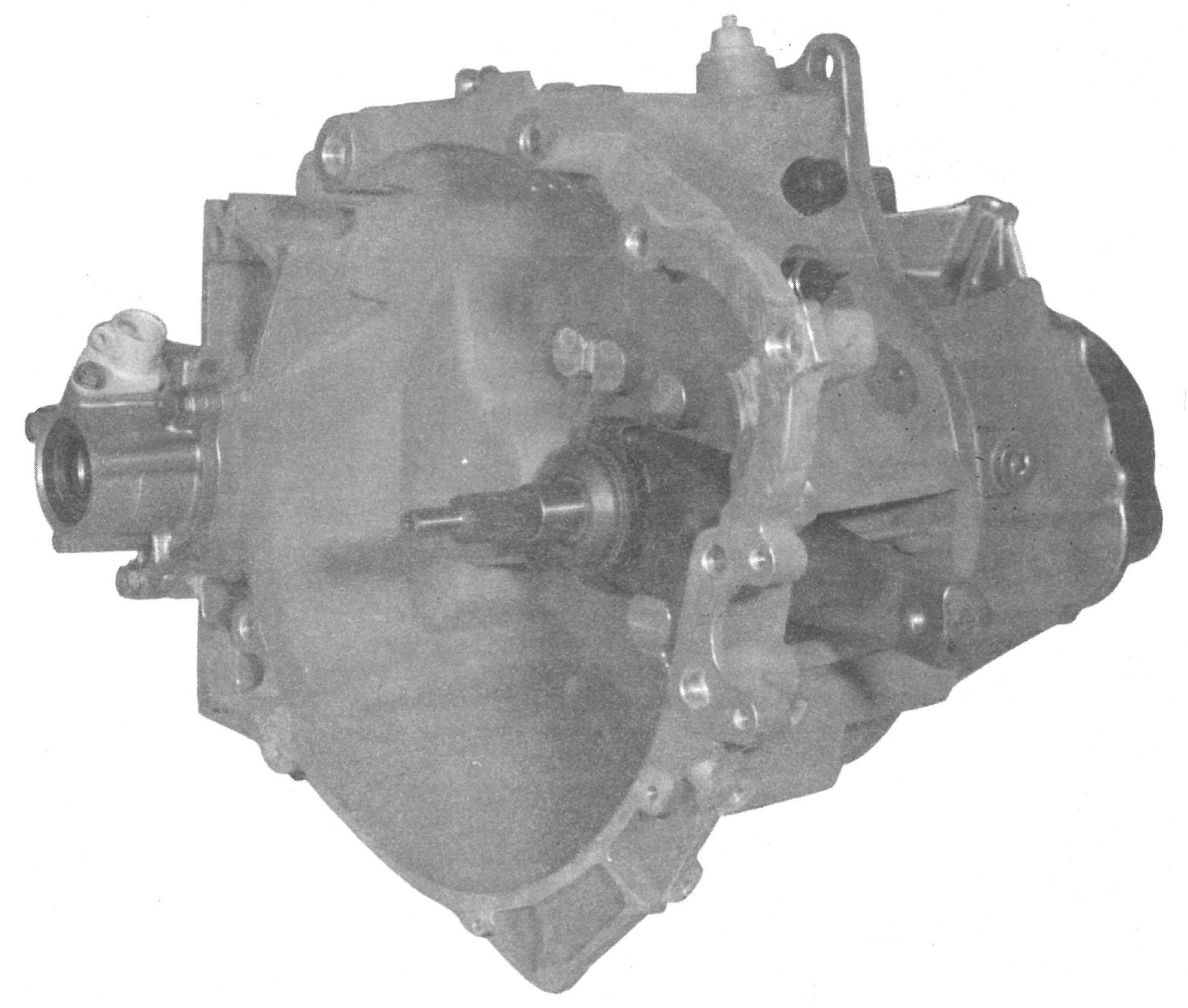
IV



V

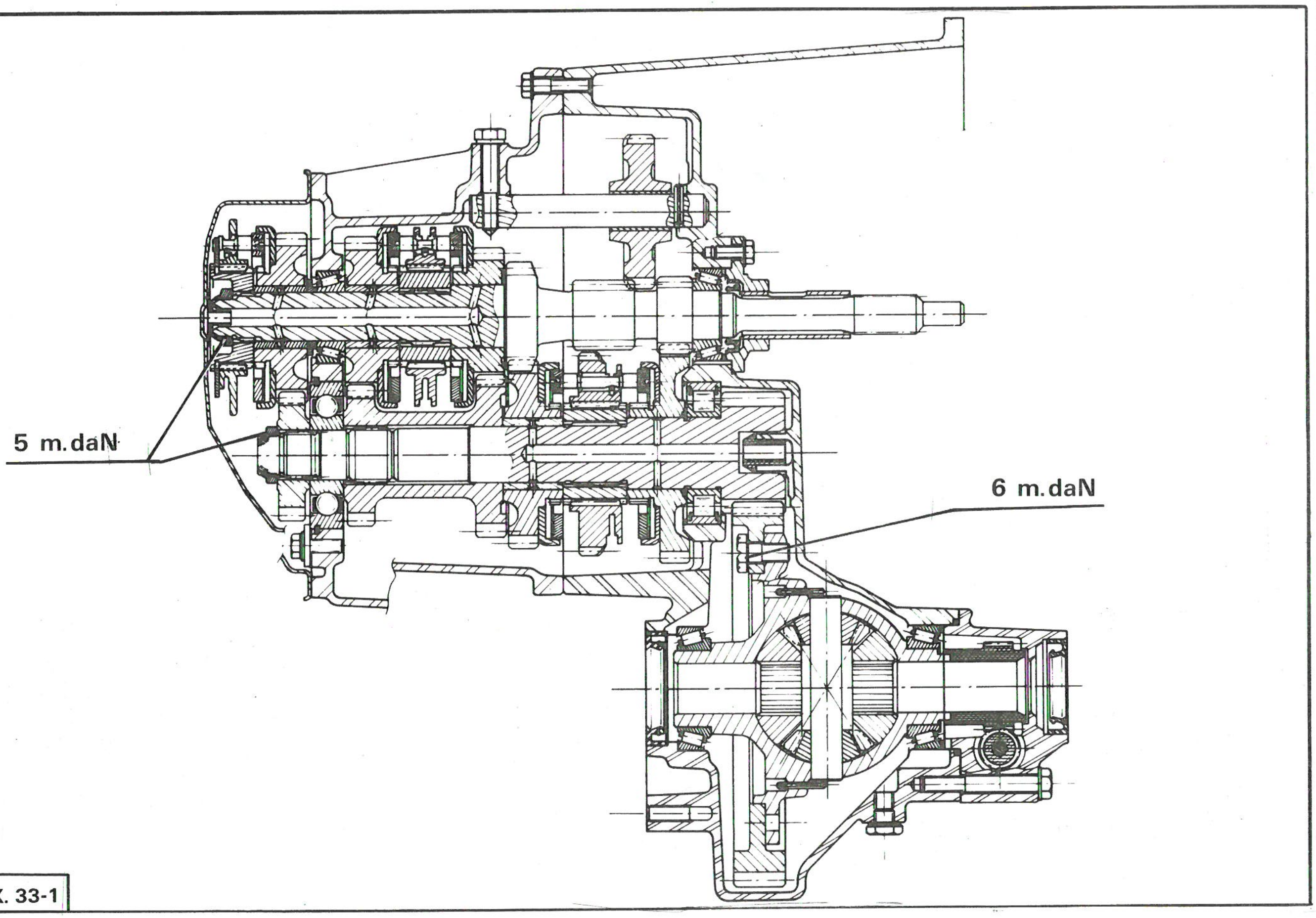


VI

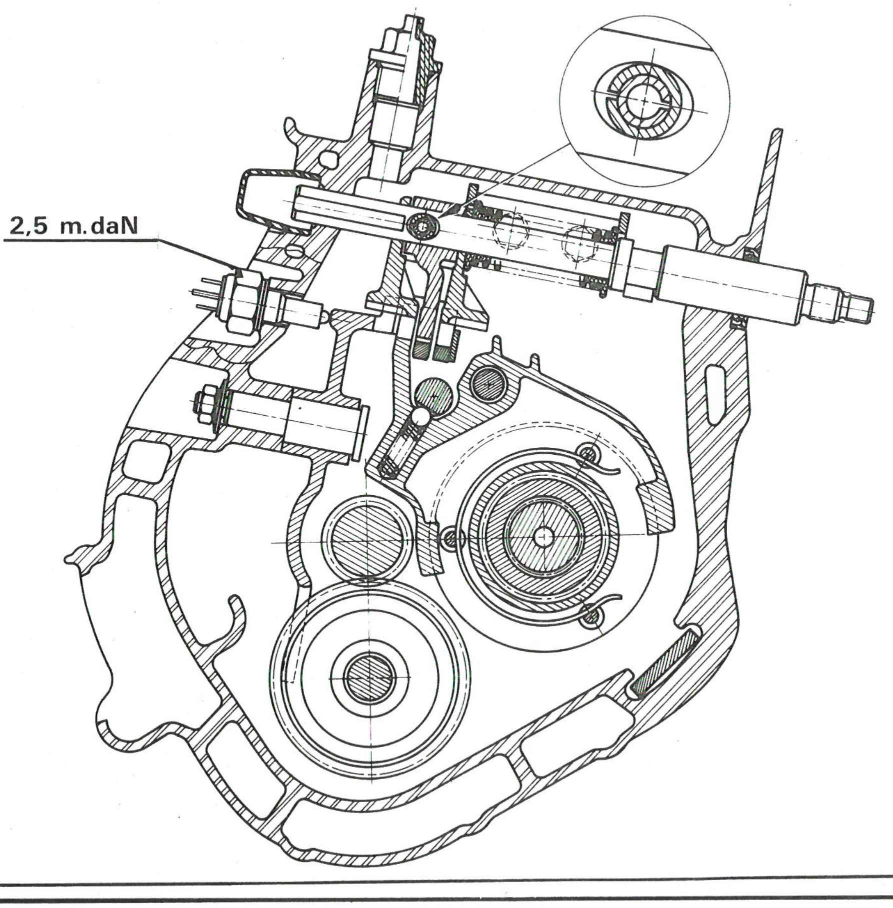


81-1313

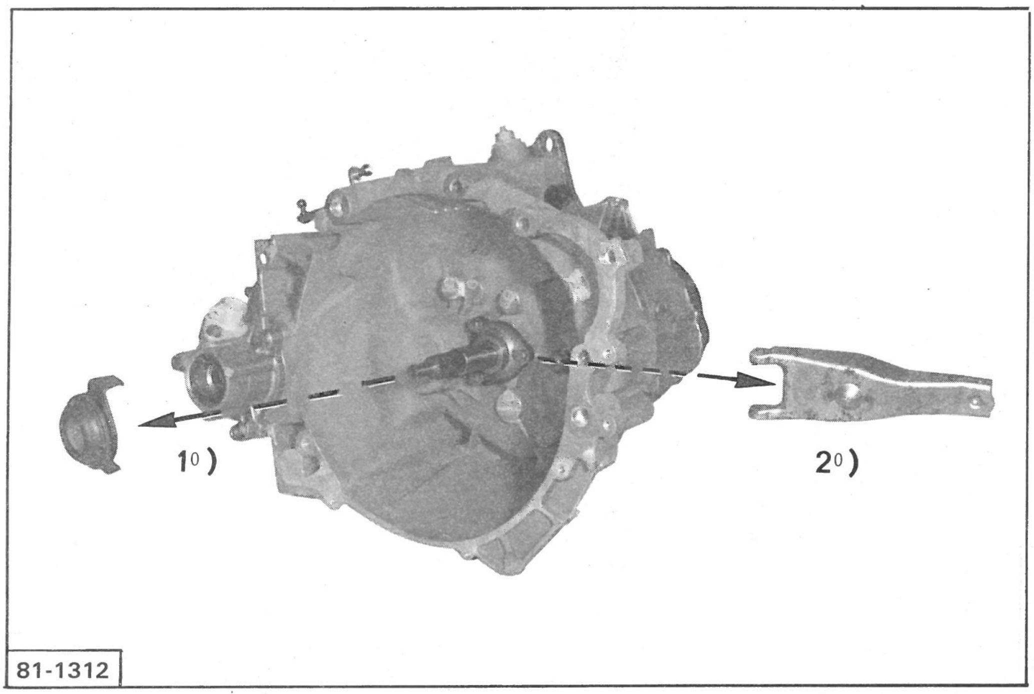
5



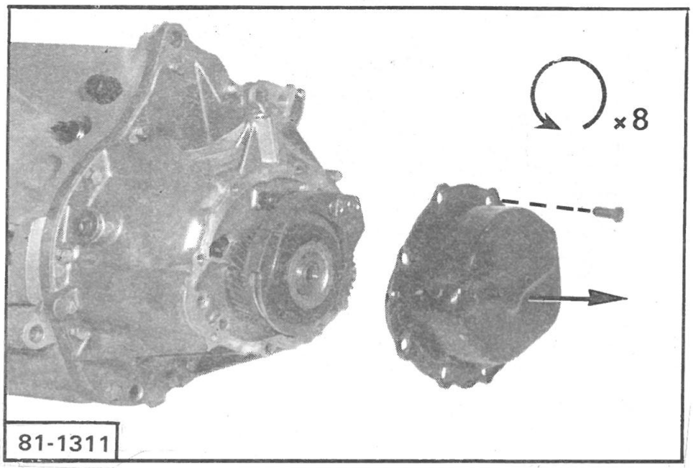
BX. 33-1



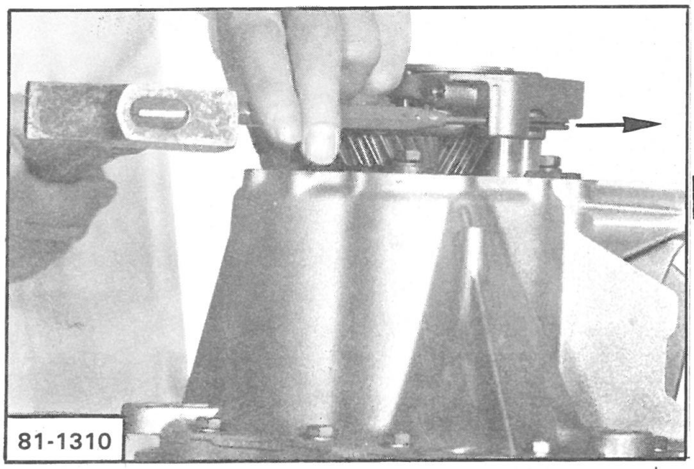
BX. 33-4

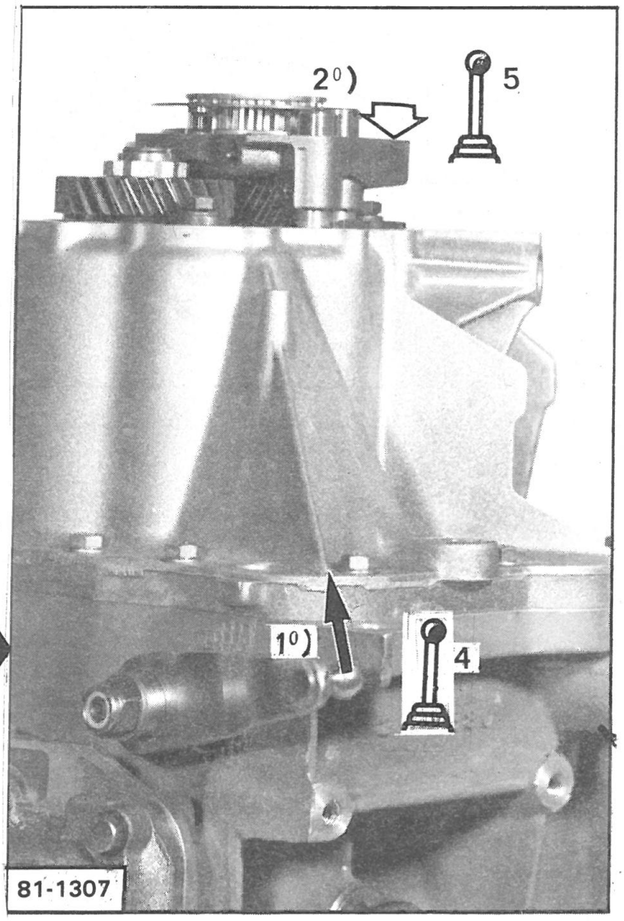


81-1312

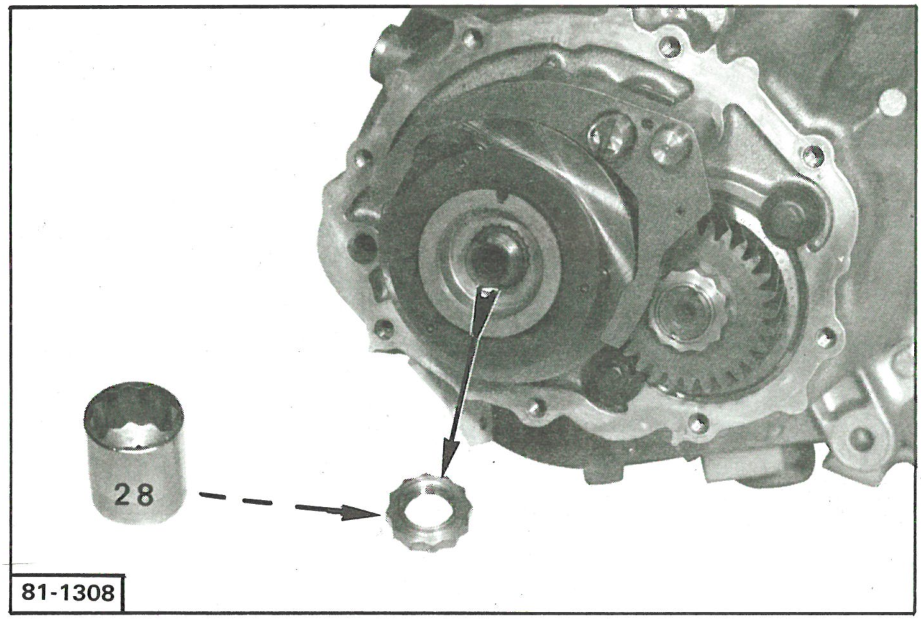


81-1311

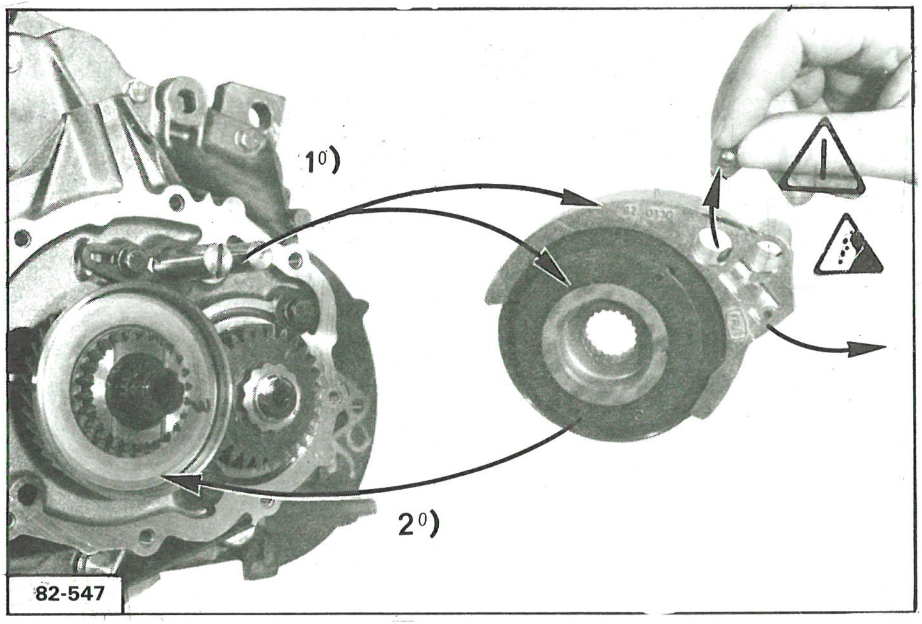

81-1310



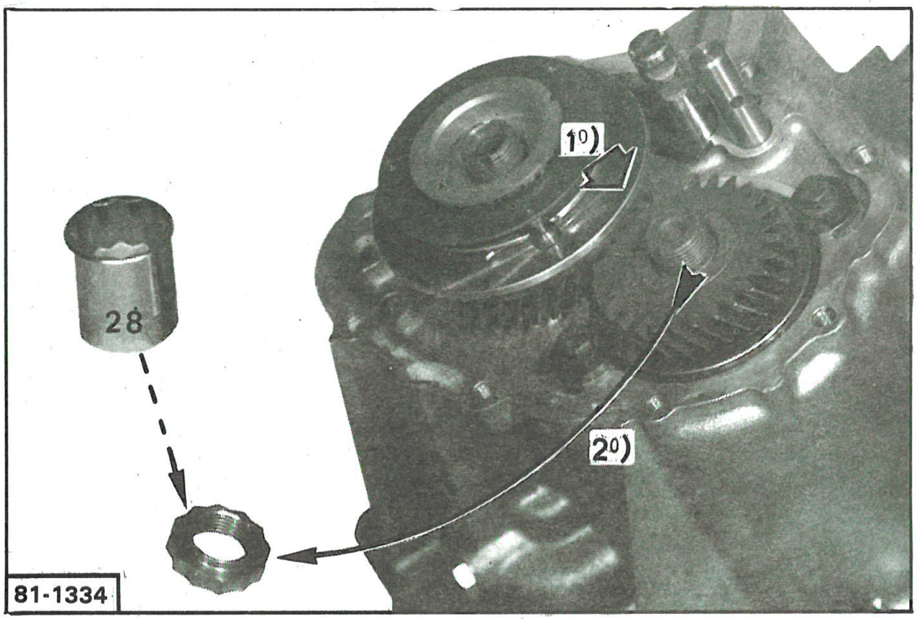
81-1307



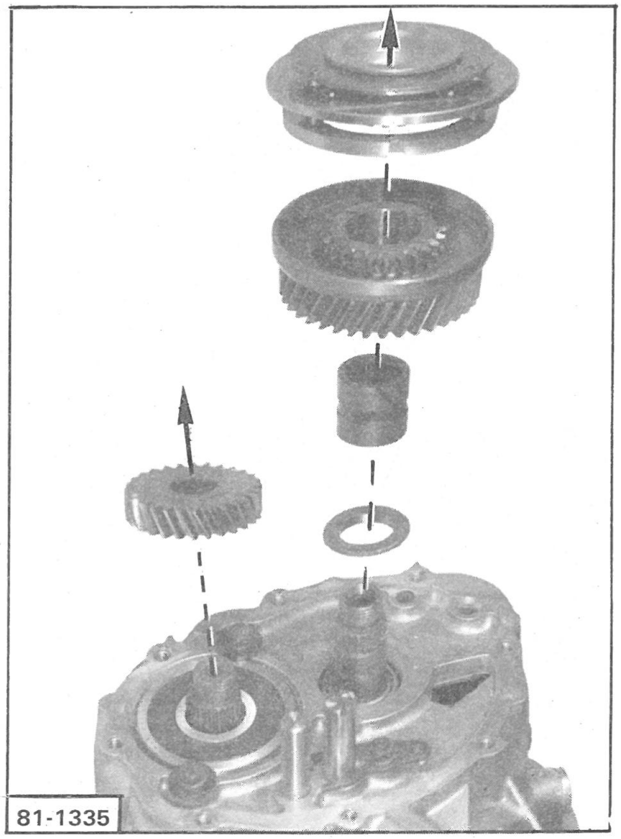
81-1308



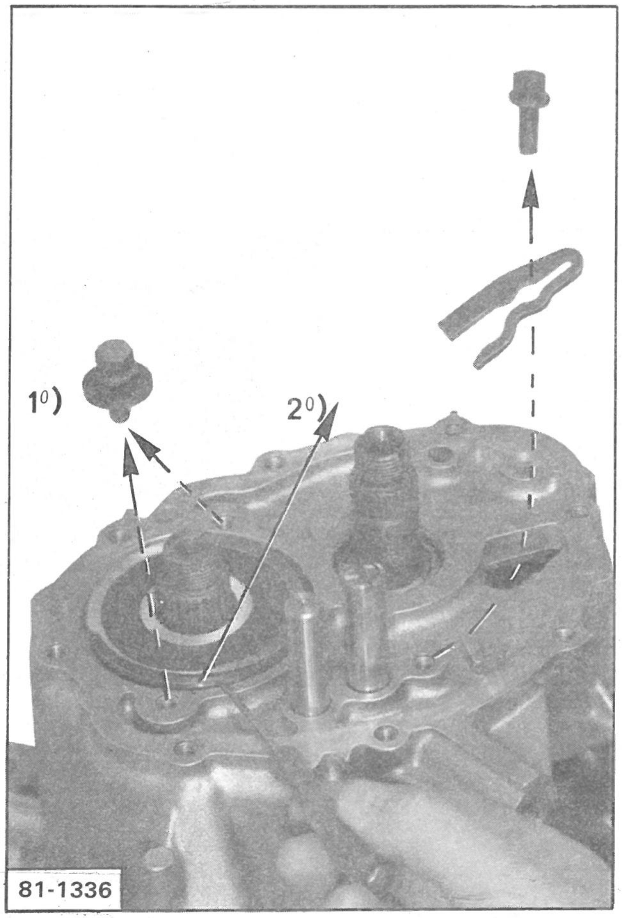
82-547



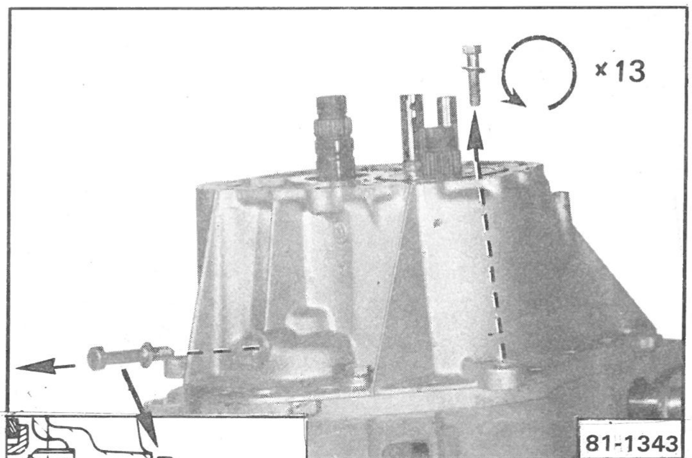
81-1334



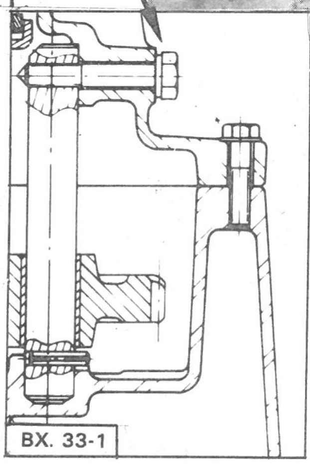
81-1335



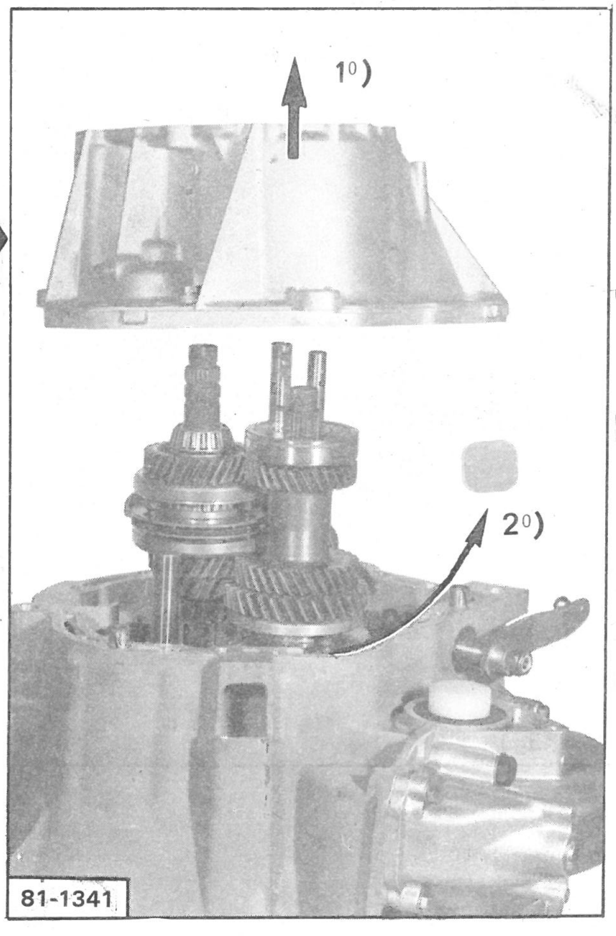
81-1336



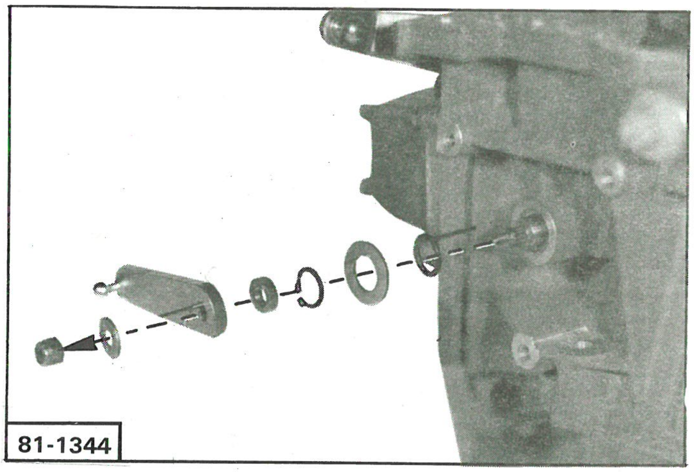
81-1343

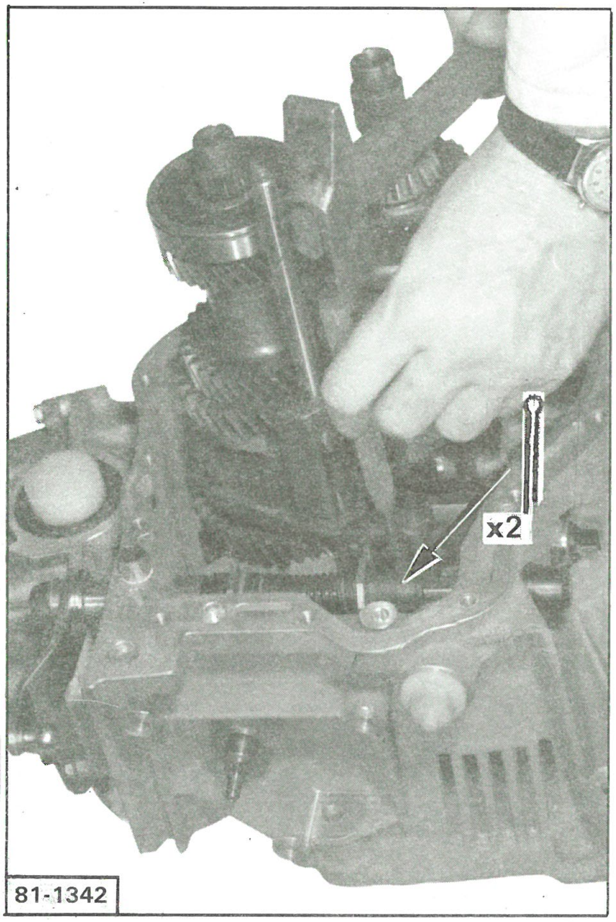


BX. 33-1

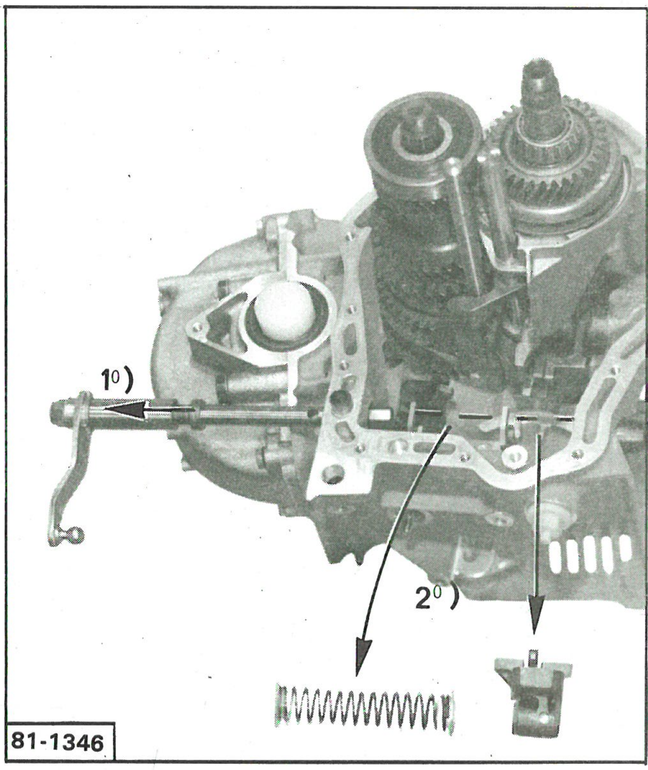


81-1341

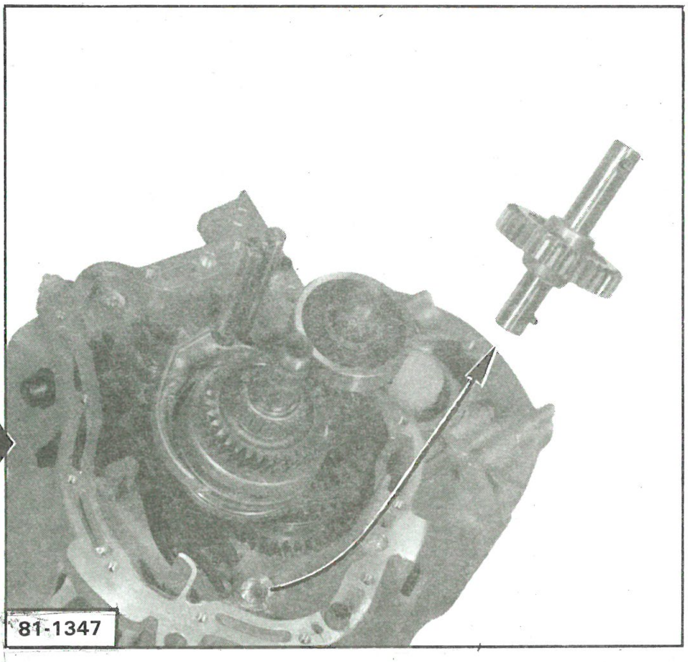

81-1344

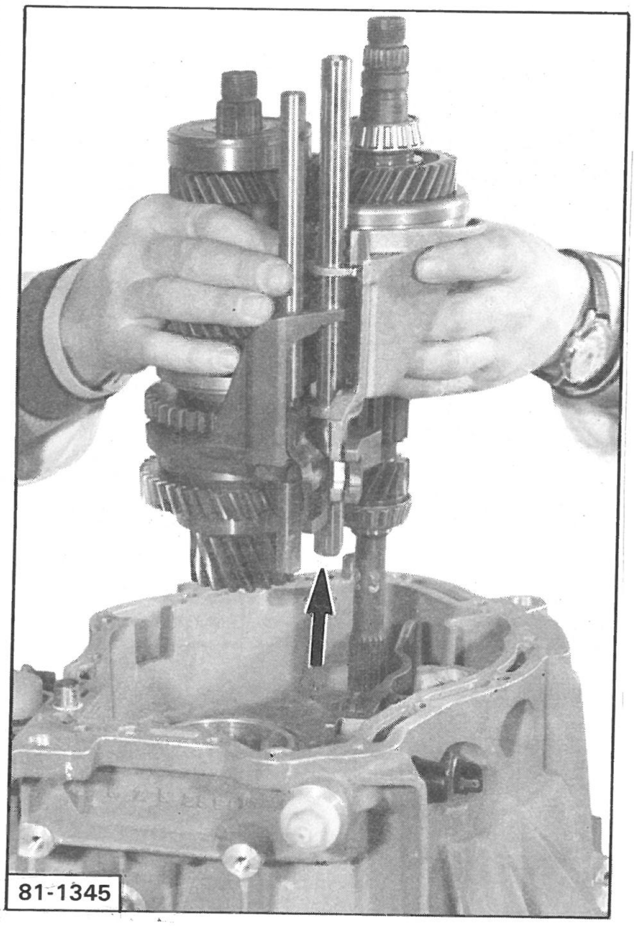


81-1342

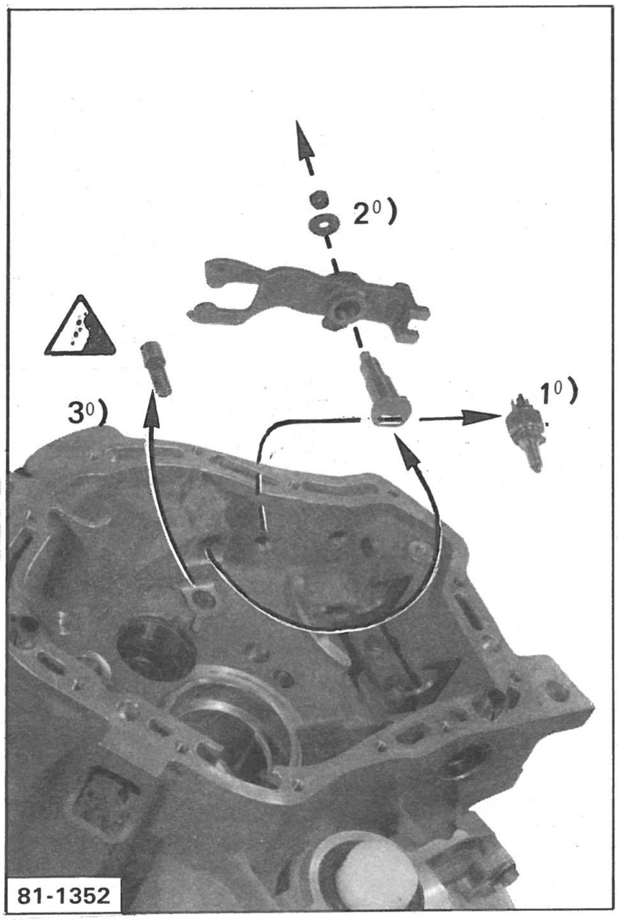


81-1346

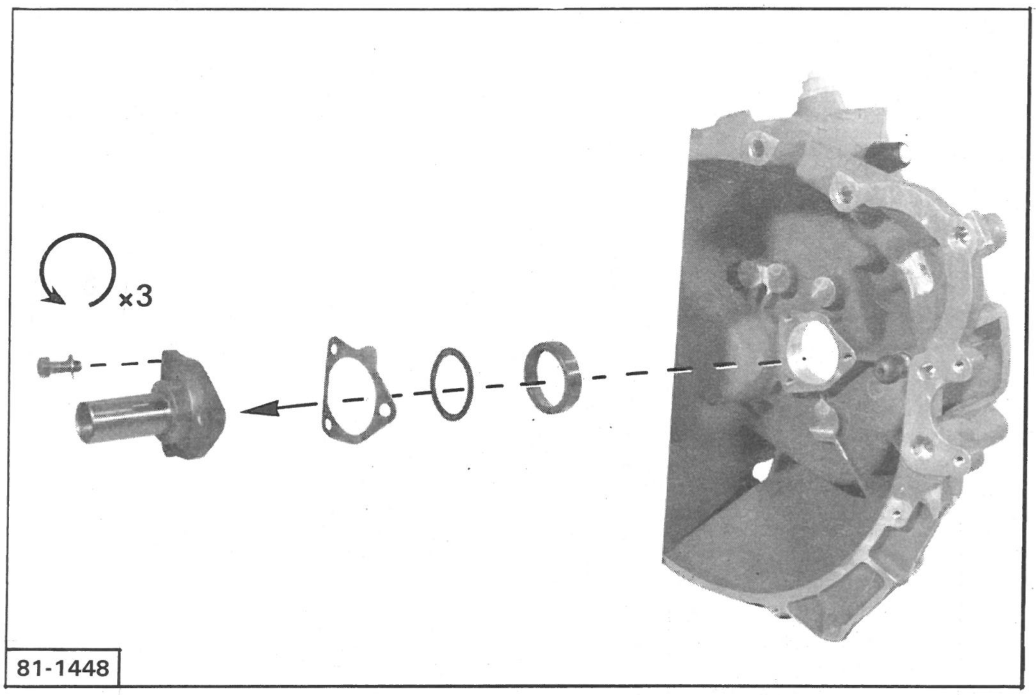

81-1347



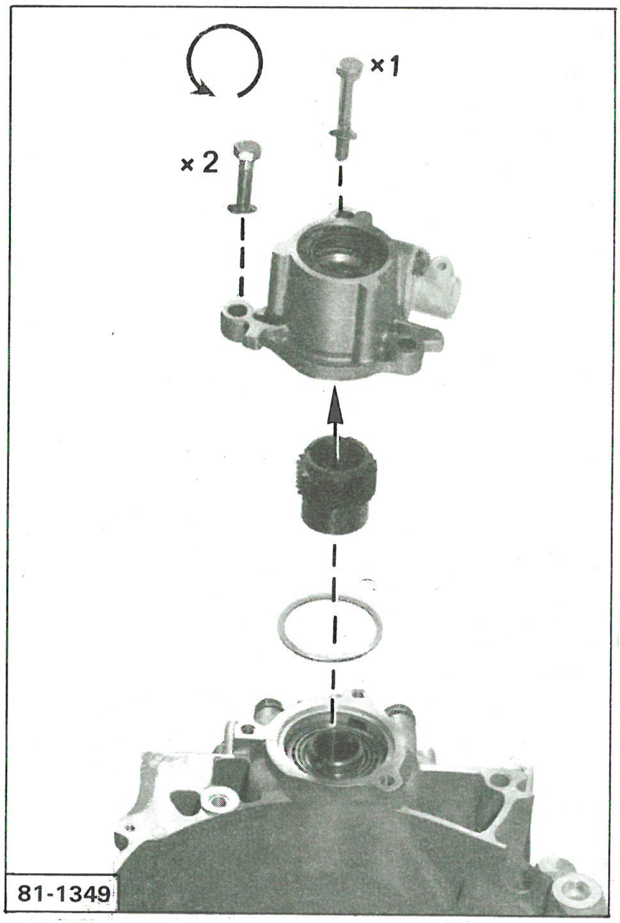
81-1345



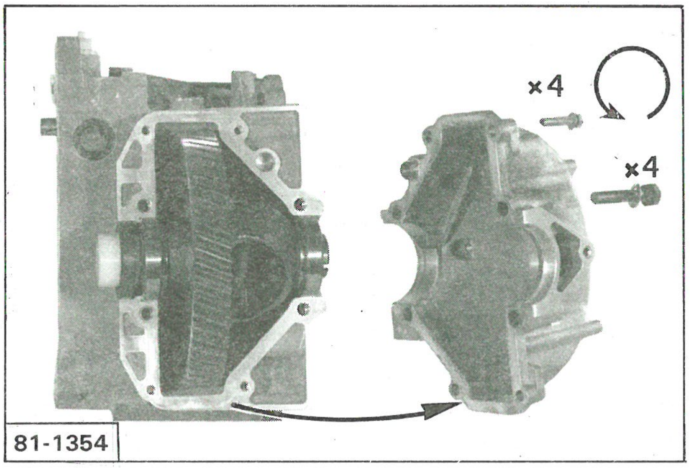
81-1352



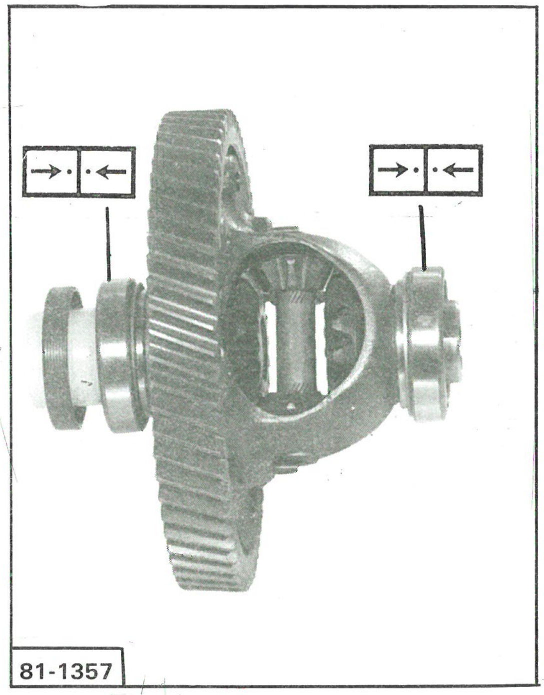
81-1448



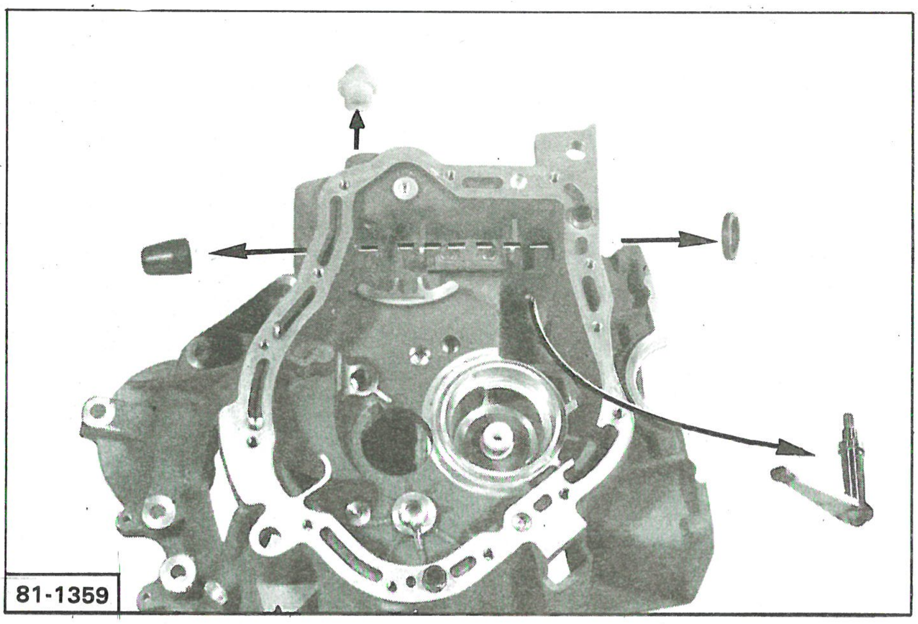
81-1349



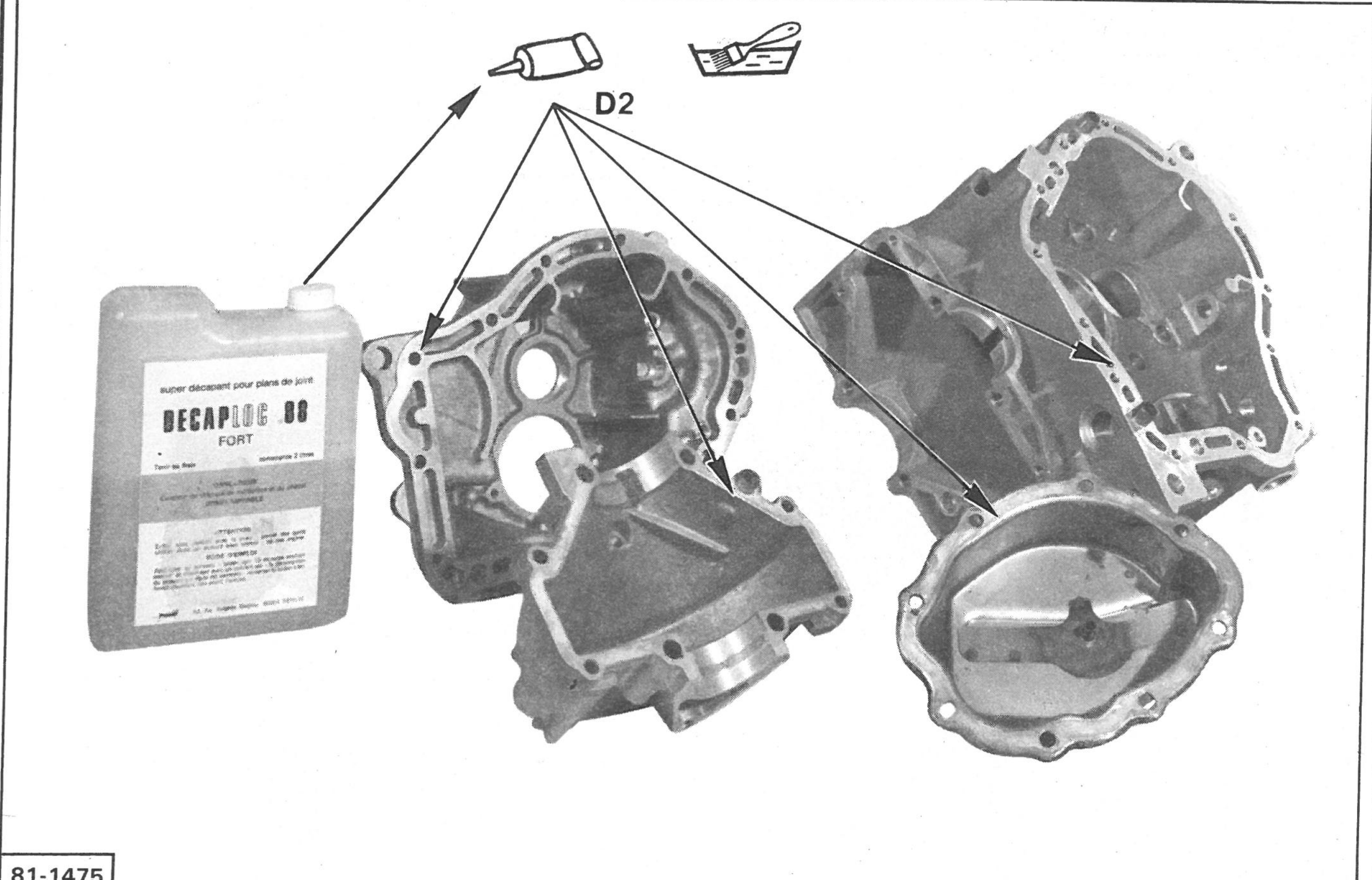
81-1354



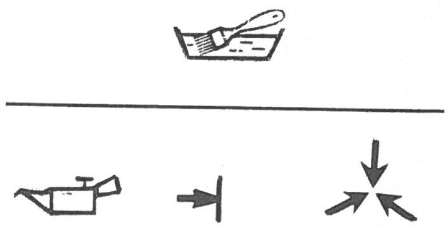
81-1357

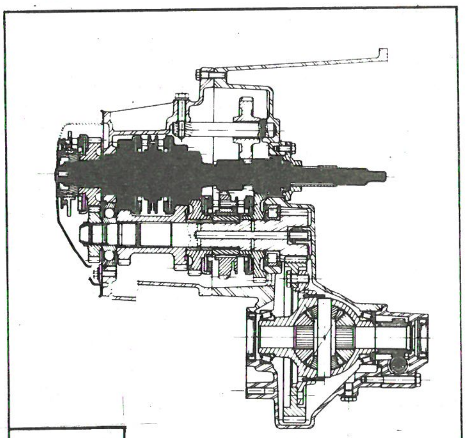


81-1359

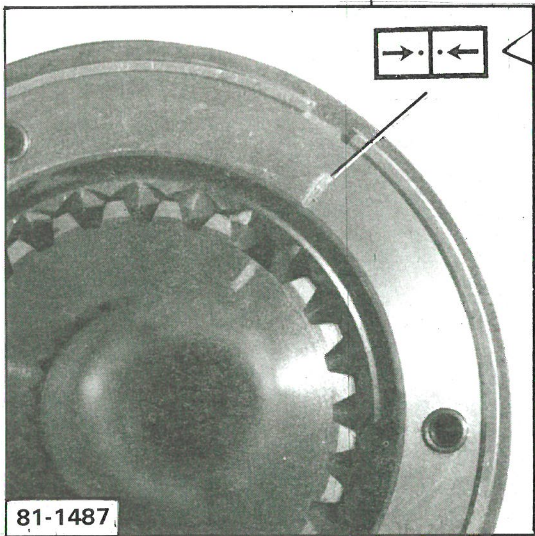


81-1475

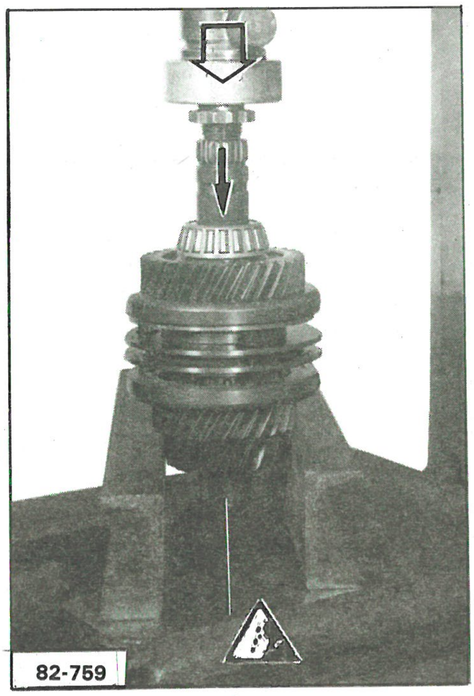




BX. 33-8

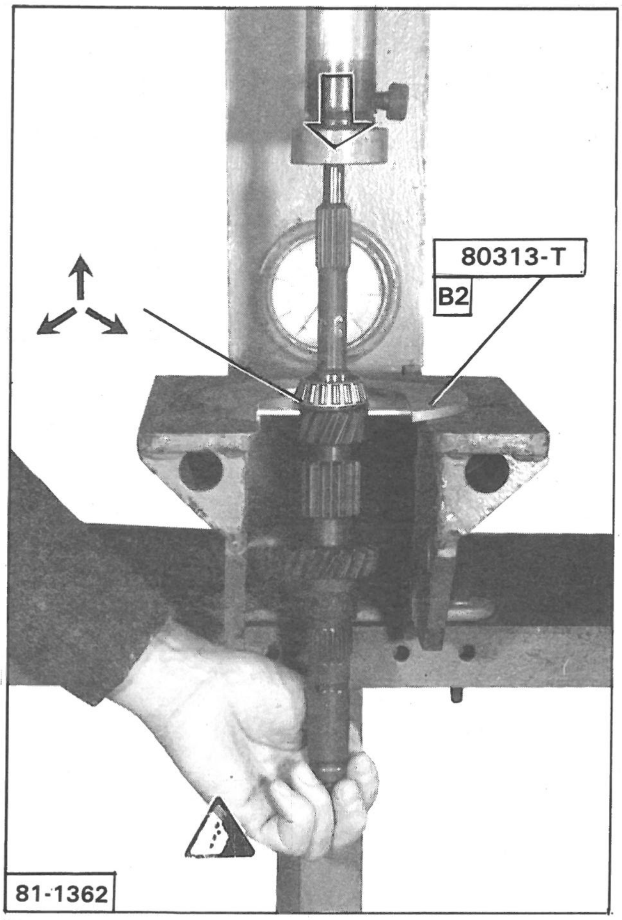


81-1487

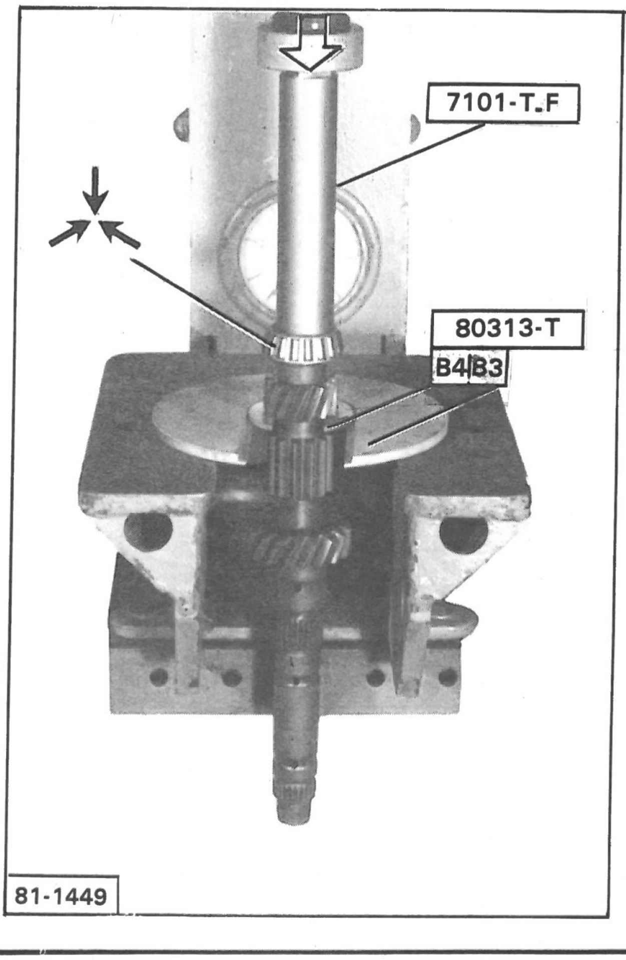


82-759

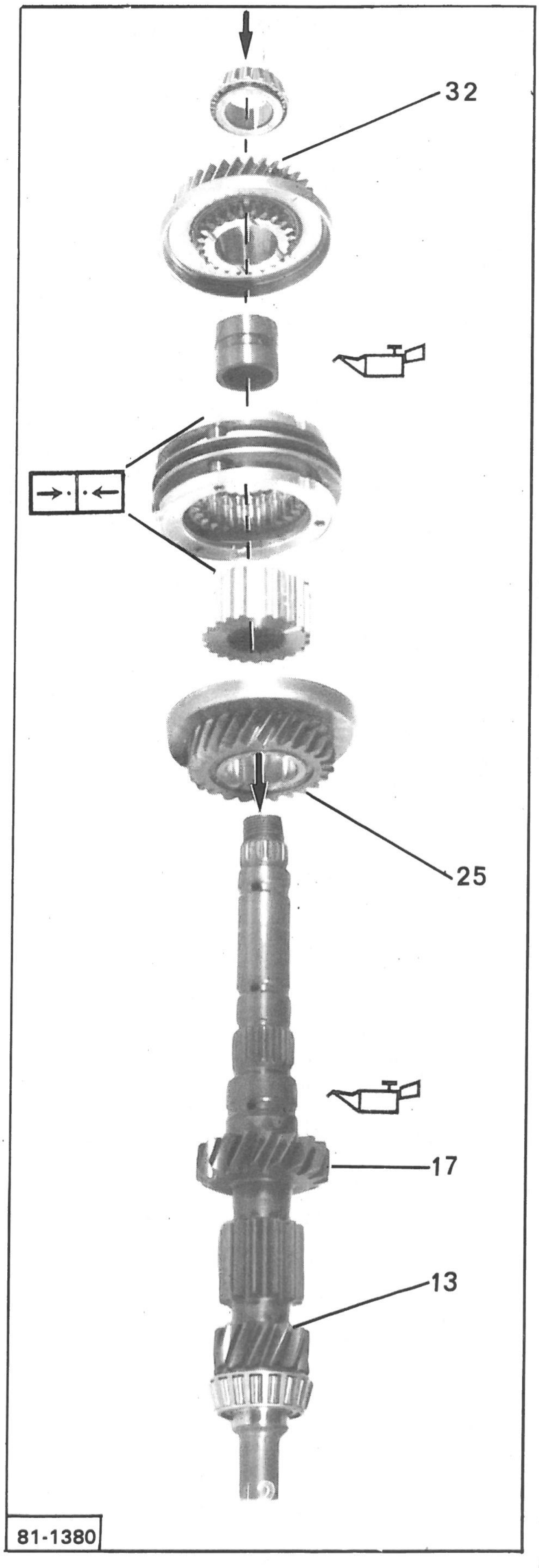
81-1380



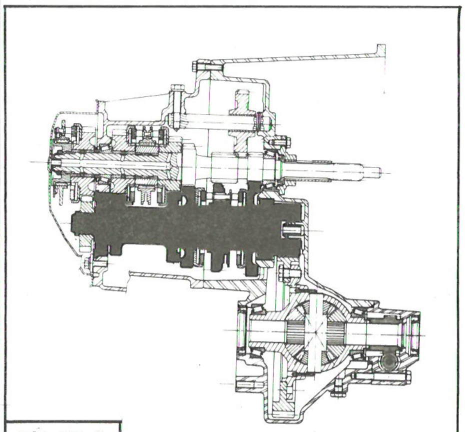
81-1362

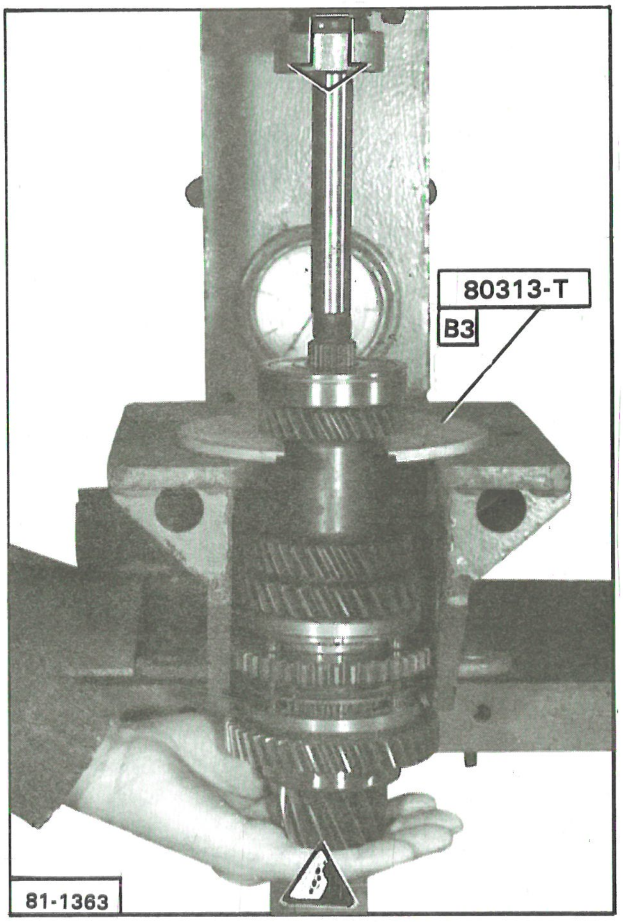


81-1449

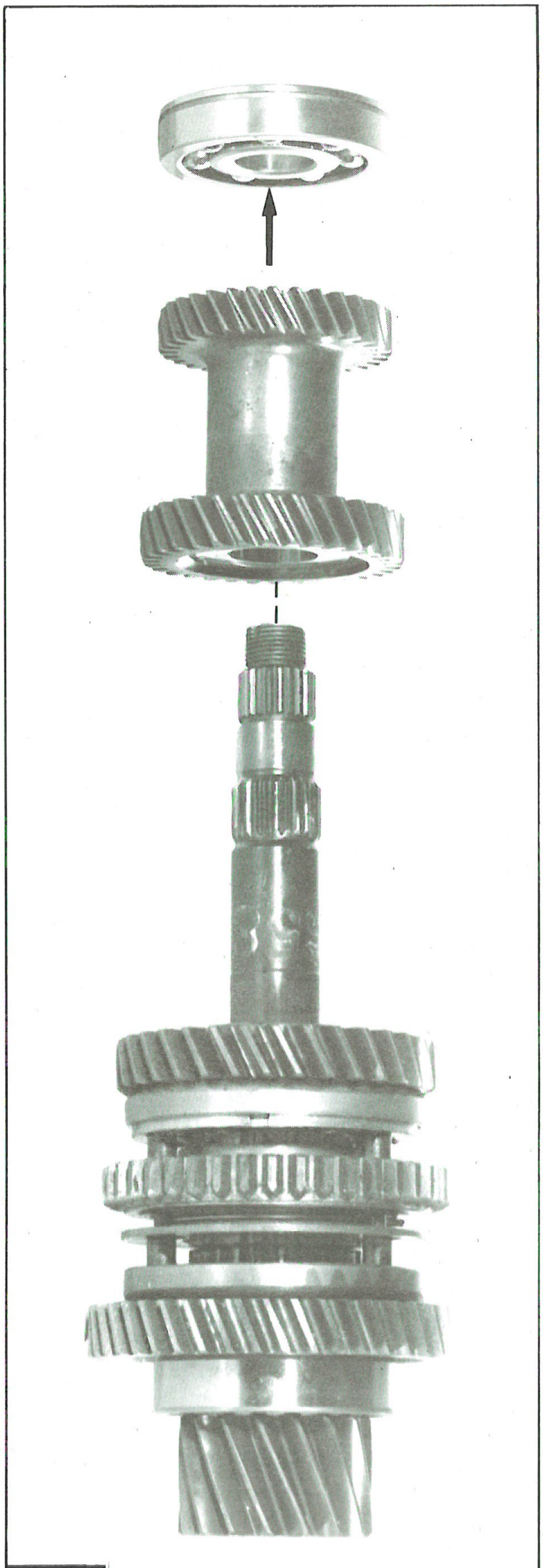


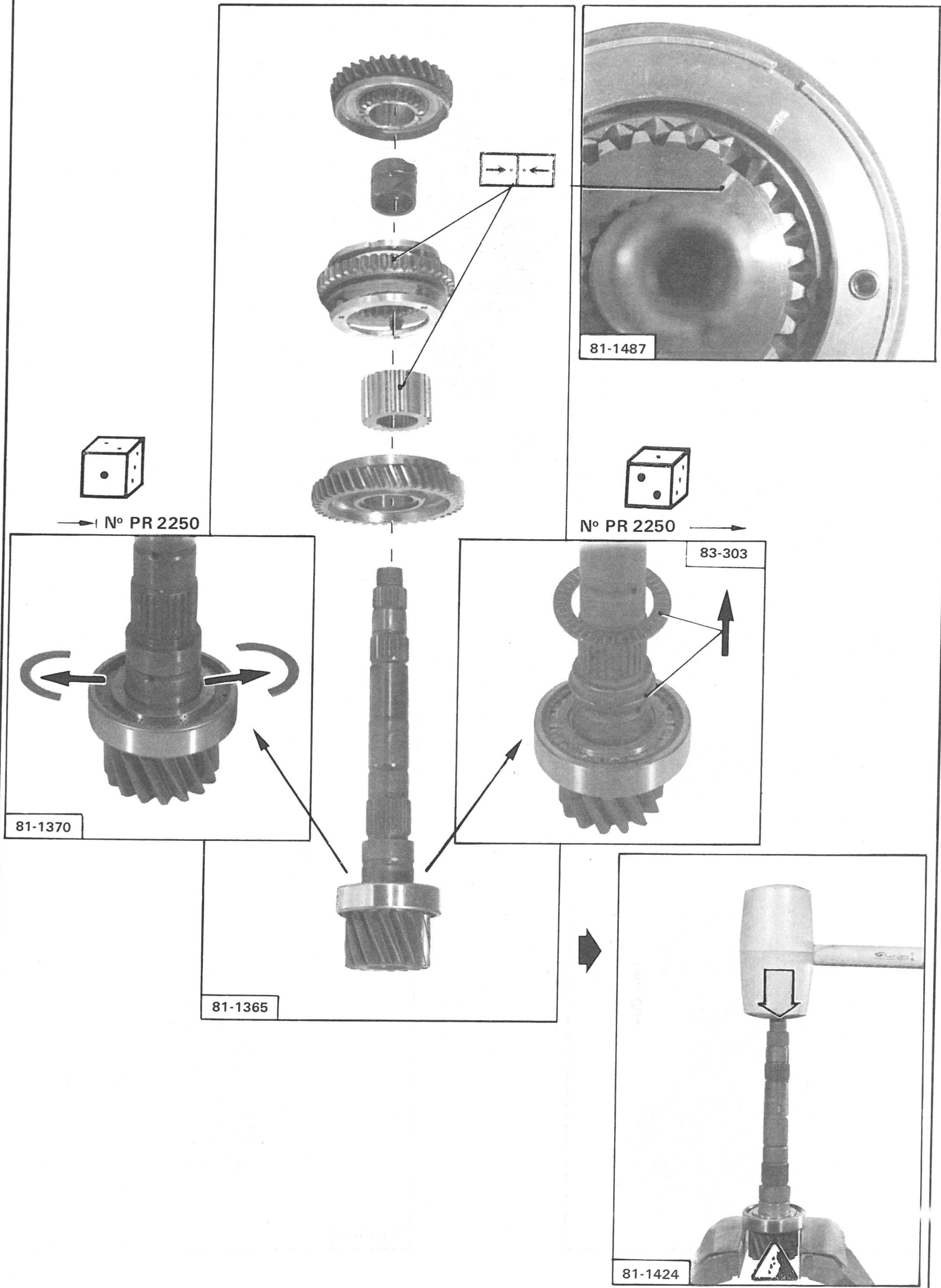
81-1380

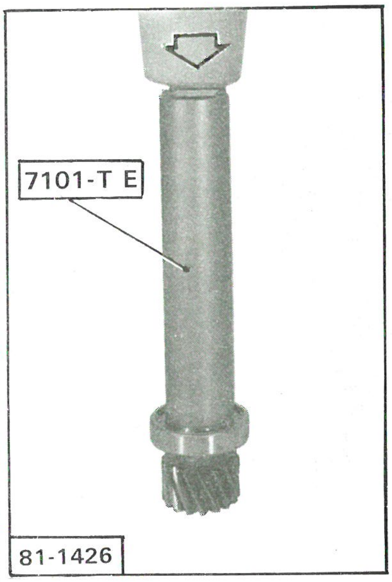

BX. 33-9



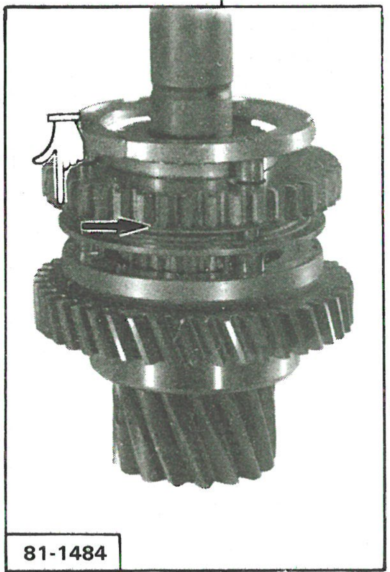
81-1363

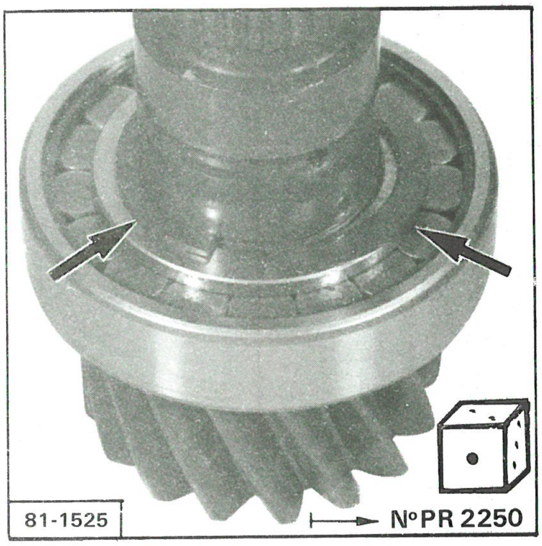

81-1364


81-1487
Nº PR 2250
81-1370
Nº PR 2250
83-303
81-1365
81-1424

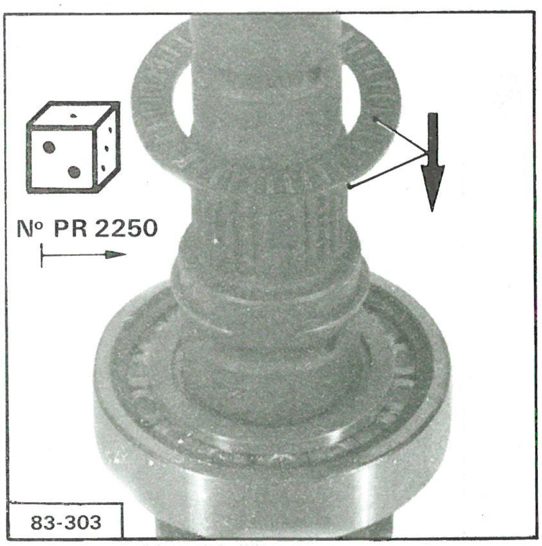


81-1426

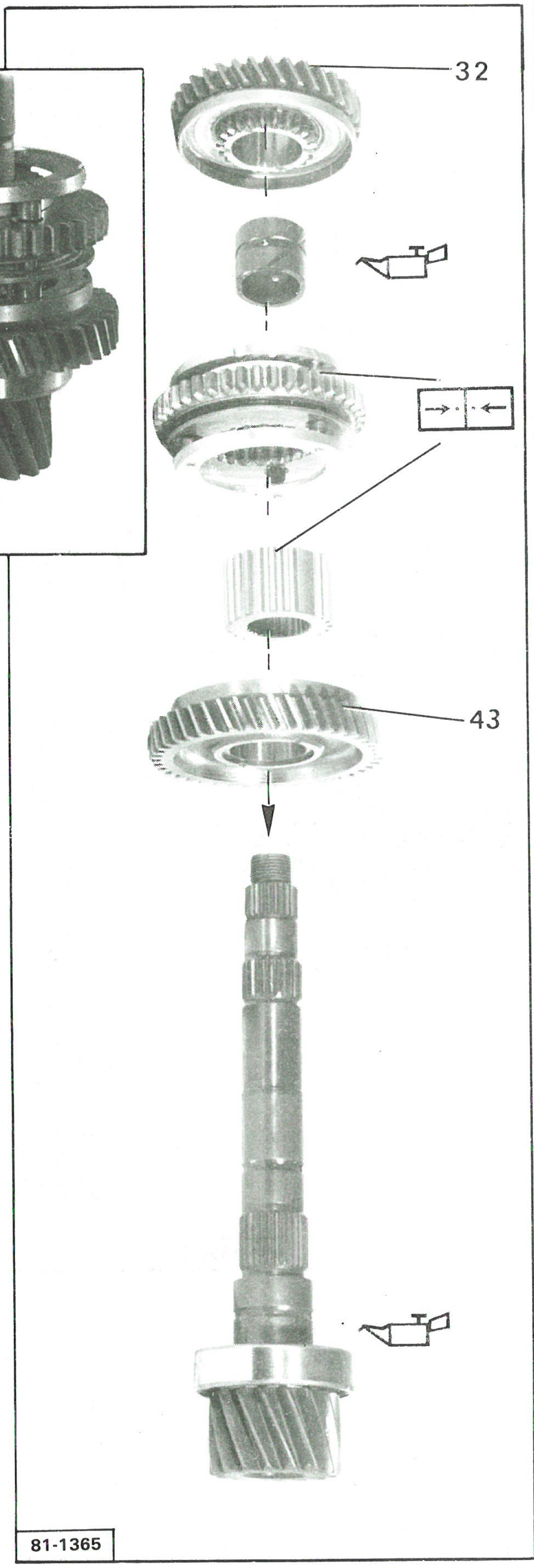

81-1484



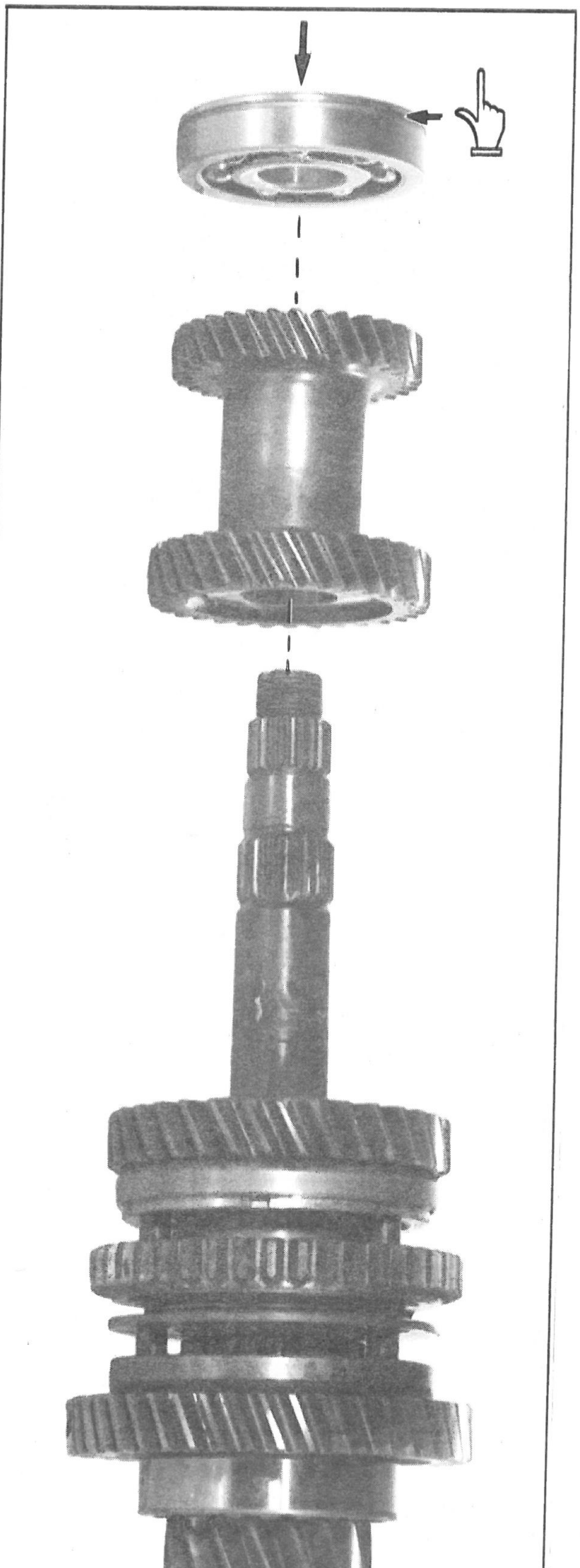
81-1525



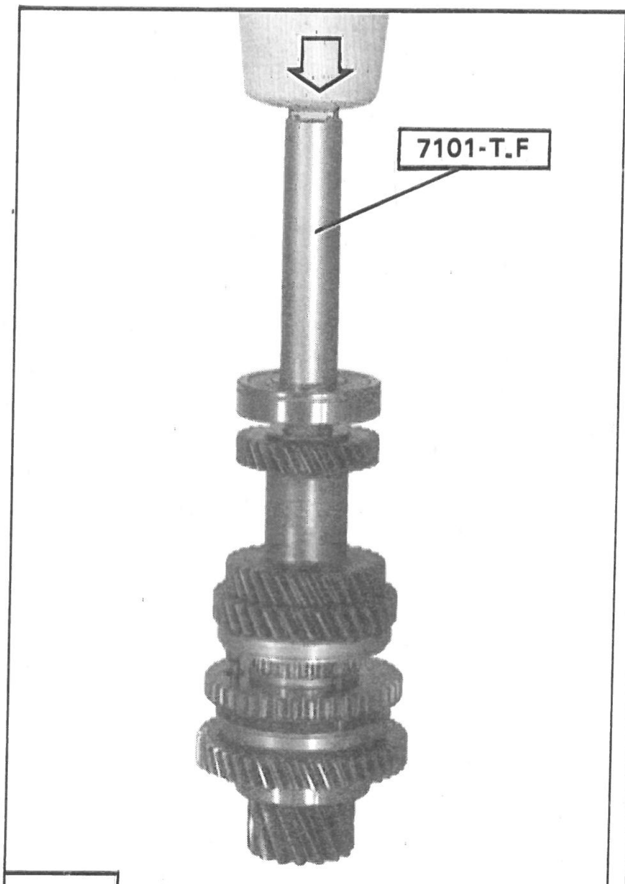
83-303



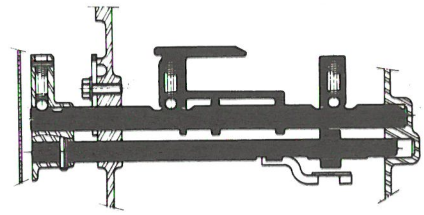
81-1365



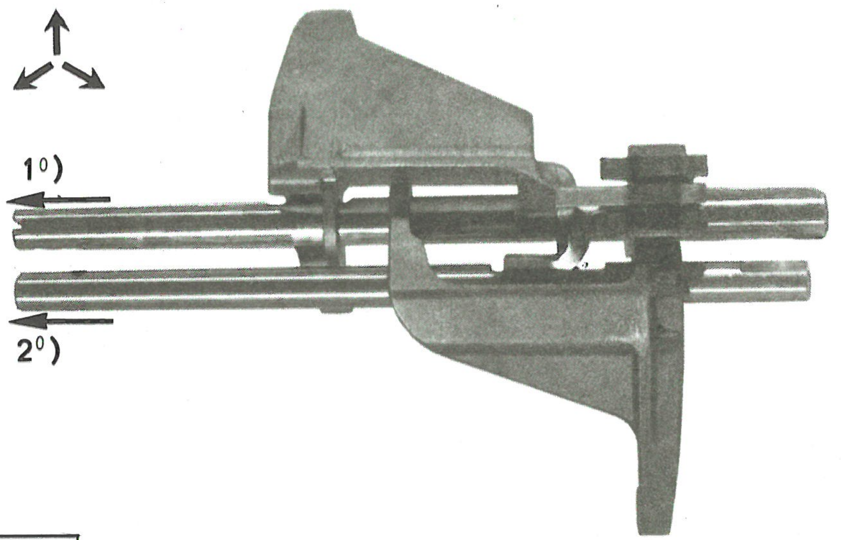
81-1364



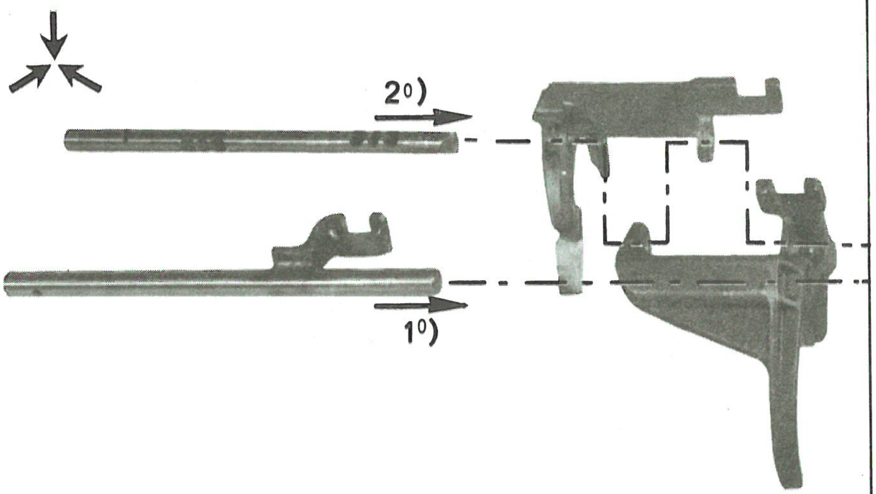
81-1492



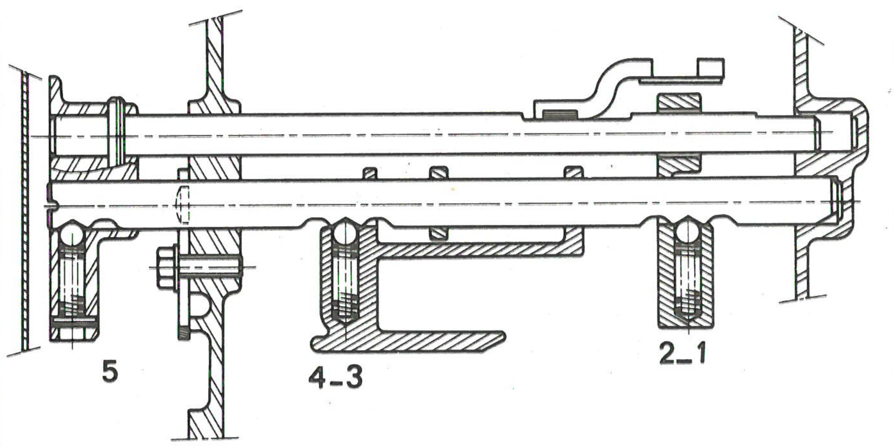
BX. 33-11



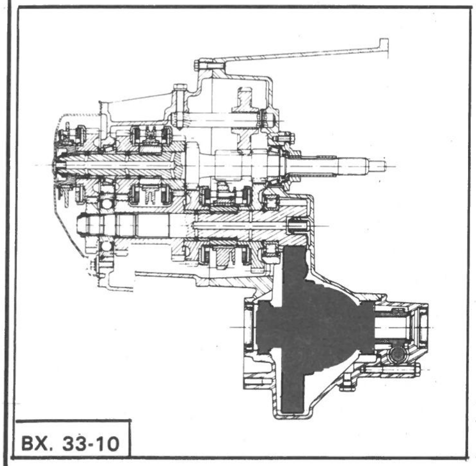
81-1381



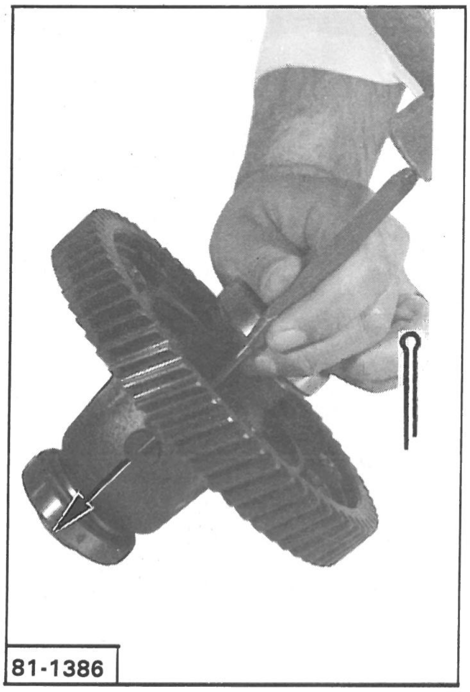
81-1387



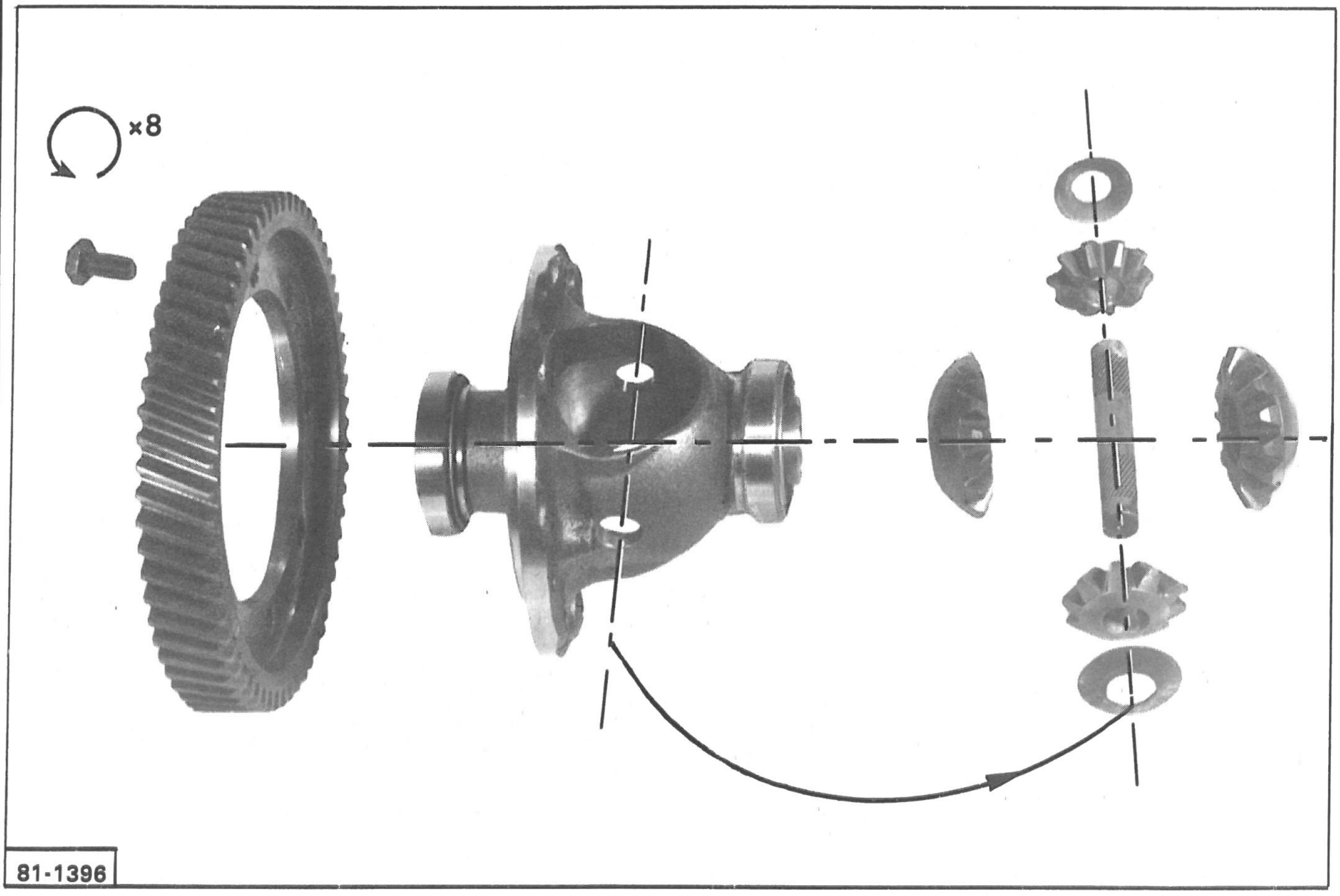
BX. 33-5



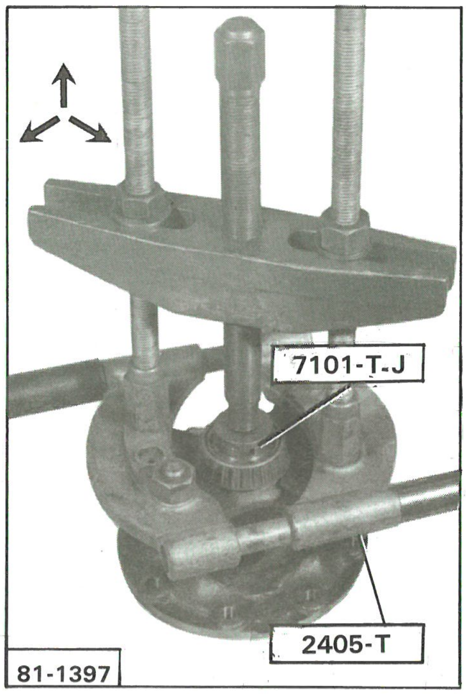
BX. 33-10



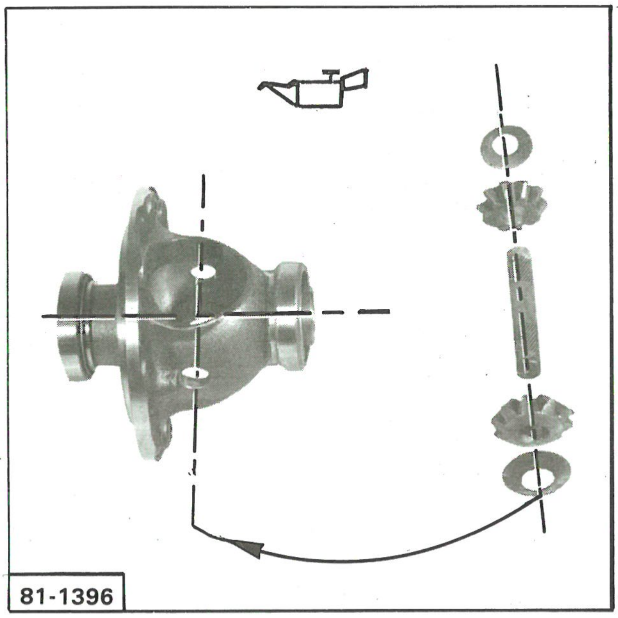
81-1386

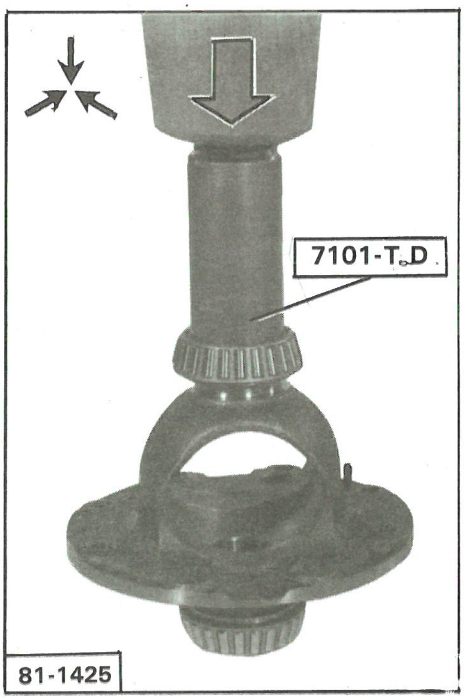


81-1396

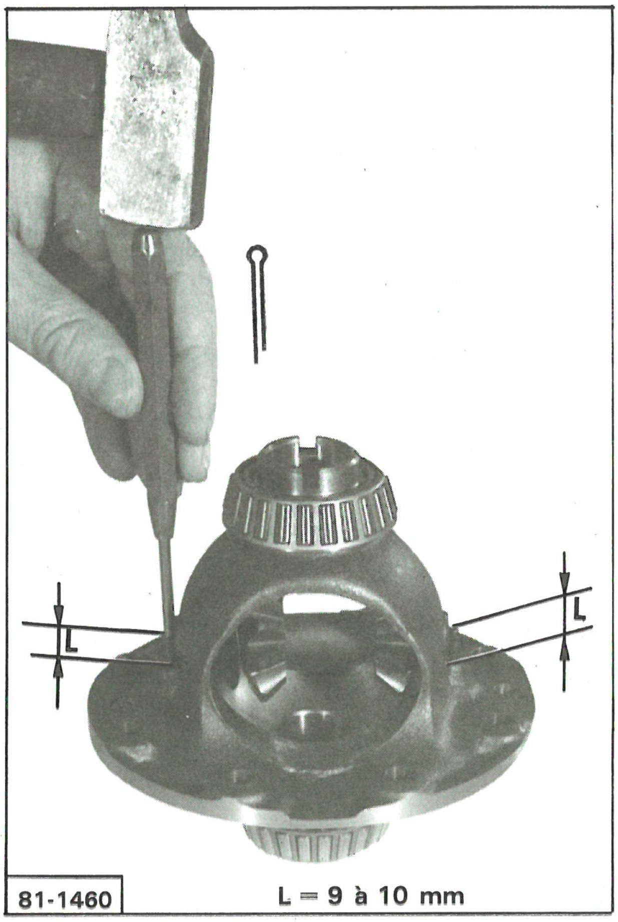


81-1397


81-1396

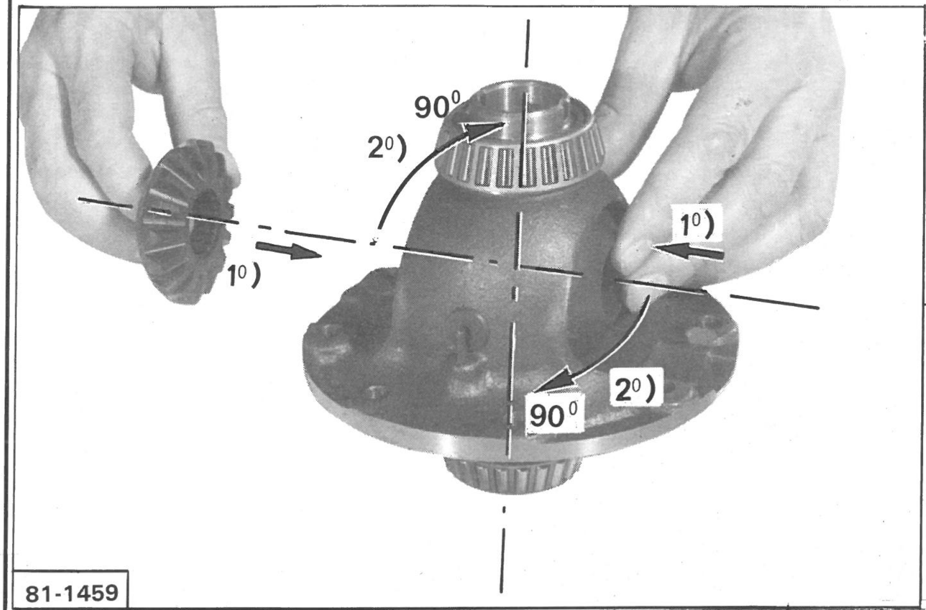


81-1425

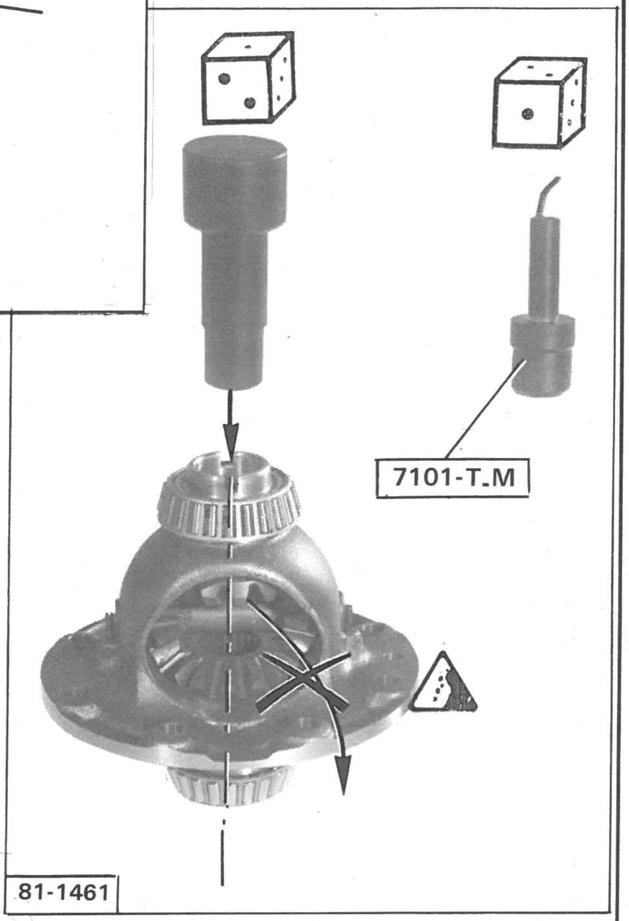


81-1460

L = 9 à 10 mm



81-1459



81-1461

(D) Planetenräder so lange festhalten bis die 2. Gelenkwelle in das Fahrzeug eingebaut ist.

(DK) Blokering af planethjul indtil montering af 2. Kardanaksel på vognen.

(E) Inmovilizar los planetarios hasta el montaje de la 2ª transmisión sobre el vehículo.

(GB) Lock the planet gears until the 2nd driveshaft is fitted to the vehicle.

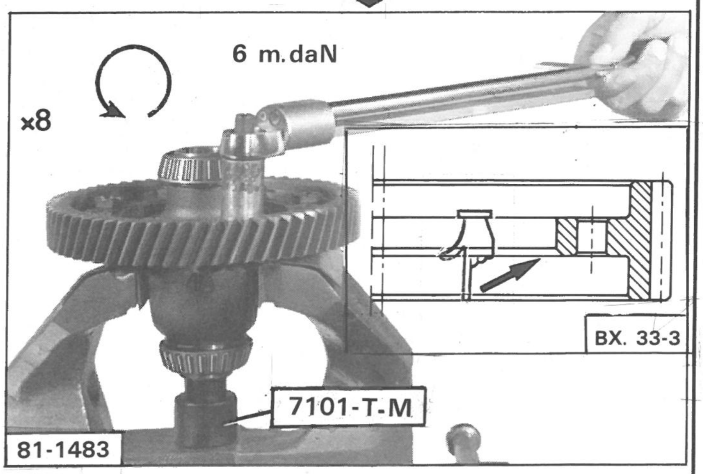
(I) Immobilizzare i planetari fino al montaggio della 2a. trasmissione sul veicolo.

(NL) Blokkeer de planetaire tandwielen totdat de tweede aandrijfas op de wagen gemonteerd is.

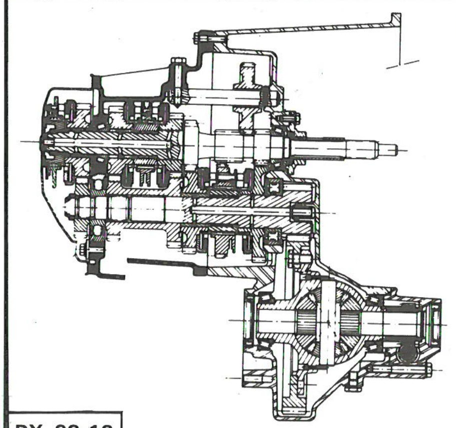
(P) Immobilizar os planetários até à montagem da 2ª transmissão no veiculo.

(S) Lås fast planetdreven till dess att den andra drivaxeln monterats på vagnen.

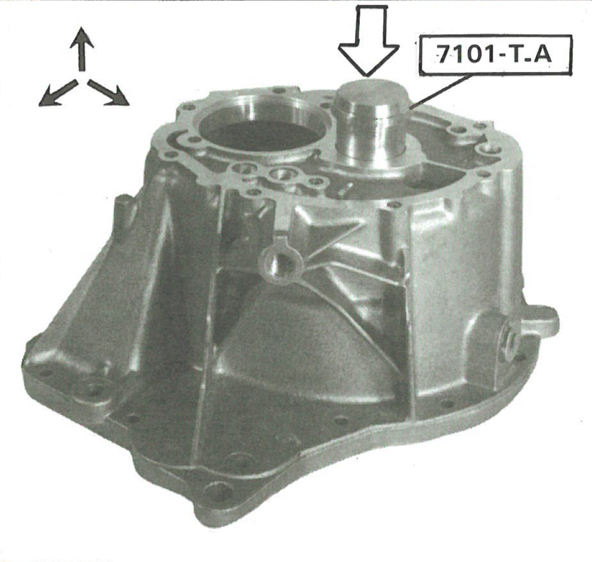
(F) Immobiliser les planétaires jusqu'à la pose de la 2ème transmission sur le véhicule.



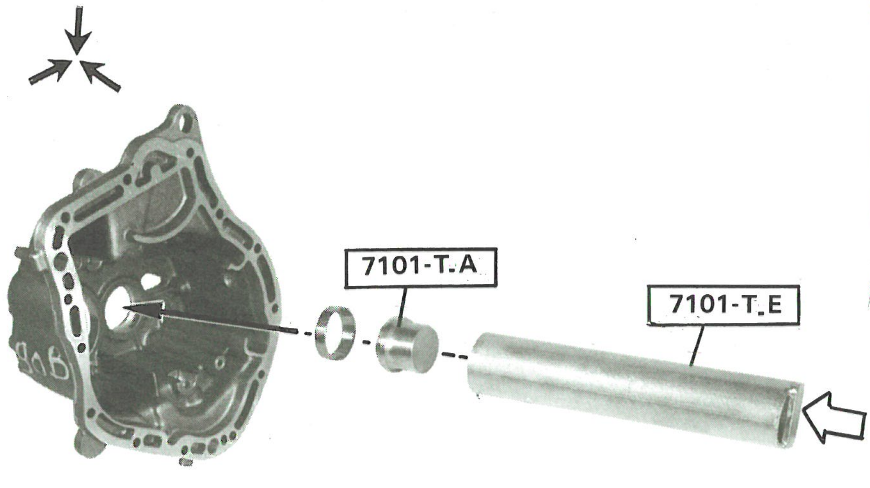
81-1483



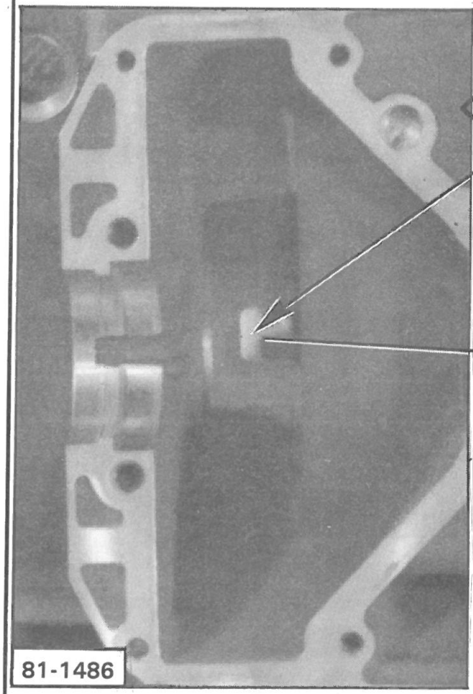
BX. 33-12



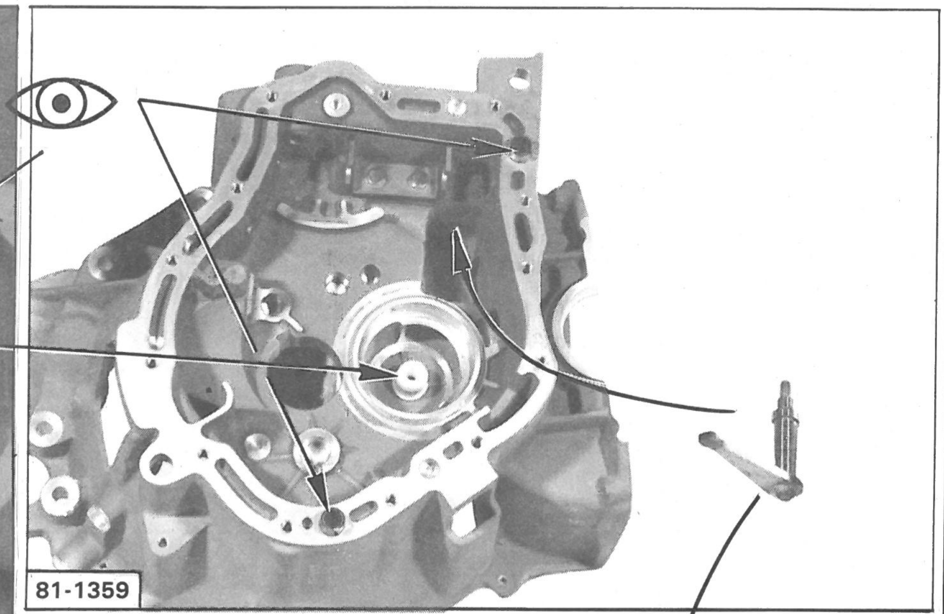
82-548



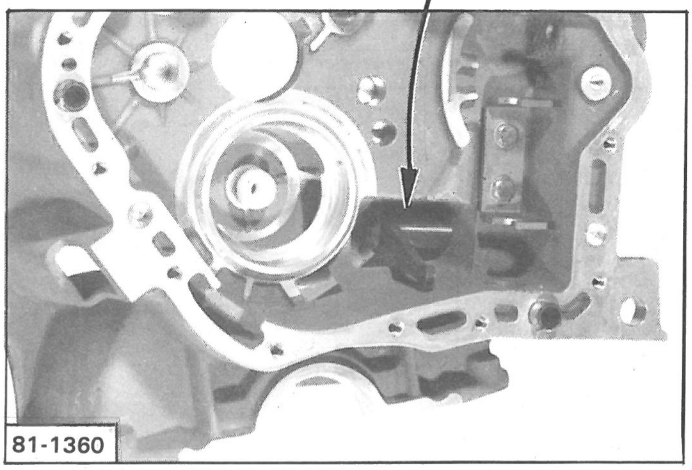
82-551



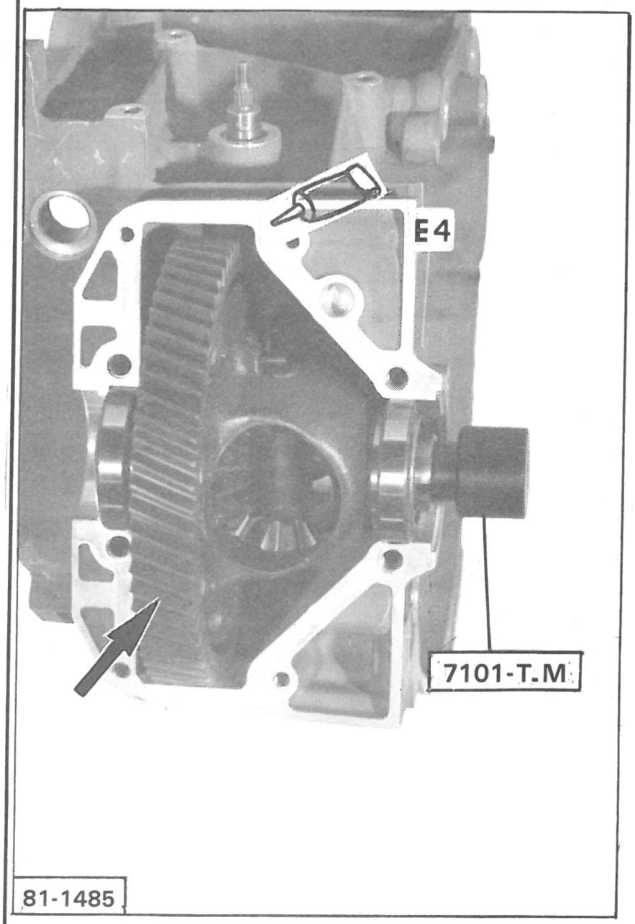
81-1486



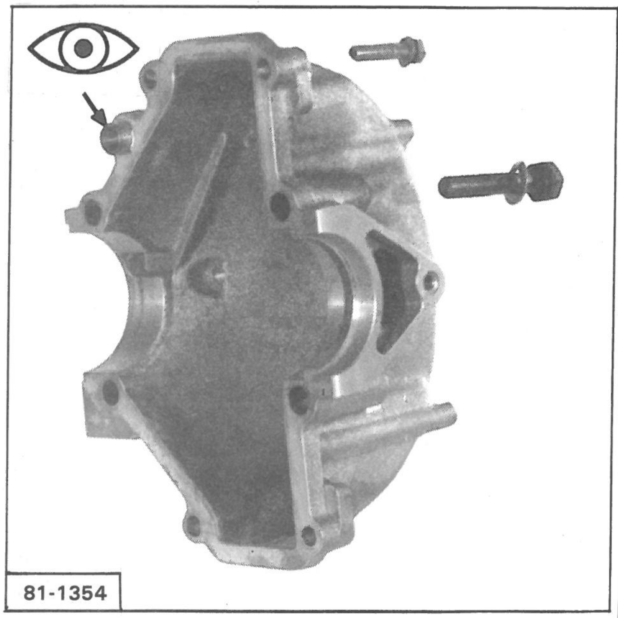
81-1359



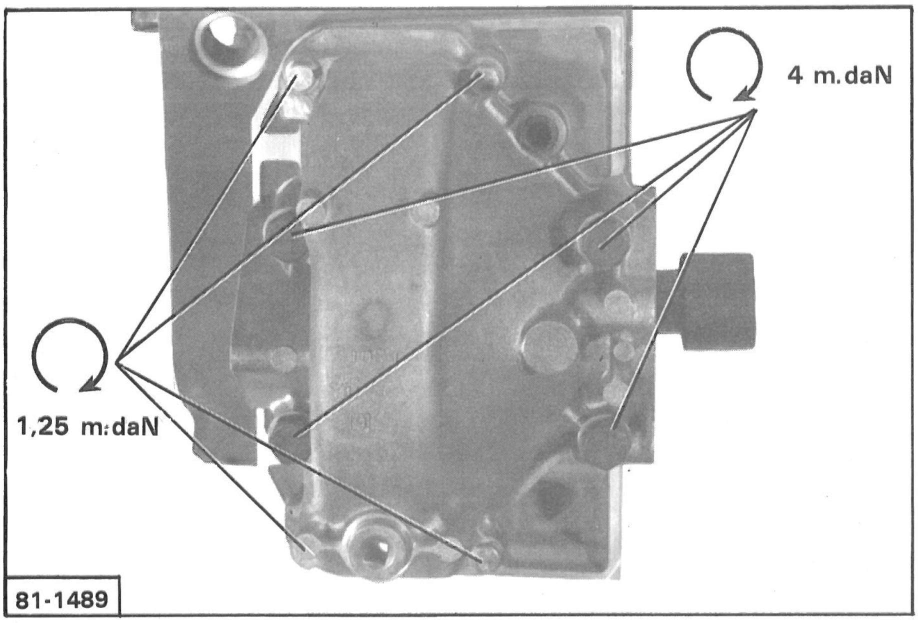
81-1360



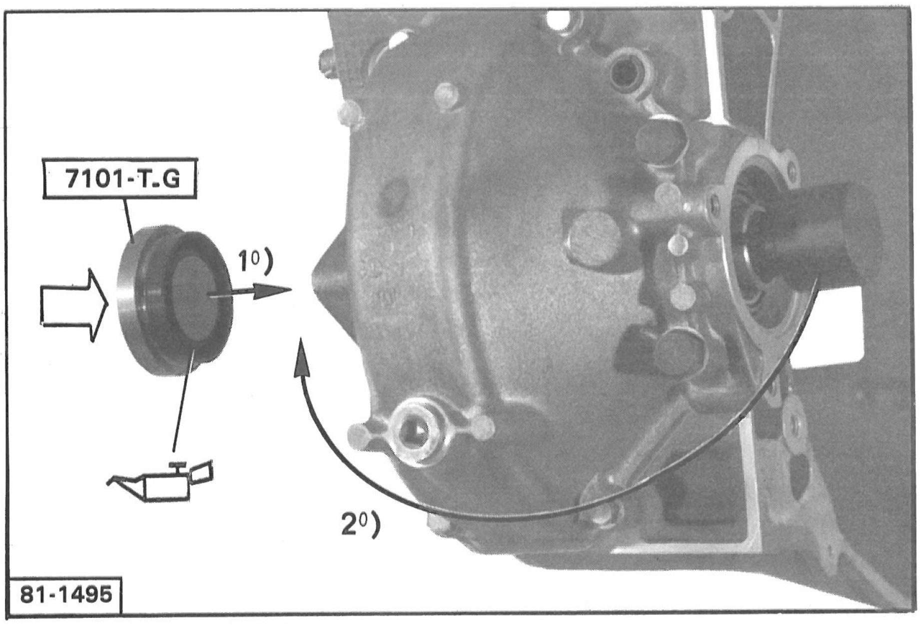
81-1485



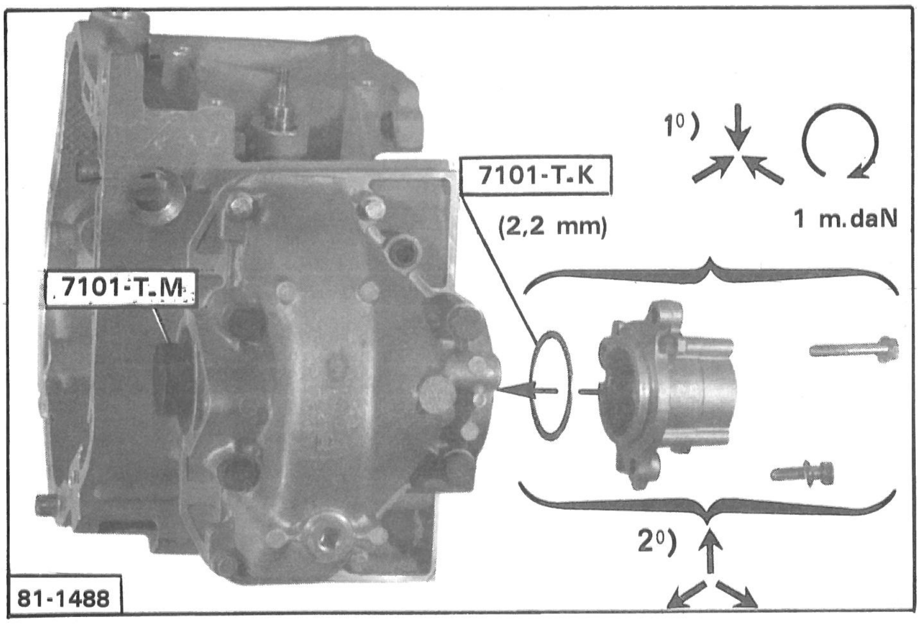
81-1354



81-1489



81-1495



81-1488

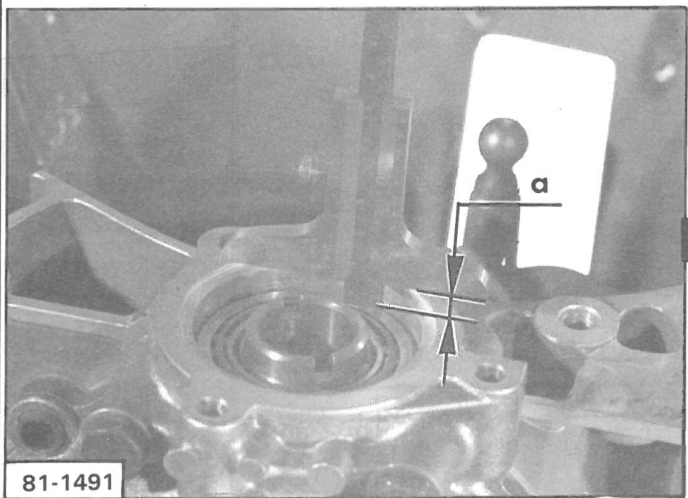
(D) Beim Einbau, 2,2 mm Beilagescheibe und Differentialgehäuse einbauen, mit 1 m.daN festziehen. Einheit ausbauen.
Beanspruchung oder Vorspannung der Lager : 0,10 mm.

(DK) Ved montering isœttes justerskiven pa 2,2 mm og huset, tilspœnd med 1 m.daN. Af monter enheden.
Lejeforspœnding : 0,10 mm.

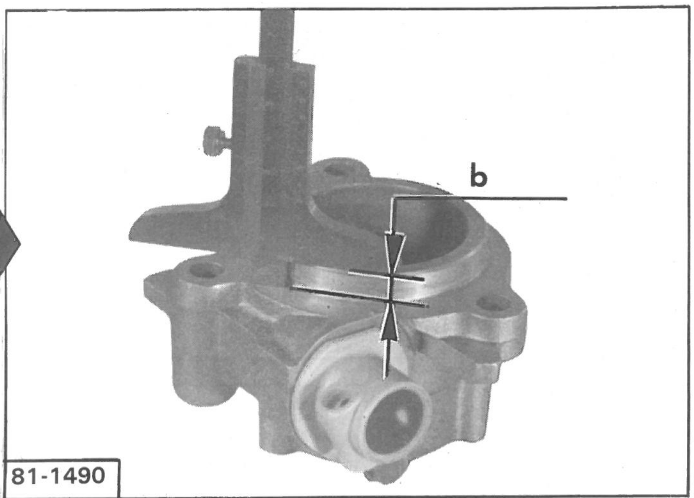
(E) Para la colocación, montar el suplemento de 2,2 mm. y la caja, apretar a 1 m.daN. Desmontar el conjunto.
Ajuste o precarga de los rodamientos : 0,10 mm.

(GB) To position, assemble the 2,2 mm shim and the housing, tighten to 1 m.daN. Remove the assembly.
Bearing preload : 0,10 mm.

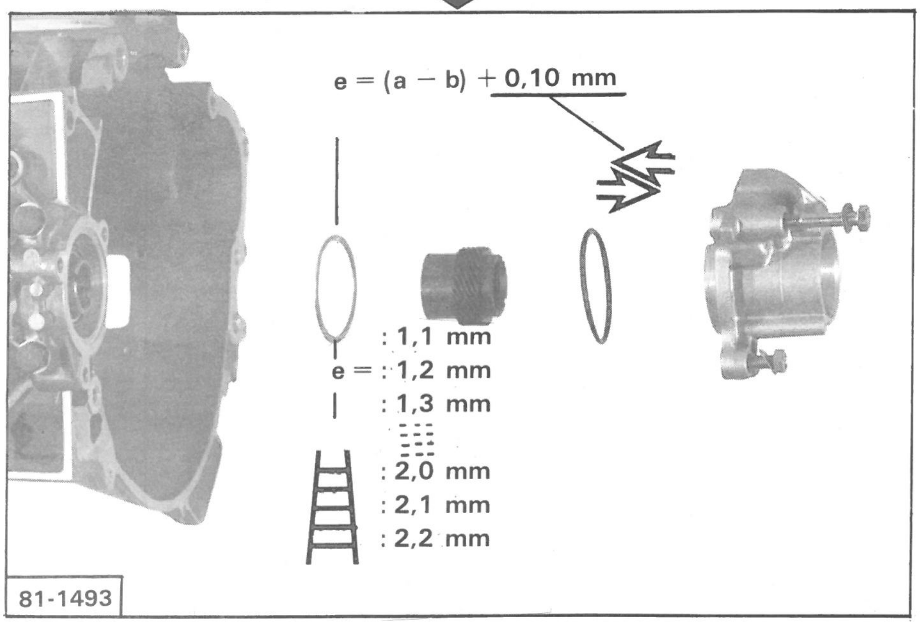
(I) Per il montaggio, applicare la rondella da 2,2 mm e la scatola; serrare a 1 m.daN. Togliere il complessivo.
Precarico dei cuscinetti : 0,10 mm.



81-1491



81-1490



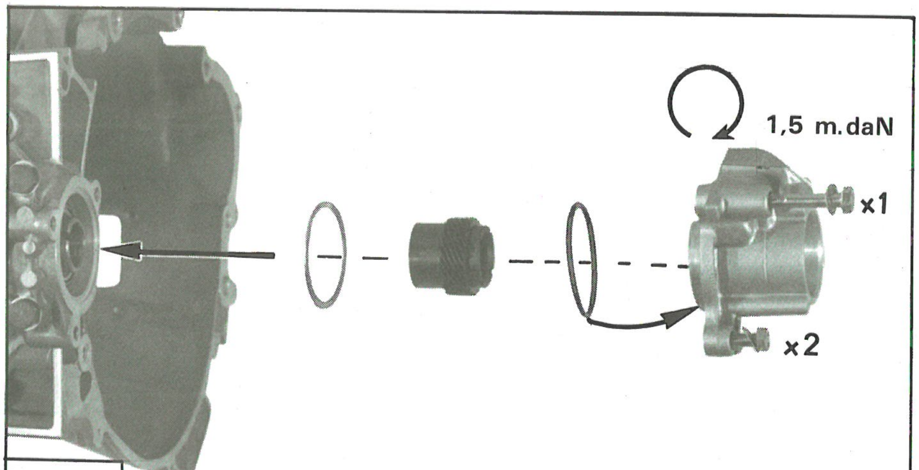
81-1493

NL Monteer, voor het op zijn plaats brengen, het kaliber van 2,2 mm en het huis. Vastdraaien met 1 m.daN.
Verwijder het geheel.
Voorspanning van de lagers : 0,10 mm.

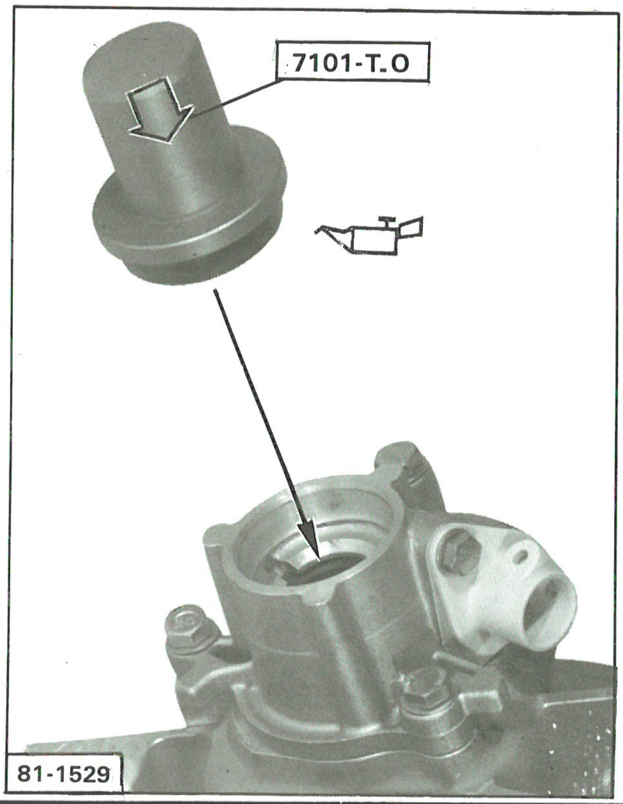
P Para colocação, montar o calço de 2,2 mm e a caixa, apertar a 1m.daN. Desmontar o conjunto.
Pressão ou précarga dos rolamentos : 0,10 mm.

S Montera huset med den 2,2 mm tjocka justerbrickan, och drag at med 1 m.daN. Demontera enheten.
Lagerförspänning : 0,10 mm.

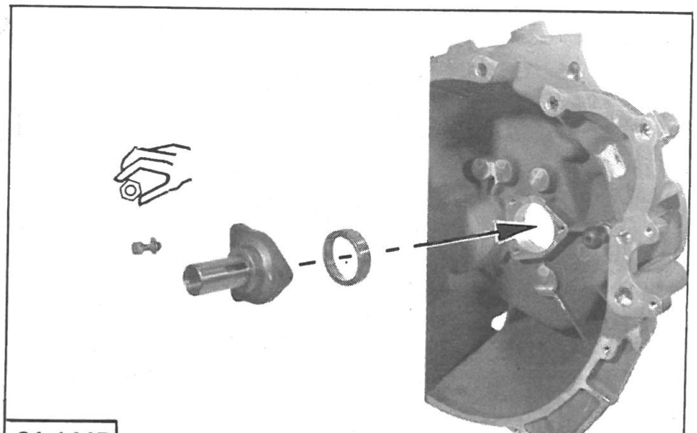
F Pour la mise en place, monter la cale de 2,2 mm et le boîtier. Serrer à 1 m.daN. Déposer l'ensemble.
Contrainte ou précharge des roulements : 0,10 mm.



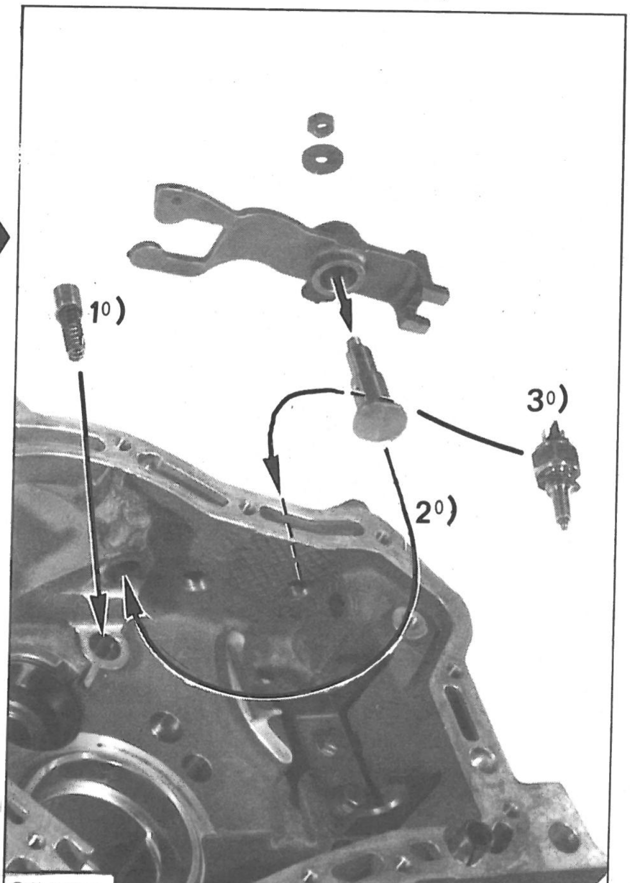
81-1493



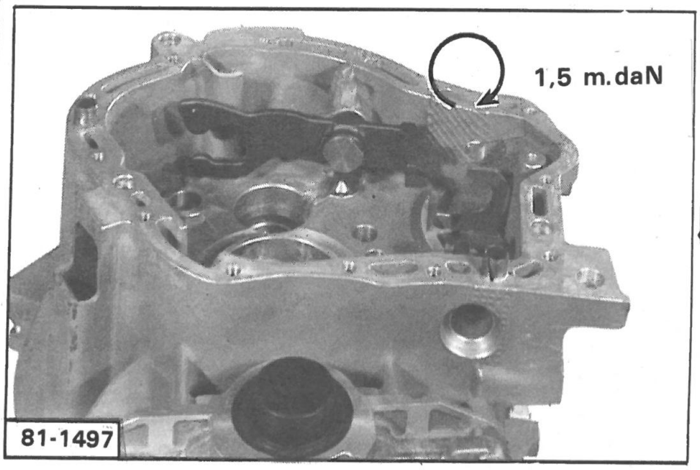
81-1529



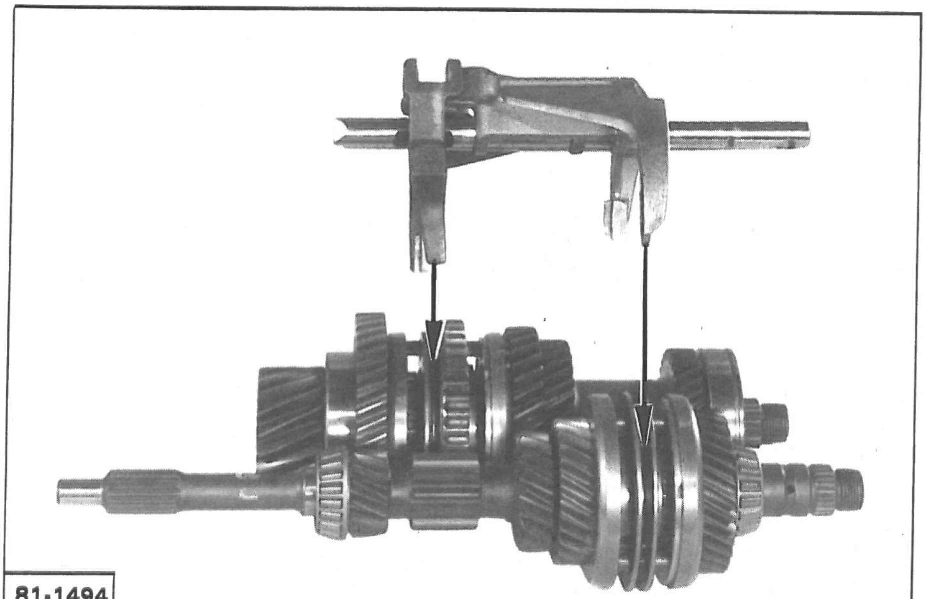
81-1447



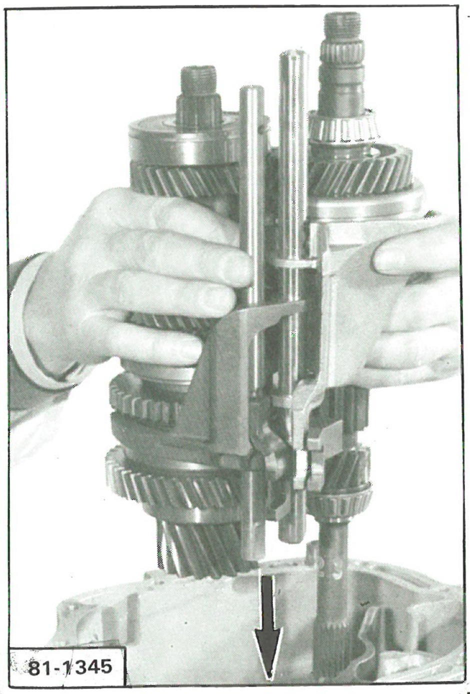
81-1353



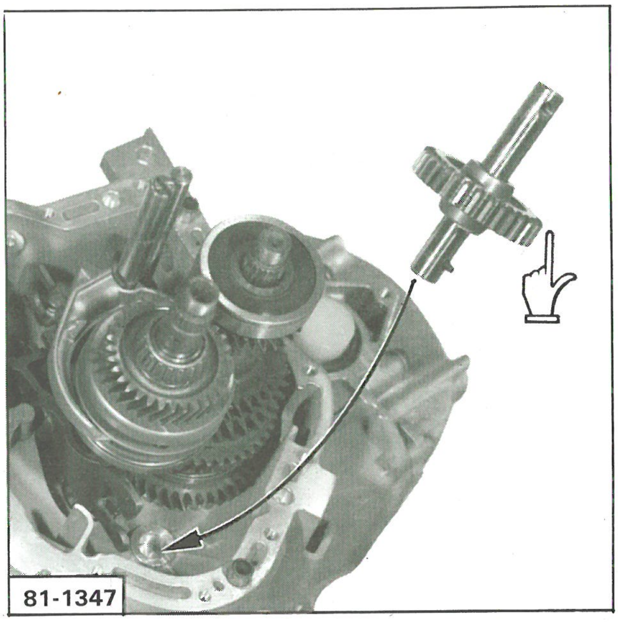
81-1497



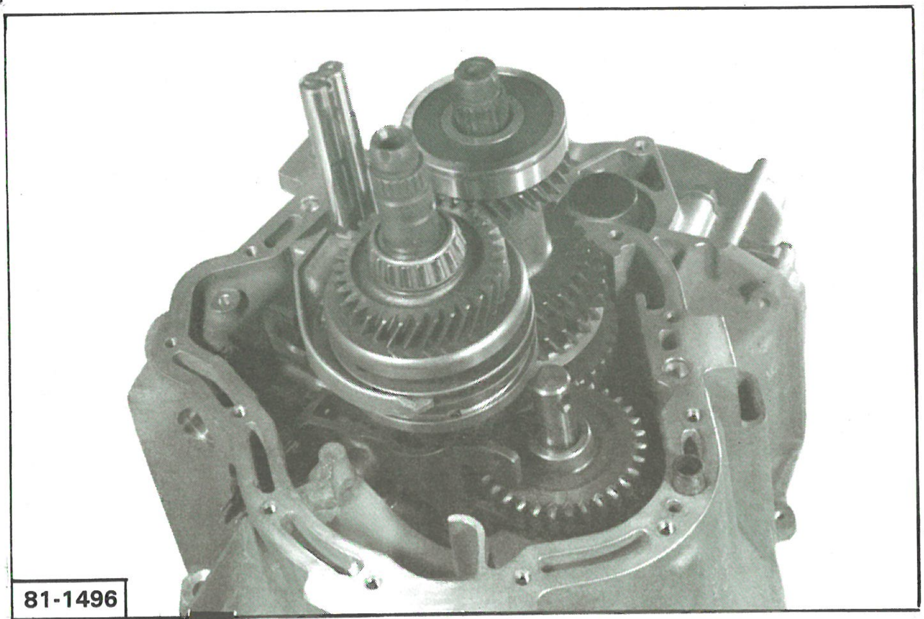
81-1494



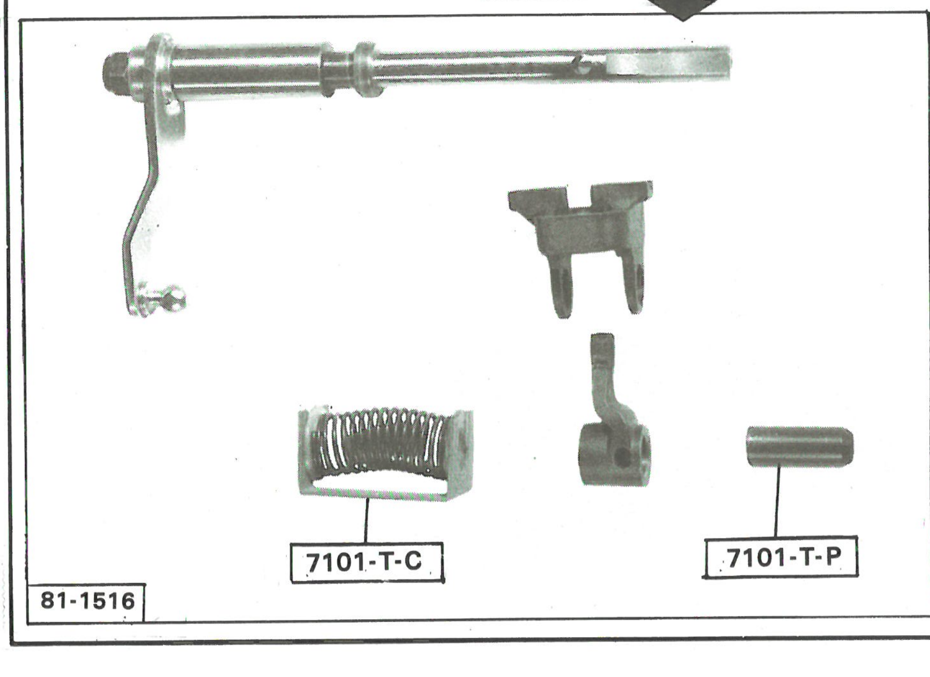
81-1345



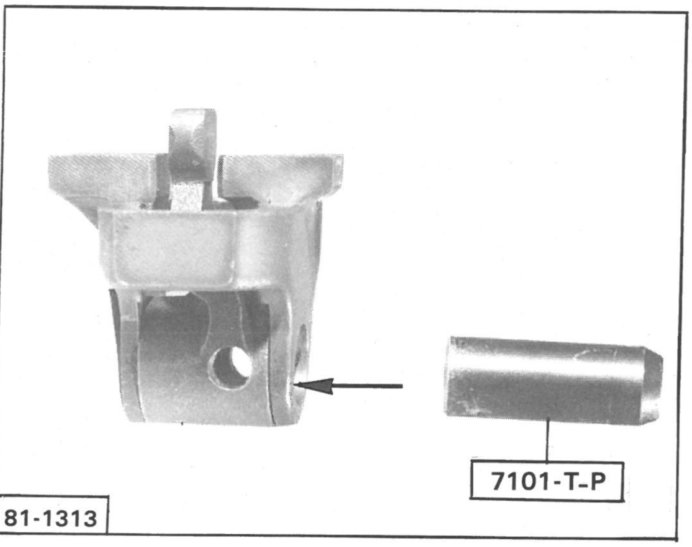
81-1347



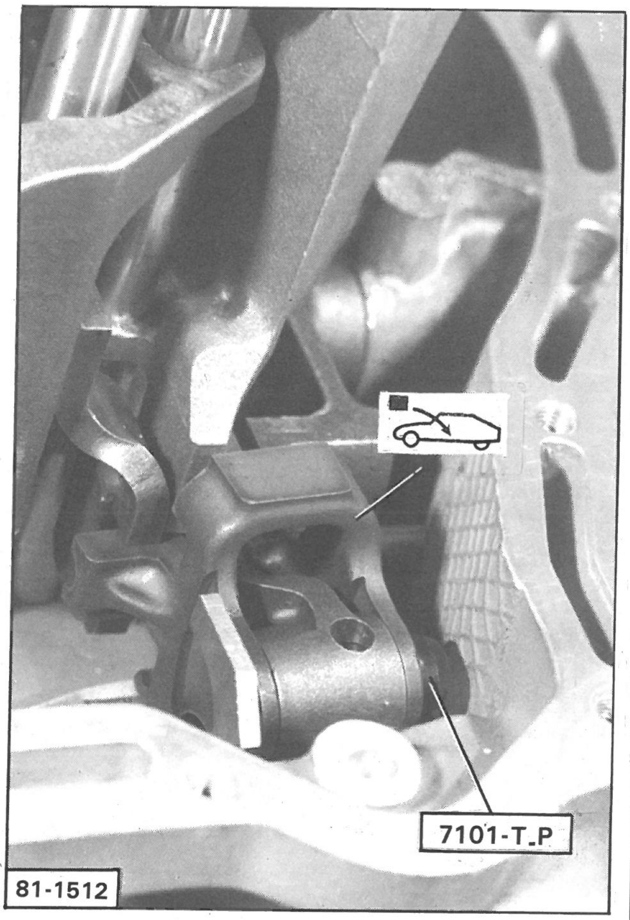
81-1496



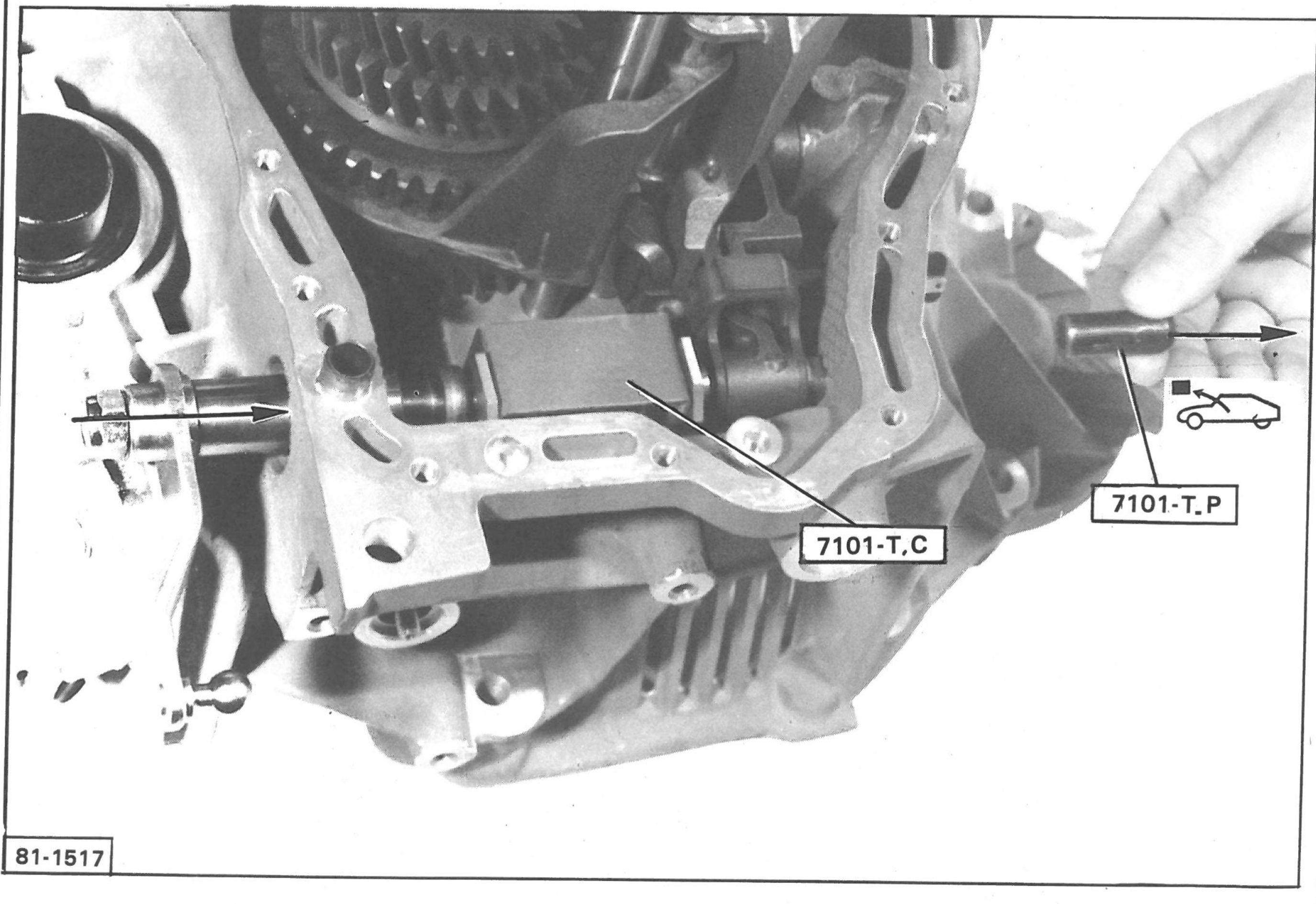
81-1516



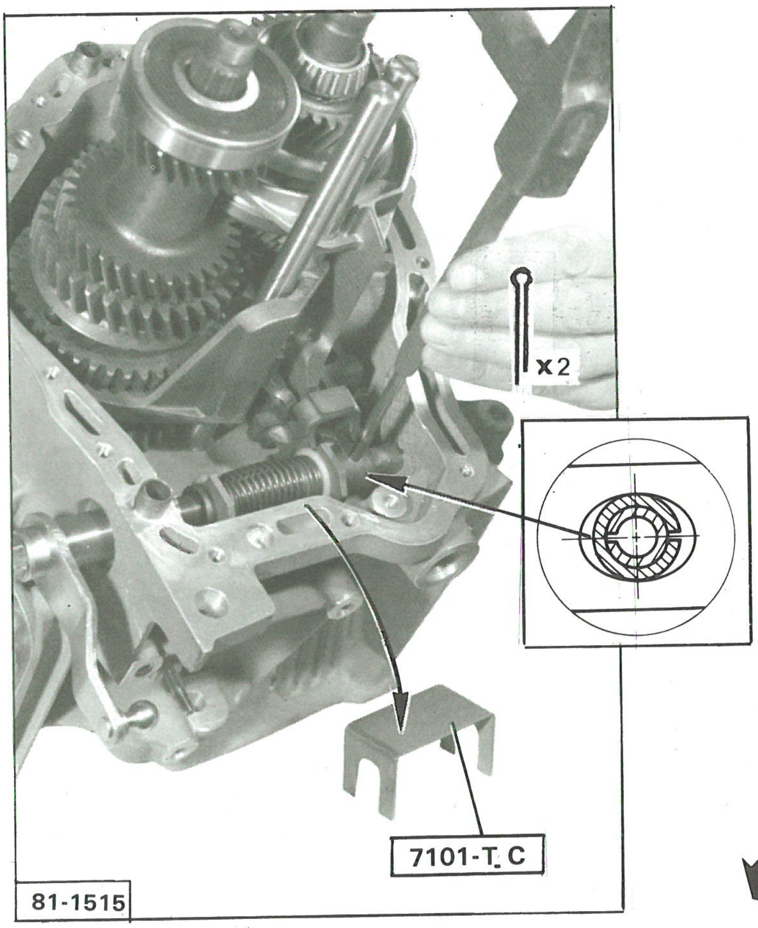
81-1313

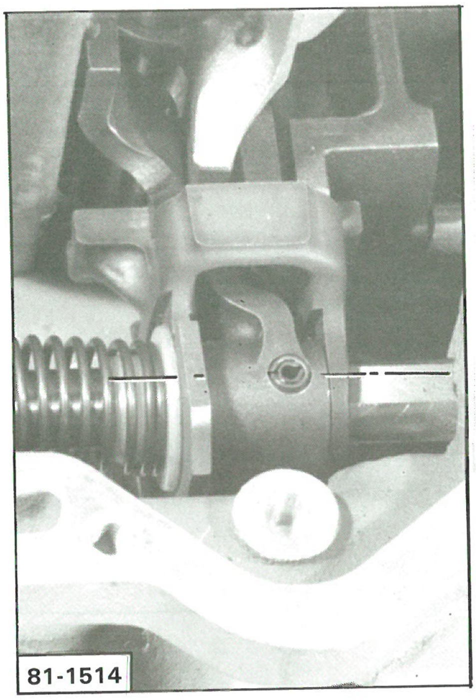


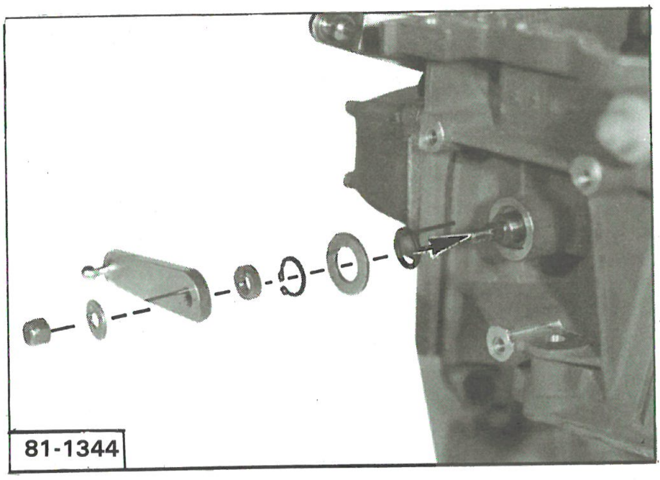
81-1512

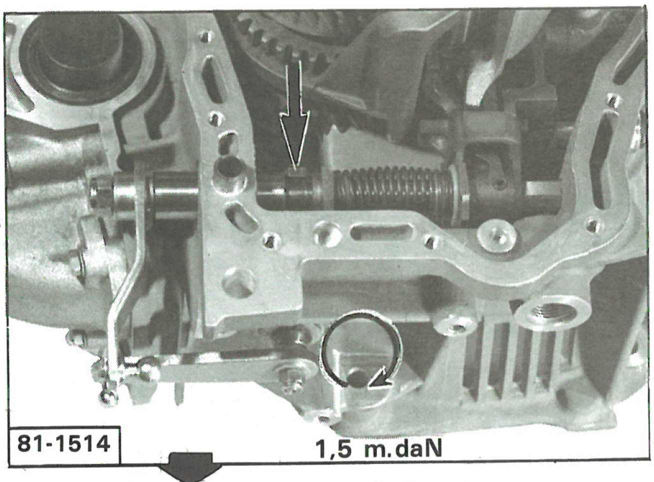


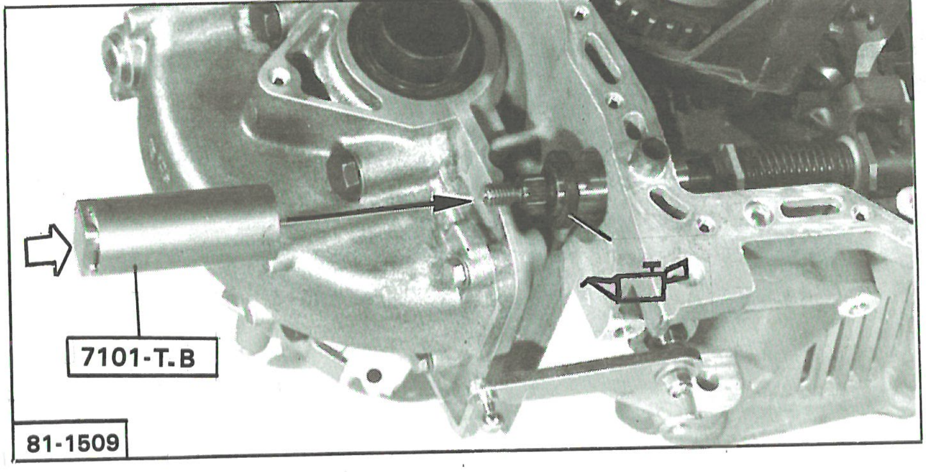
81-1517

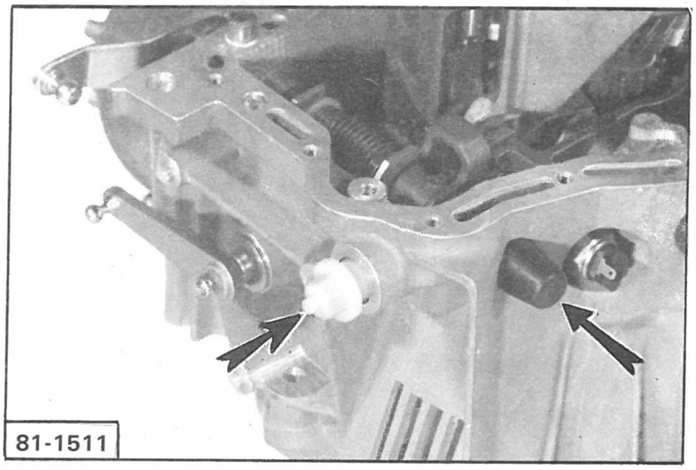

x2
7101-T.C
81-1515


81-1514

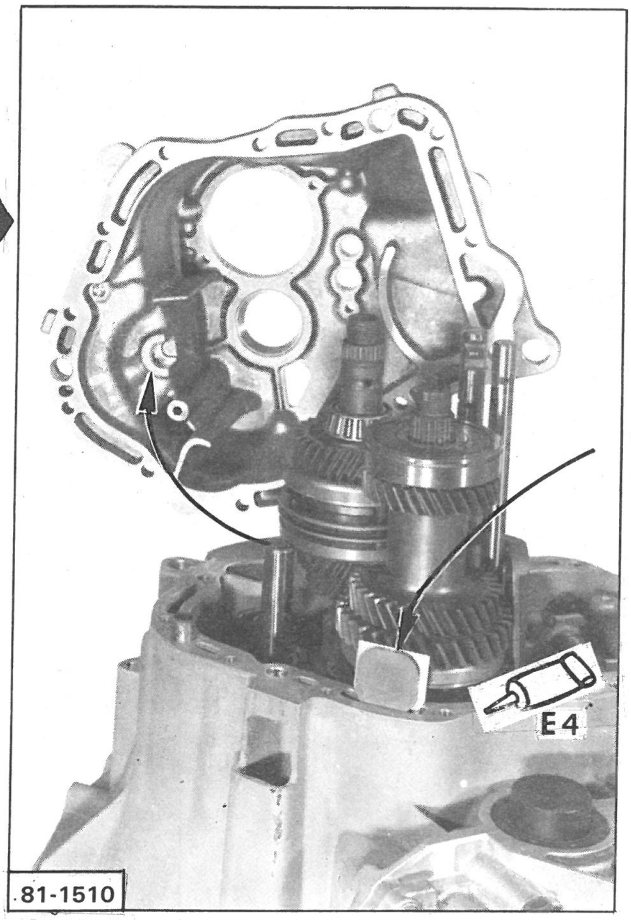

81-1344


81-1514
1,5 m.daN

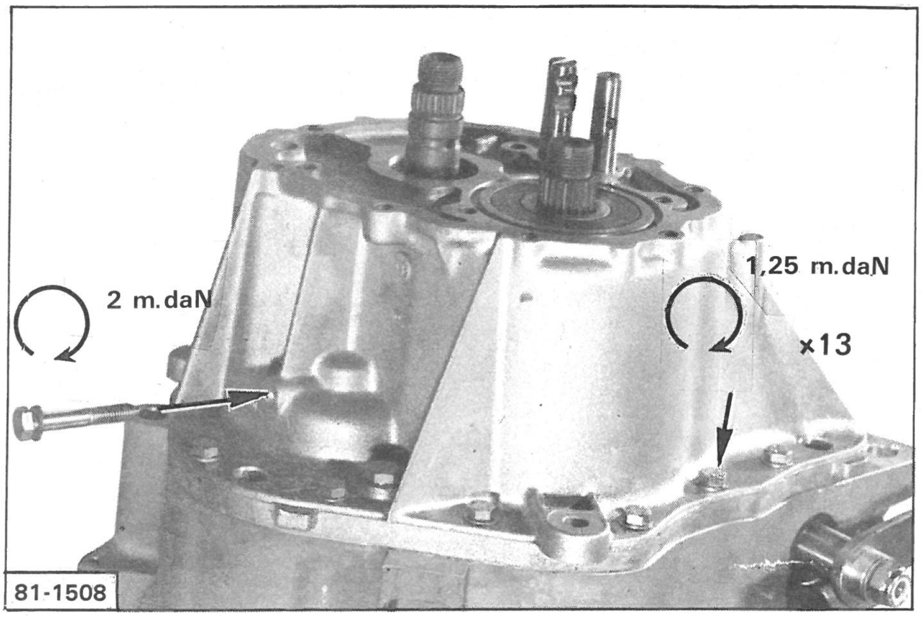

7101-T.B
81-1509



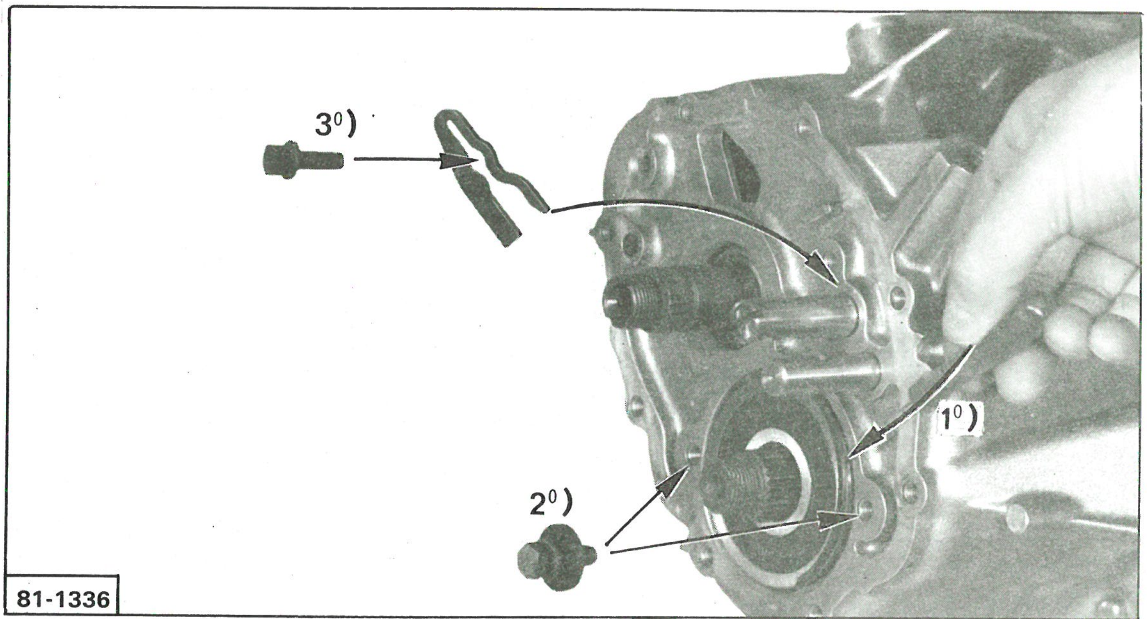
81-1511



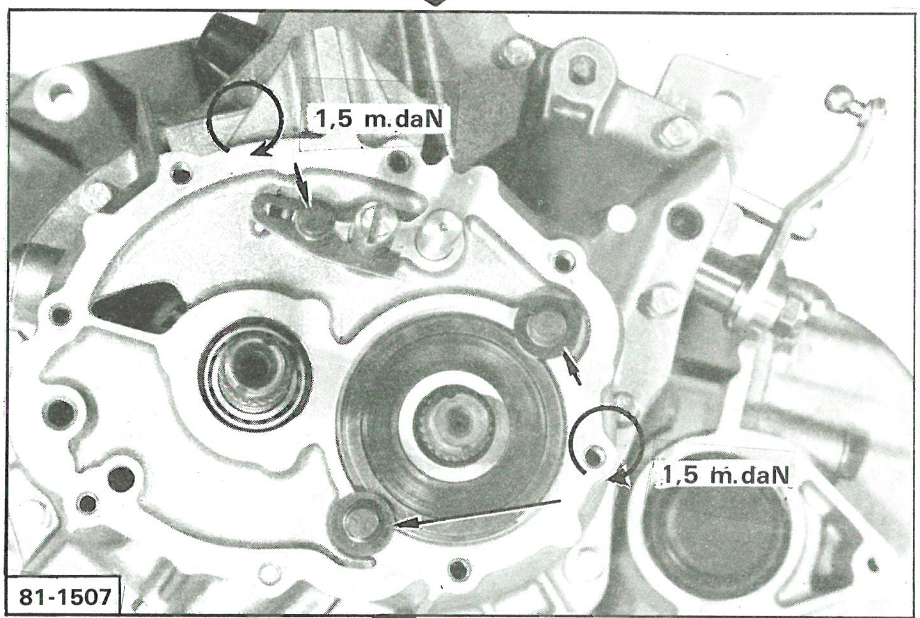
81-1510



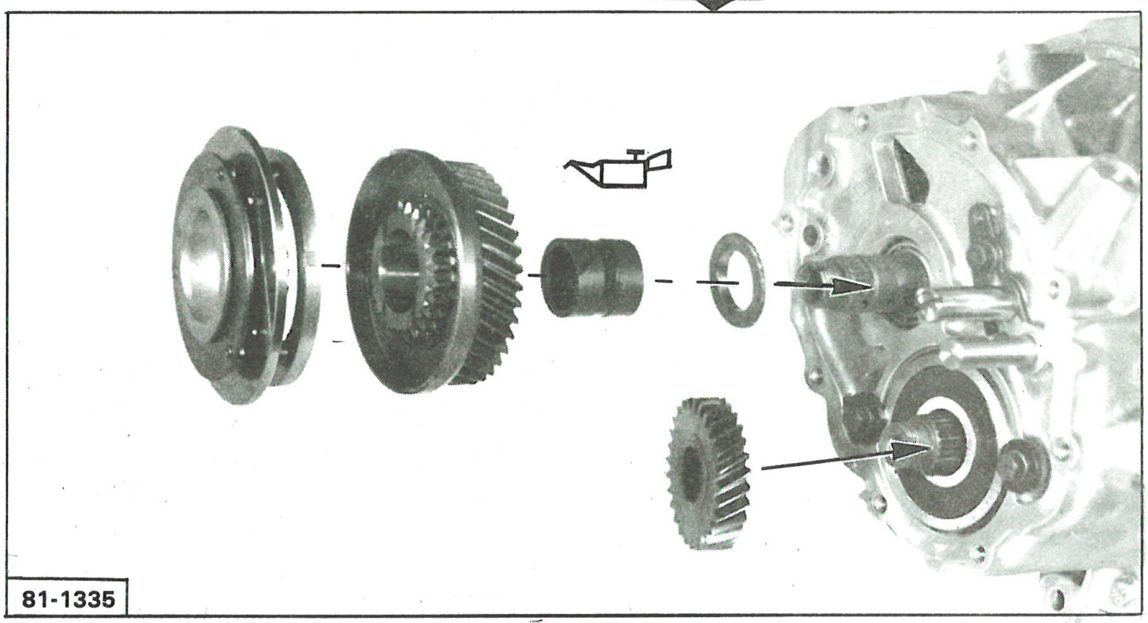
81-1508

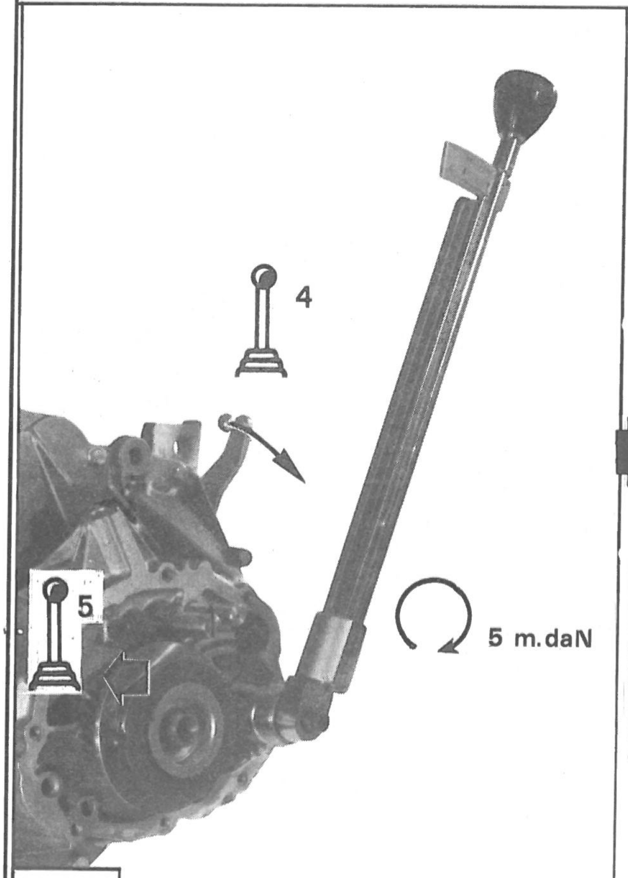


81-1336

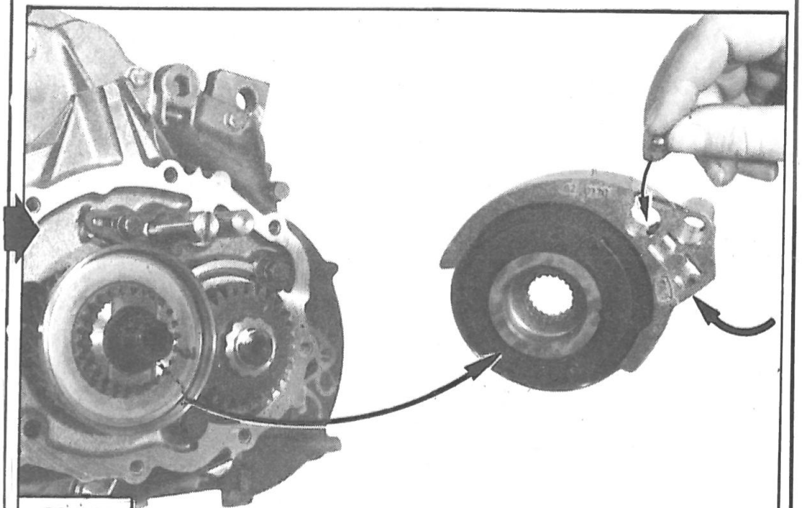


81-1507

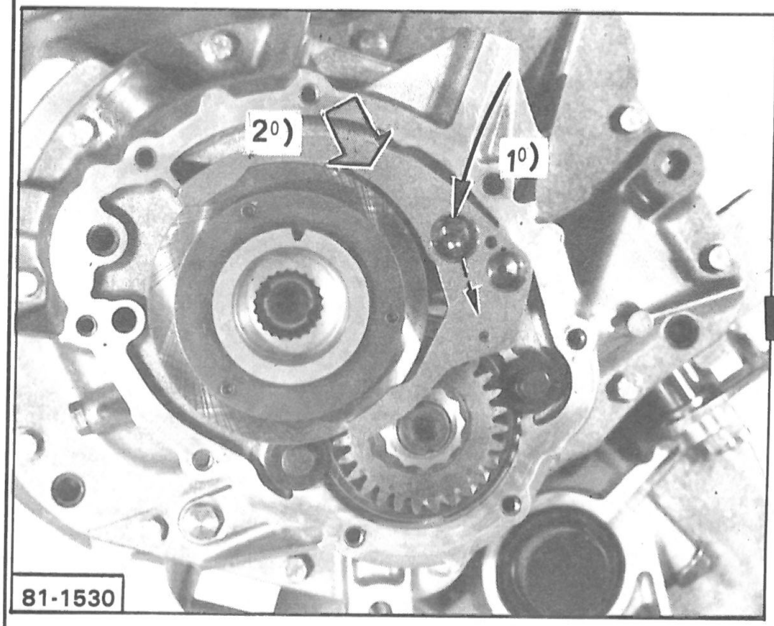

81-1335



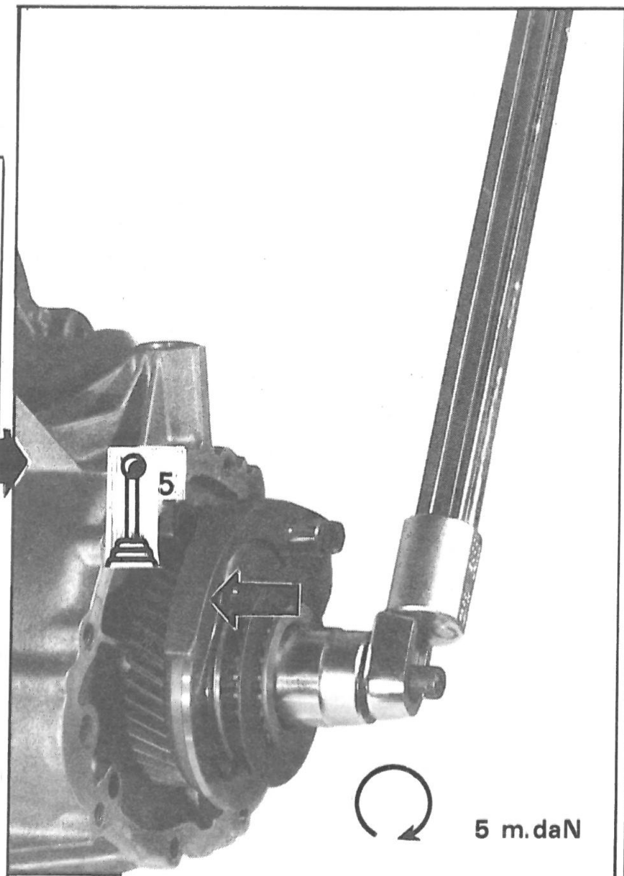
81-1331



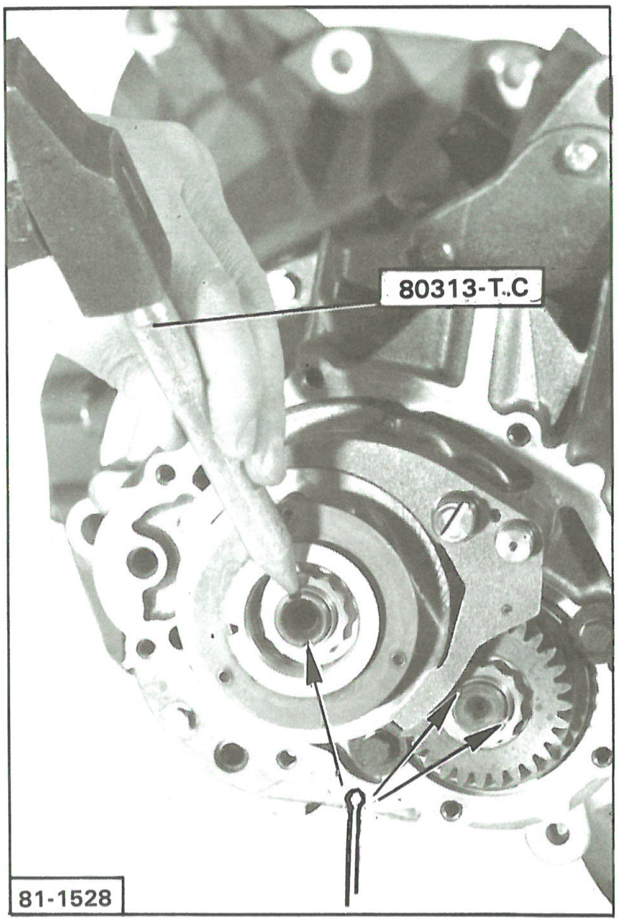
82-547



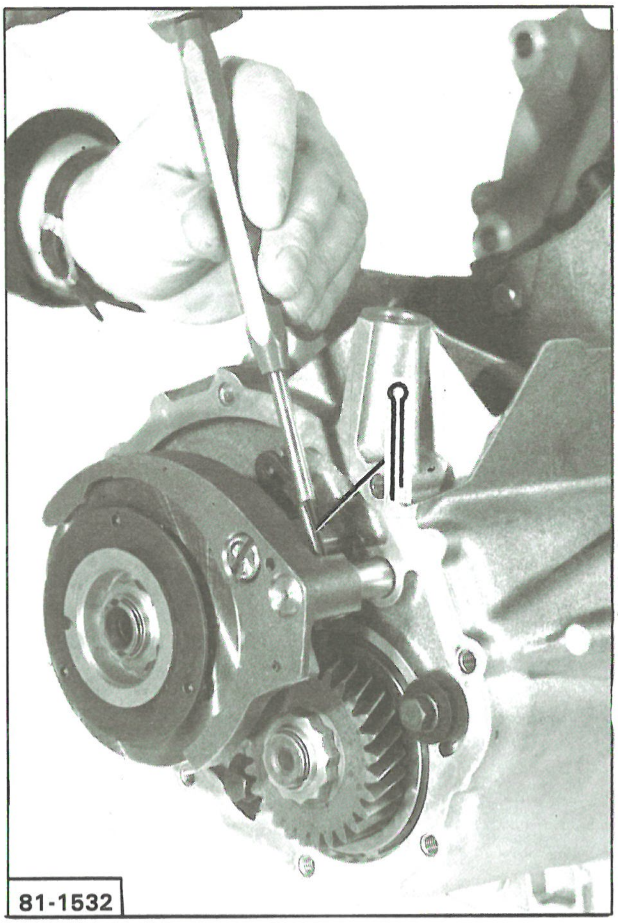
81-1530



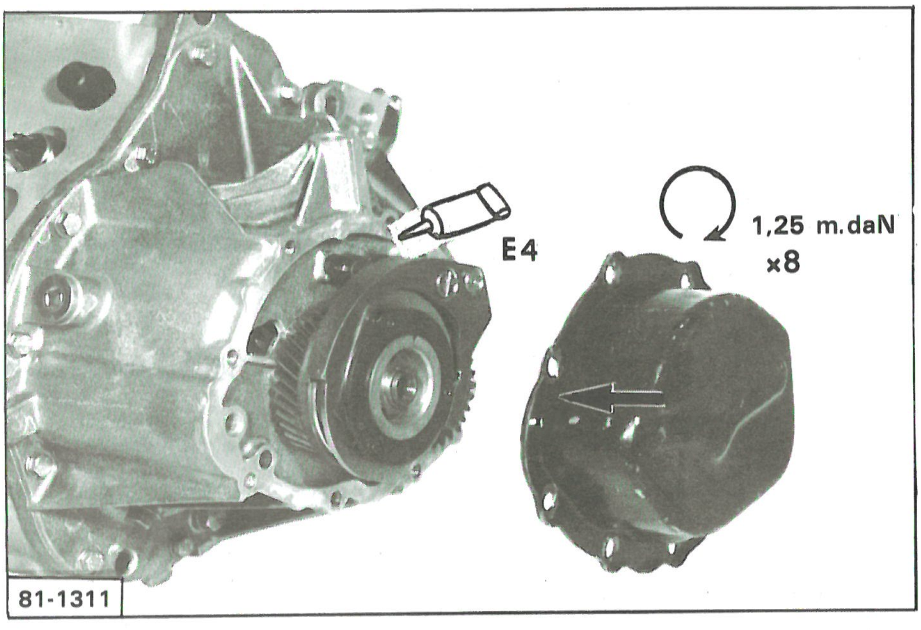
81-1533



81-1528



81-1532



81-1311

D

Zum Einbau der Lage sind die 2,4 mm - Beilage und die Führung einzubauen. Mit 1 m.daN festziehen. Einheit ausbauen.
Beanspruchung oder Vorspannung der Lager : 0,05 mm.
Stärke des Gelenks : 0,20 mm - Gesamt : 0,25 mm.

DK

Ved montering af rullelejerne skal der isœttes justerkive pa 2,4 mm og foring, tilspœnd med 1 m.daN. Atmonter enheden.
Lejeforspœnding : 0,05 mm
Pakningstykkelse : 0,20 mm - Ialt : 0,25 mm.

E

Para la colocación de los rodamientos, montar el suplemento de 2,4 mm. Y la guia, apretar a 1 m.daN. Desmontar el conjunto.
Ajuste o precarga de los rodamientos : 0,05 mm
Espesor de la junta : 0,20 mm - Total : 0,25 mm.

GB

To position the bearings, assemble the 2,4 shim and the guide, tighten to 1 m.daN. Remove the assembly.
Bearing preload : 0,05 mm.
Gasket thickness : 0.20 mm - Total : 0.25 mm.

I

Per il montaggio dei cuscinetti, applicare la rondella da 2,4 mm. e la guida, serrare a 1 m.daN. Togliere il complessivo.
Precarico dei cuscinetti : 0,05 mm.
Spessore della guarnizione : 0,20 mm - Totale : 0,25 mm.

NL

Voor het op hun plaats brengen van de lagers, dient het kaliber van 2,4 mm en de geleider gemonteerd te worden. Vastzetten met 1 m.daN. Verwijder het geheel.
Voorspanning van de lagers : 0,05 mm.
Dikte van de pakking : 0,20 mm - Totaal : 0,25 mm.

P

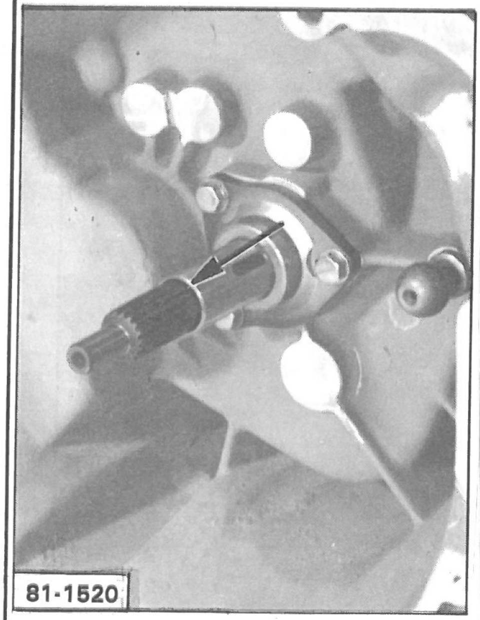
Para colocação dos rolamentos, montar a calço de 2,4 mm e o guia, apertar a 1 m.daN. Desmontar o conjunto.
Pressão ou précarga dos rolamentos : 0,05 mm
Espessura da junta : 0,20 mm - Total : 0,25 mm.

S

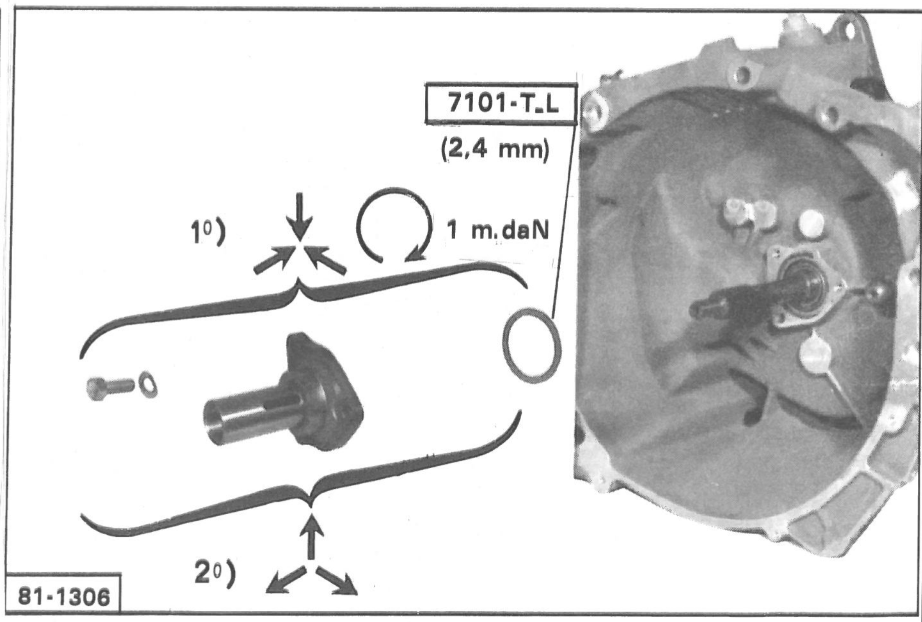
Montera lagren med den 2,4 mm tjocka justerbrickan och styrningen; drag at med 1 m.daN - Demontera enheten.
Lagerförspänning : 0,05 mm
Packningens tjocklek : 0,20 mm - Summa : 0,25 mm.

F

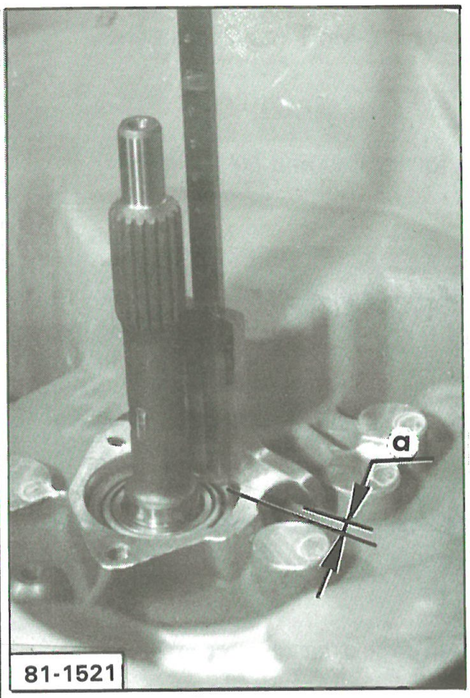
Pour la mise en place des roulements, monter la cale de 2,4 mm et le guide, serrer à 1 m.daN. Déposer l'ensemble
Contrainte ou précharge des roulements : 0,05 mm.
Epaisseur du joint : 0,20 mm - Total : 0,25 mm.



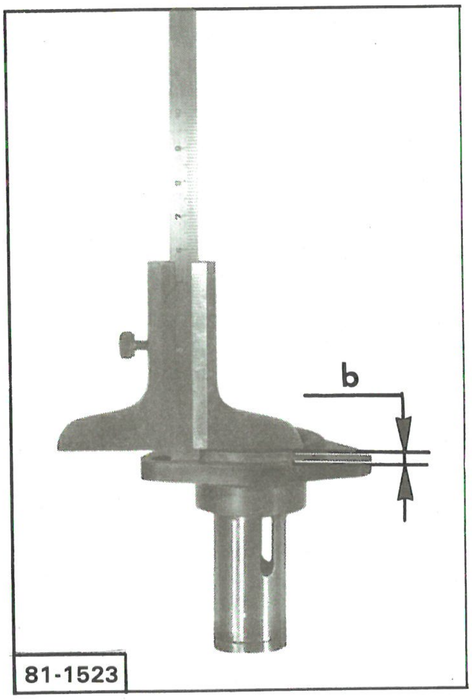
81-1520



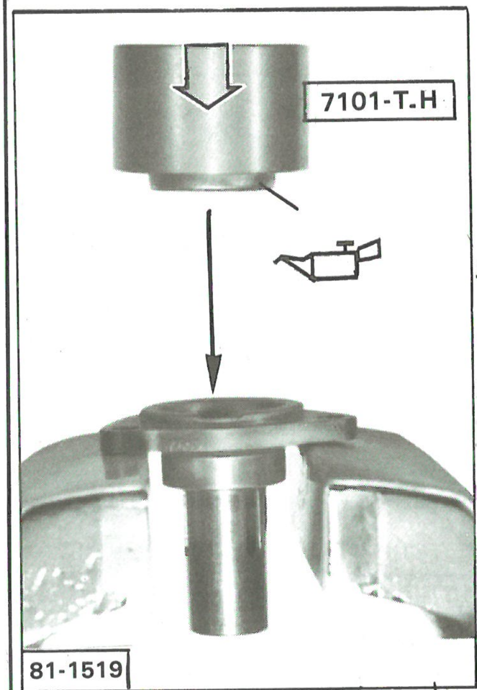
81-1306



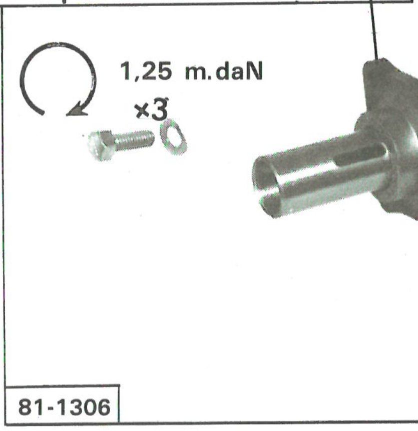
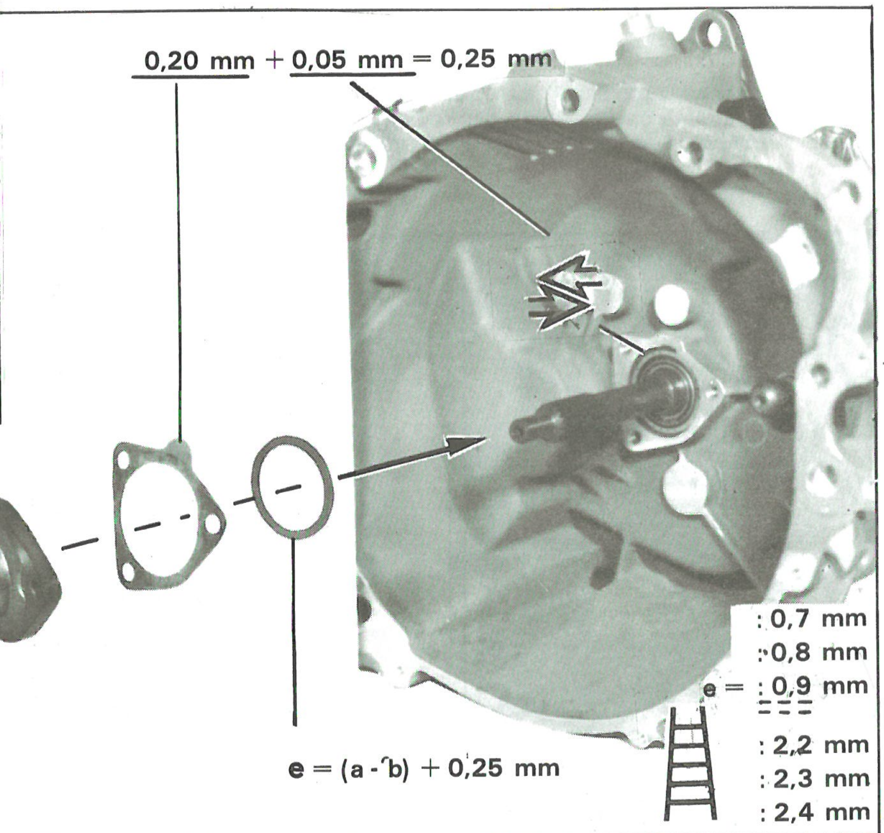
81-1521



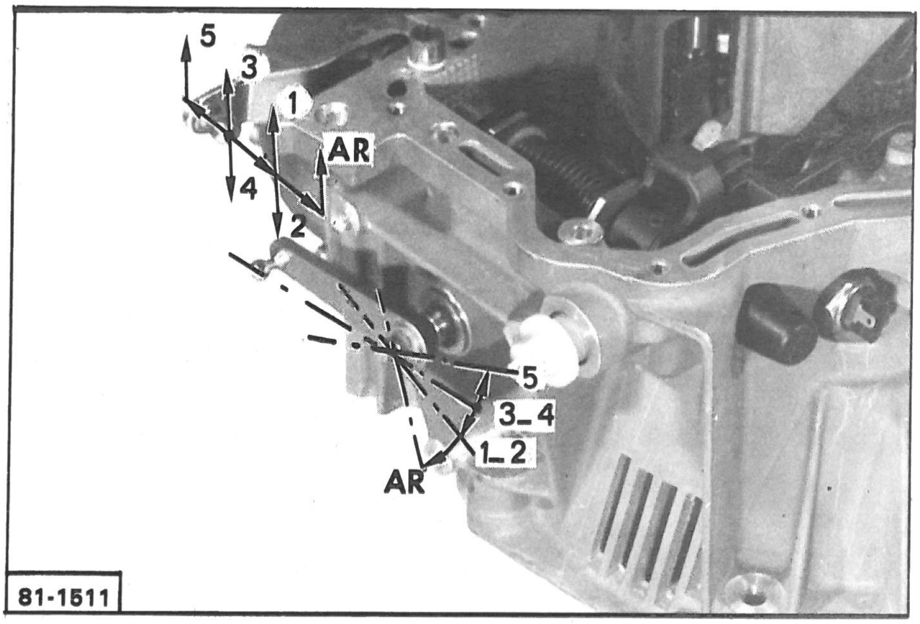
81-1523



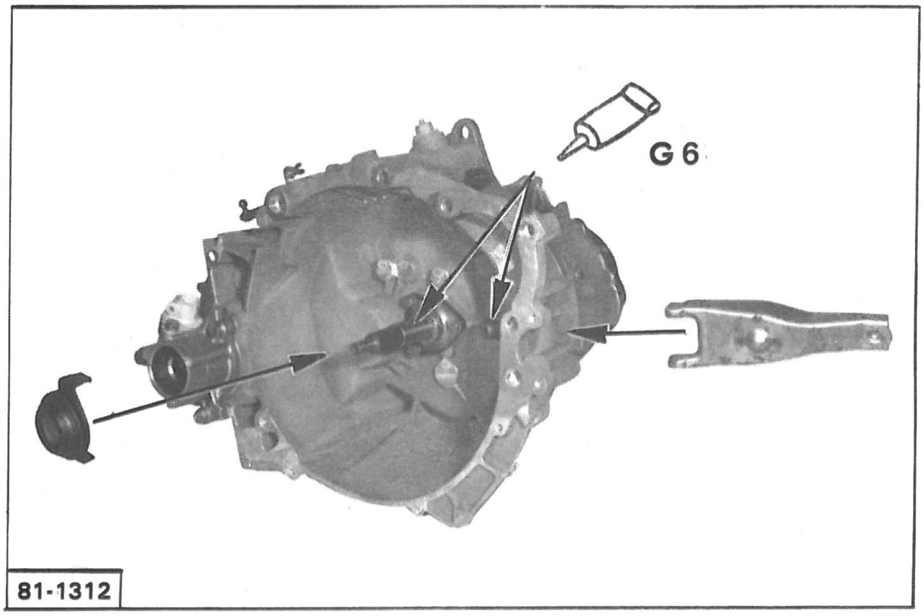
81-1519

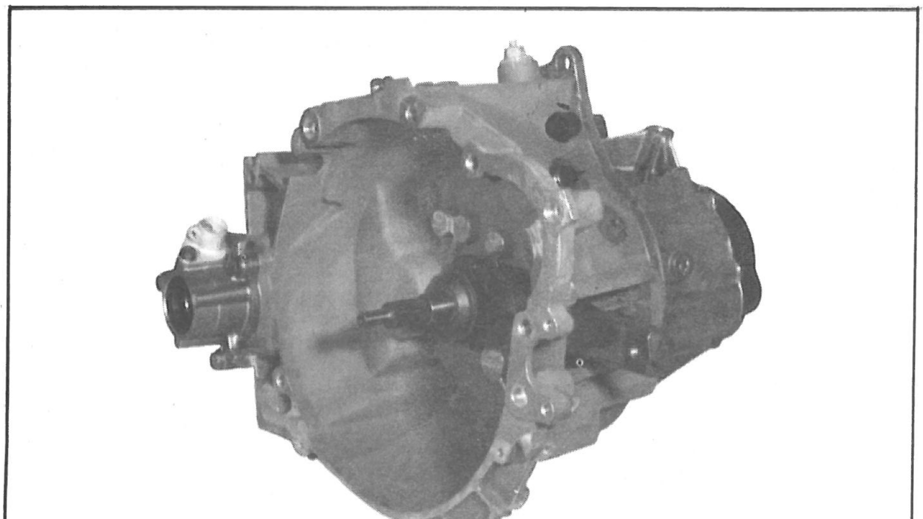
81-1306



81-1511



81-1312



81-1313

WORKING ON THE GEARBOX IN SITU
REMOVING AND FITTING THE PRIMARY AND SECONDARY SHAFTS

REMOVAL.

Chock the vehicle with the front wheels hanging free.

Drain the gearbox.

Remove the L.H. front wheel and protective plate (1), **Fig. I.**

Remove the air filter and the battery.

Slightly raise the gearbox and remove both support (2) and its axle, **Fig. II.**

Remove the gearbox cover.

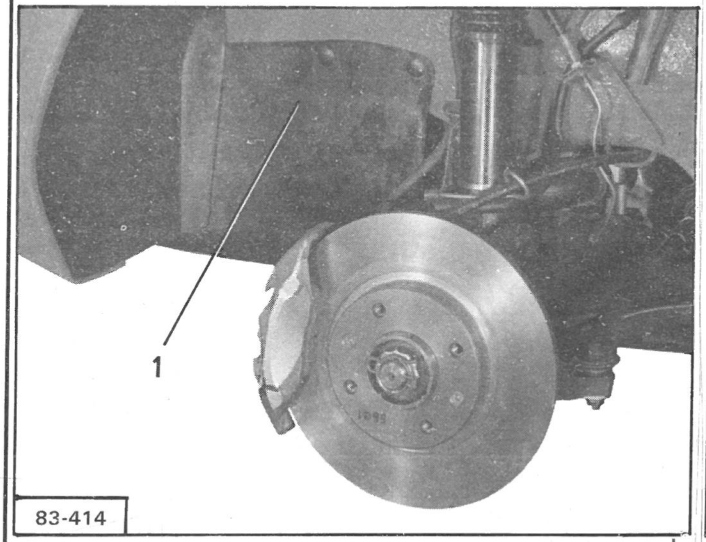
Drift out pin (3) (dia. = 5 mm) to free the 5th gear selector fork, **Fig. III.**

When loosening the nuts, it is necessary to jam the gearbox :
To do this, engage 4th gear using the gear change control and engage the 5th gear by pushing the corresponding selector fork.

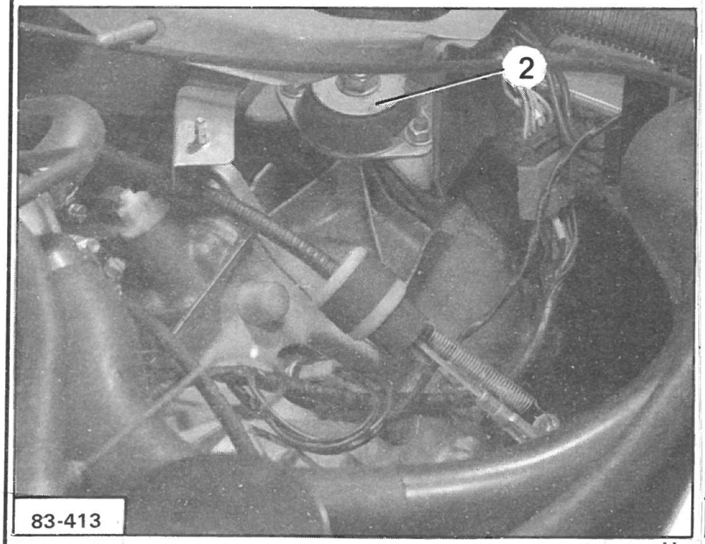
Remove the secondary shaft nut, **Fig. IV**
(12 face bush, 28 mm A/F).

Remove 5th gear synchronizer (7) with its fork (6).
Keep ball (5), Fig. V.
Refit the 5th gear synchronizer, without its fork, unlock nut (8) without removing it.
Remove the 5th gear synchronizer, pinion (9), the bush and the thrust washer.

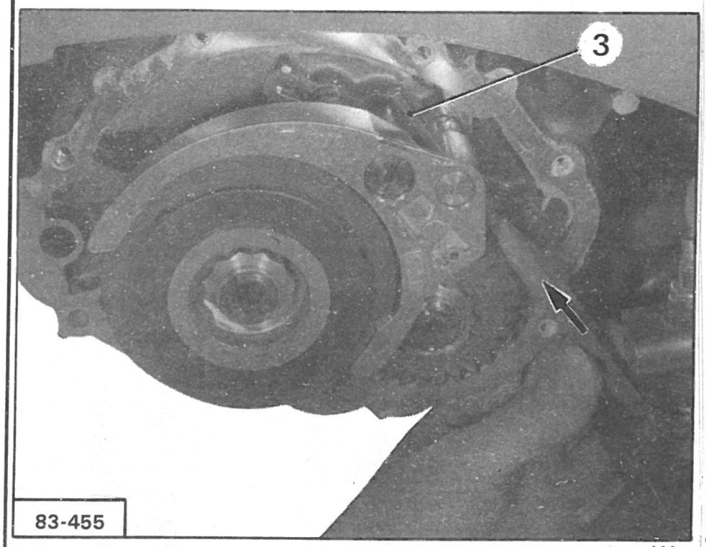
Remove, Fig. IV and VI :
- screws (4) securing the bearing,
- circlip (11) using a little screwdriver,
- stop plate (10) of the selector fork shaft,
- stop screw (12) of the reverse gear gudgeon pin,
- the housing securing screws.



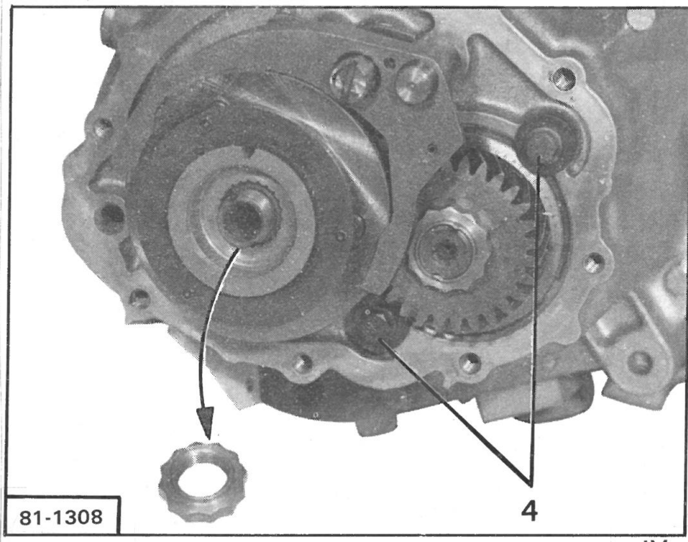
I



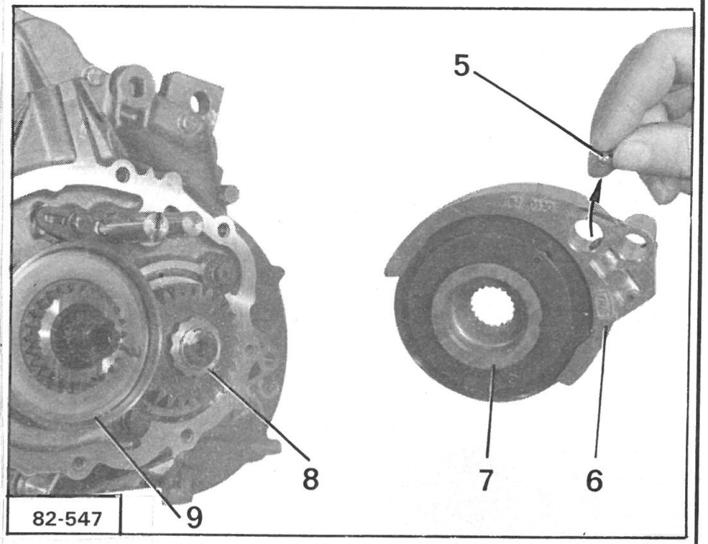
II



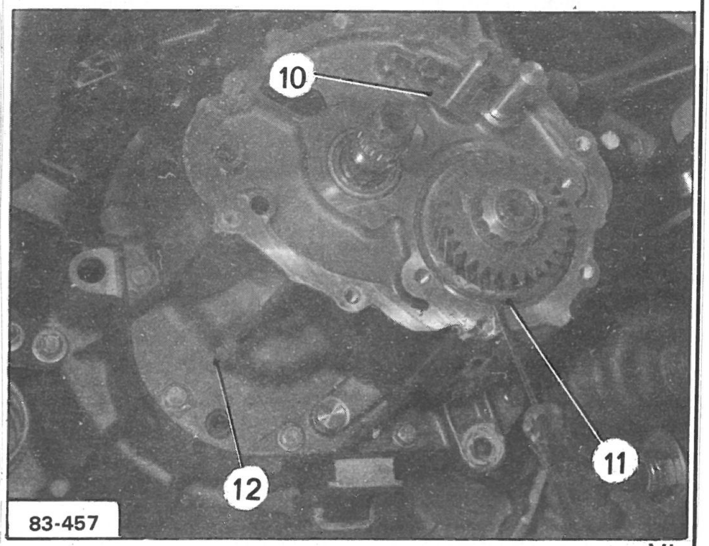
III



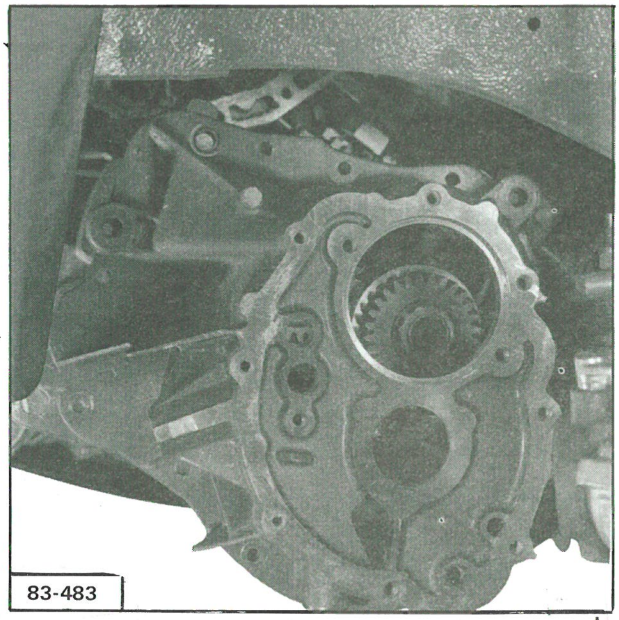
IV



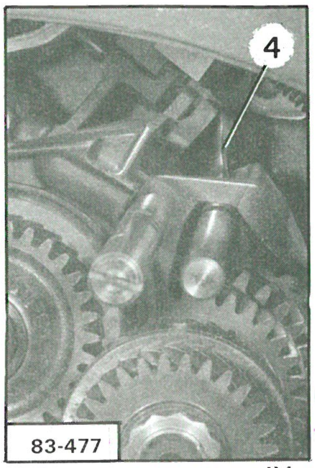
V



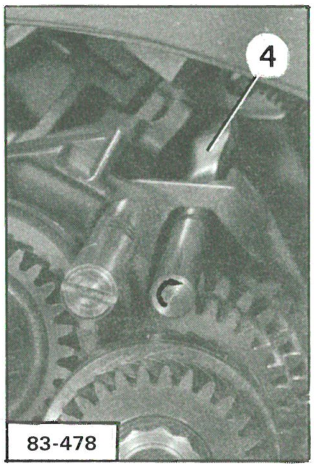
VI



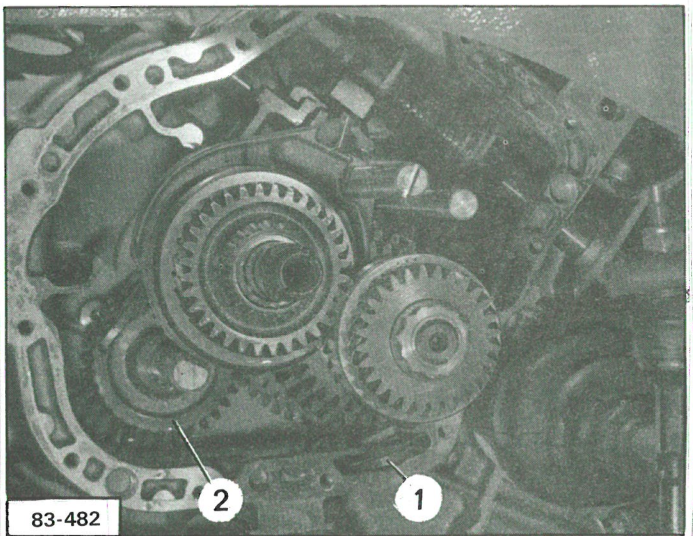
I



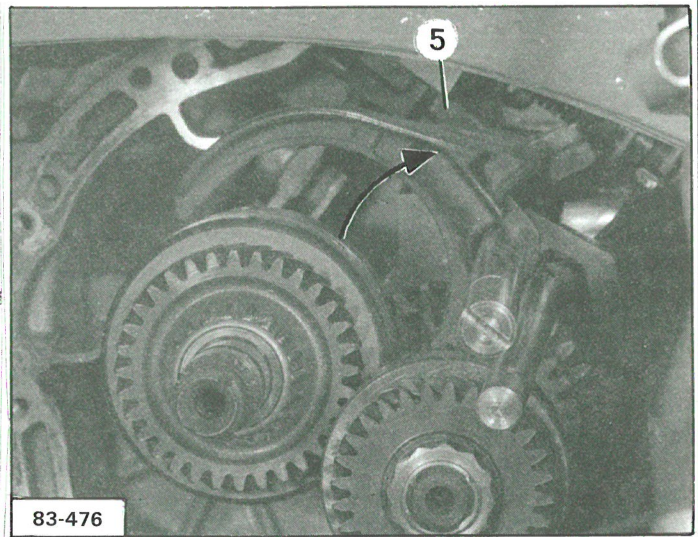
IV



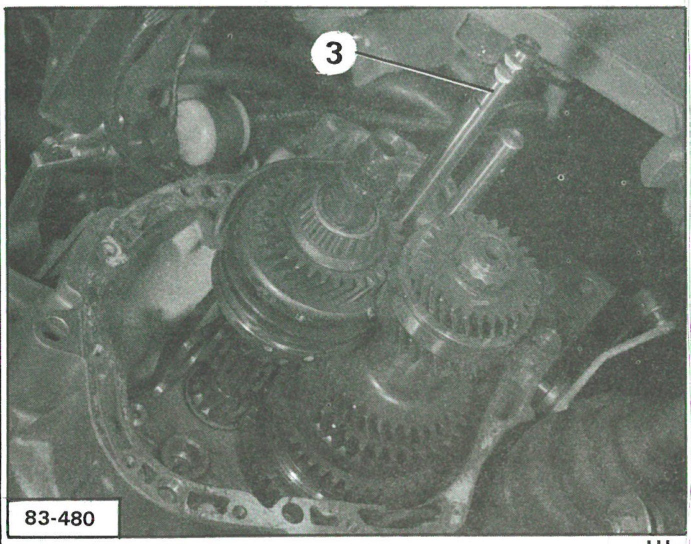
V



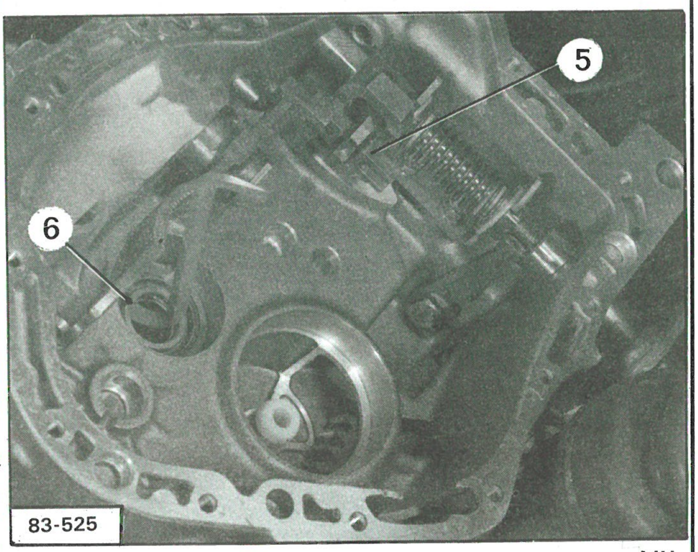
II



VI



III



VII

Rotate the housing by a quarter of a turn to remove it. Keep magnetic plate (1), **Fig. II.**

Set the gearbox to the reverse gear position*(by means of the gear change lever since the reverse gear is locked).*

Remove reverse gear shaft and pinion (2), **Fig. II.**

Rotate fork shaft (3) by a quarter of a turn to free the balls and move it back by several centimetres to release it from its housing, **Fig. III.**

Orientate the 5th gear control shaft (4) to release it from its housing, **Fig. IV and V.**

Tilt the forks to release them from the interlocking device (5) and remove both the shafts and their forks, **Fig. VI and VII.**

Remove oil seal (6) using a right-angled screwdriver, **Fig. VII.**

Lubricate the oil seal **and fit** it using tool **7107-T.Q, Fig. I.**

When replacing parts on the primary shaft, it is necessary to adjust the bearing load.

The primary shaft should be fully equipped before being fitted in the casing, the case being in position : hold the unit using the nut and sleeve **7107-T.R.** Slightly tighten, **Fig. II.**

Fit sleeve **7107-T.S** on the primary shaft, the outer race already in position.

Measure distance **« b »** between the sleeve surface being in contact with the bearing and the casing joint face, **Fig. III.**

Since both the base of sleeve **7107-T.S** and the base of the depth gauge measure **10 mm**, the reading should be reduced by **20 mm** to obtain distance **« b ».**

Measure distance **« a »** between the face of the shim being in contact with the thrust guide and the sealing surface of the casing, **Fig. IV.** Reduce the reading of the depth gauge by **10 mm** to obtain distance **« a ».**

The stress exerted upon the bearings should be **0.05 mm.** Therefore, the **thickness of the shim will be**
e = (a - b) + 0.05 mm.

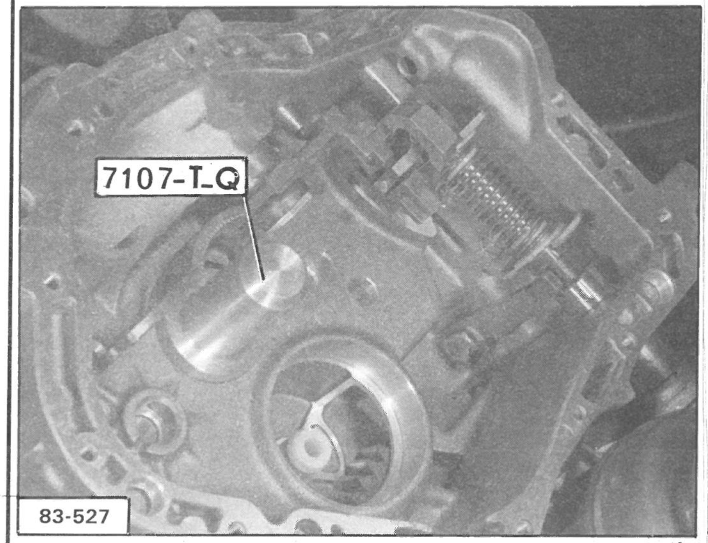
The thickness of the shim chosen should be as close as possible to thickness **« e ».**

FITTING.

Before fitting the shafts, make sure that oil deflector (2) is correctly positioned on the casing and set the fork (1) to the reverse position, **Fig. V.**
(Using the gear change lever).

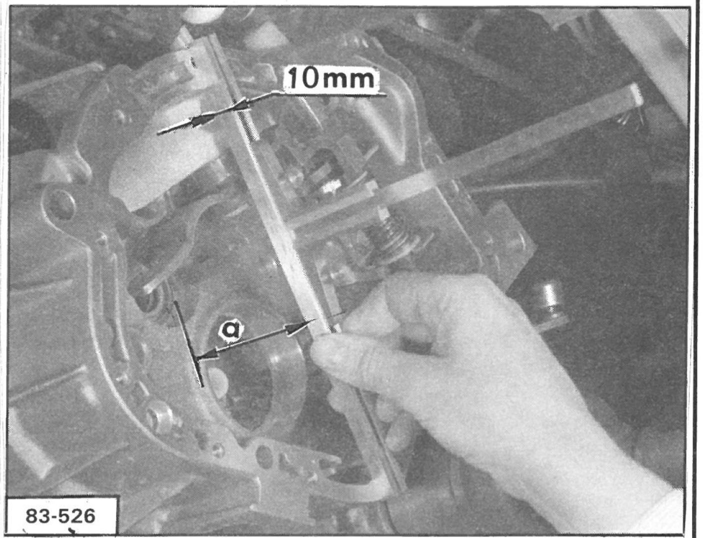
Slightly lubricate the primary shaft bearing surfaces, fit the forks on the synchronizers, **without setting control shafts (3) in their final position, Fig. VI.**

Fit the shim and the bearing outer race into the casing.



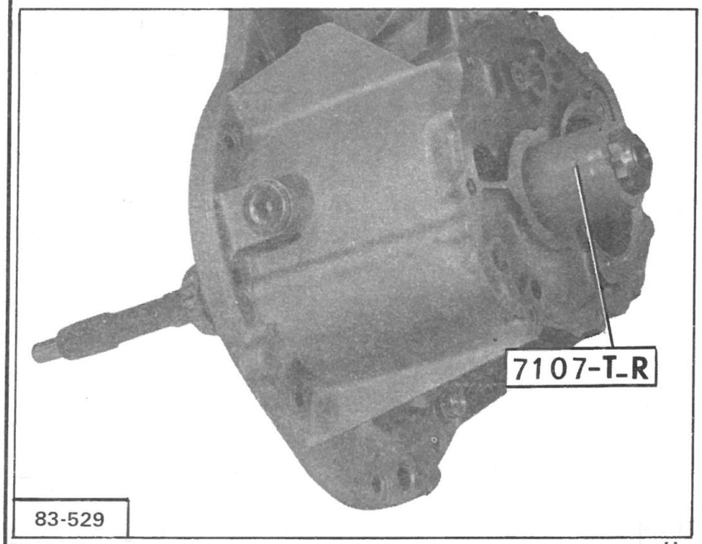
83-527

I



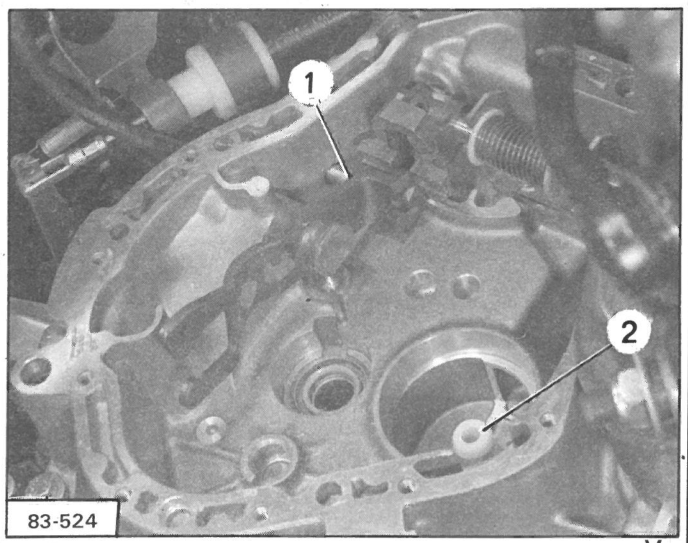
83-526

IV



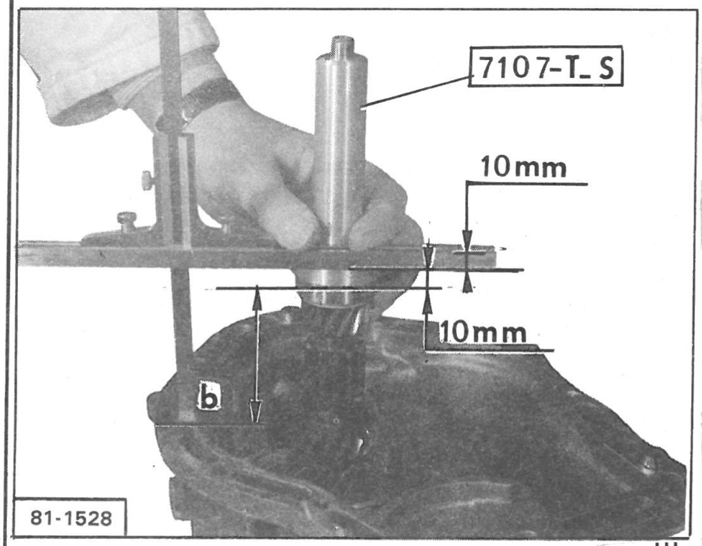
83-529

II



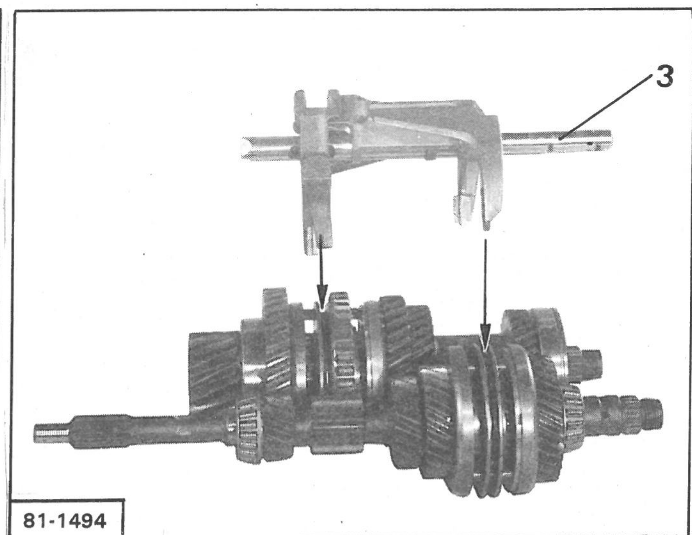
83-524

V



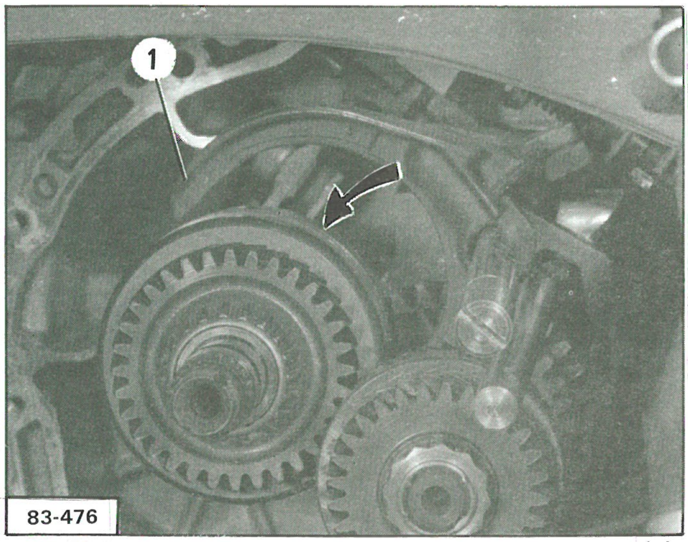
81-1528

III

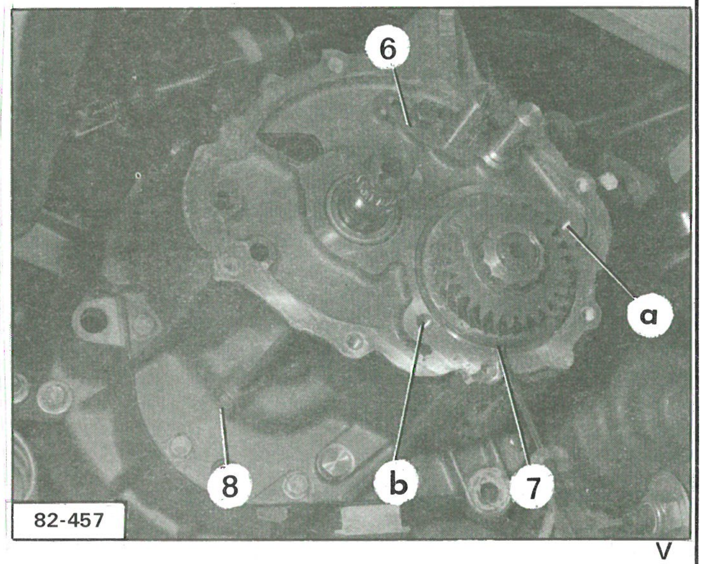


81-1494

VI

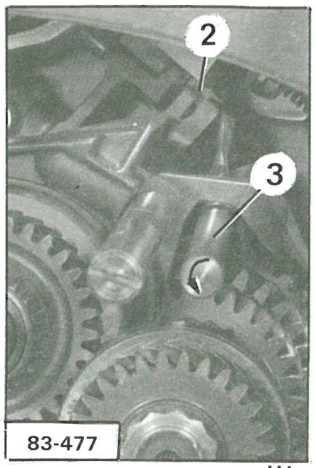


I

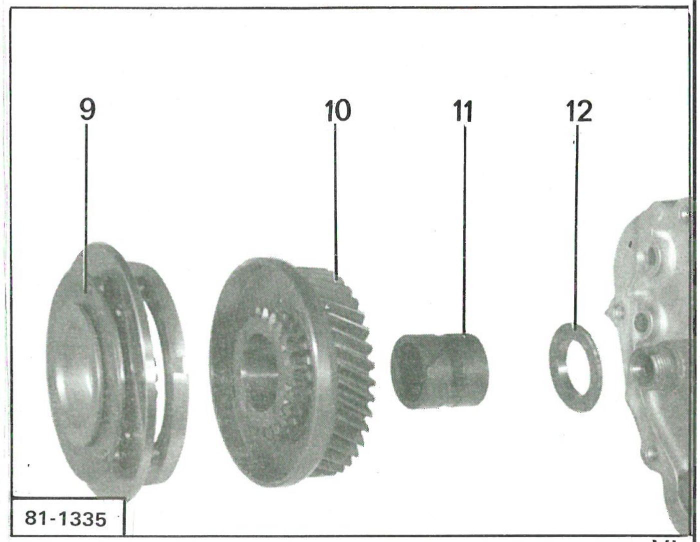


V

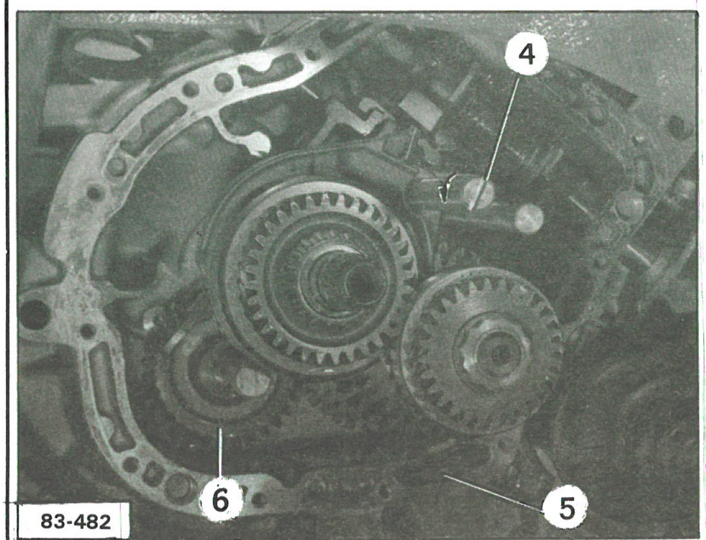
II



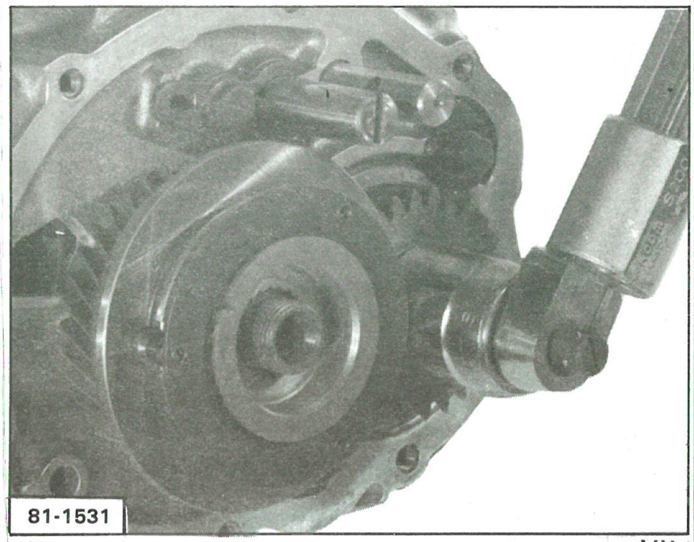
III



VI



IV



VII

Fit the shafts and the selector fork, **Fig. I.**

Fit selector fork (1) in its synchronizer groove and on the interlocking device (2), **Fig. I and II.**

Fit 5th gear control shaft (3) in the casing and on interlocking device (2), **Fig. III.**

Fit fork shaft (4) in the casing and orientate it towards the fork balls, **Fig. IV.**

Fit reverse gear pinion (6) with its shaft, **Fig. IV** *(the pin being in its housing).*

Make sure that magnetic plate (5) and the two centering bushes are fitted on the casings, **Fig. IV.**

Smear the sealing surface with sealing compound.

Fit the casing and tighten the screws.

Fit set screw (8) of the reverse gear shaft *(copper seal),* **Fig. V.**

Fit stop plate (6) of the fork shaft.

Place circlip (7) and the screws with their thrust washers on the bearing at **« a »,** and **« b ».**

Fit on the primary shaft : **Fig. VI :**
- thrust washer (12),
- bush (11) *(previously lubricated),*
- 5th gear pinion (10),
- 5th gear synchronizer (9), without its fork and engage the speed.

Engage the 4th gear using the gear-change lever.

Tighten the secondary shaft nut to 5m.daN.

Remove 5th gear synchronizer (3).

Fit fork (2) on 5th gear synchronizer (3) and offer up the unit.
Fit the unit with ball (1) in its housing and engage the speed, **Fig. I.**

Tighten the primary shaft nut to 5 m.daN.

Lock the nuts using tool **8.0313-T.C, Fig. II.**

Set the 5th gear synchronizer to neutral position and fit stop pin (4), **Fig. III.**

Smear the sealing surface with sealing compound and fit the gearbox cover.

Raise the gearbox and fit the support shaft in the gearbox casing, the threads being previously coated with LOCTITE FRENETANCH.
Tightening torque : 3.5 m.daN.

Fit the engine mounting (5). **Fig. IV**
Nut tightening torque : 3.5 m.daN.
Screw tightening torque : 1.8 m.daN

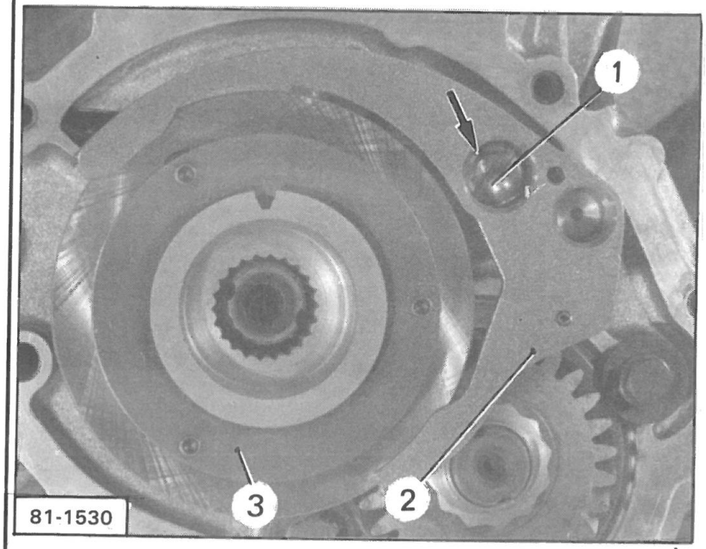
Adjust the clutch control.

Fill up the gearbox with oil (1.4 litres).

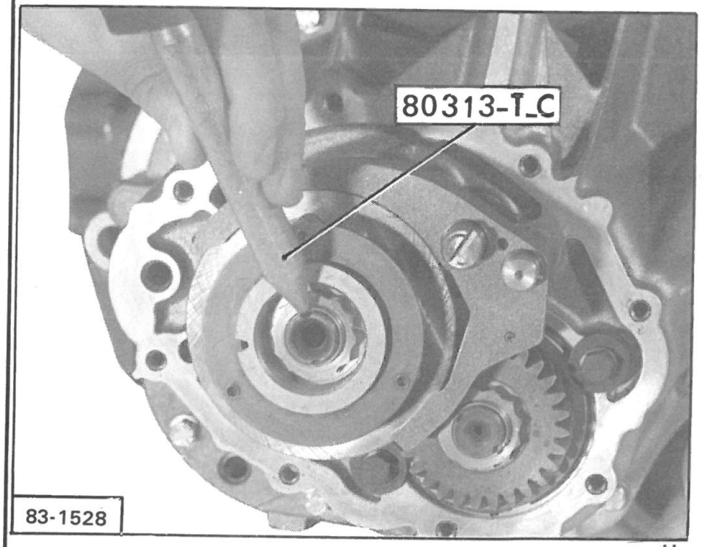
Check that the gears engage correctly.

Fit the air filter and the battery.

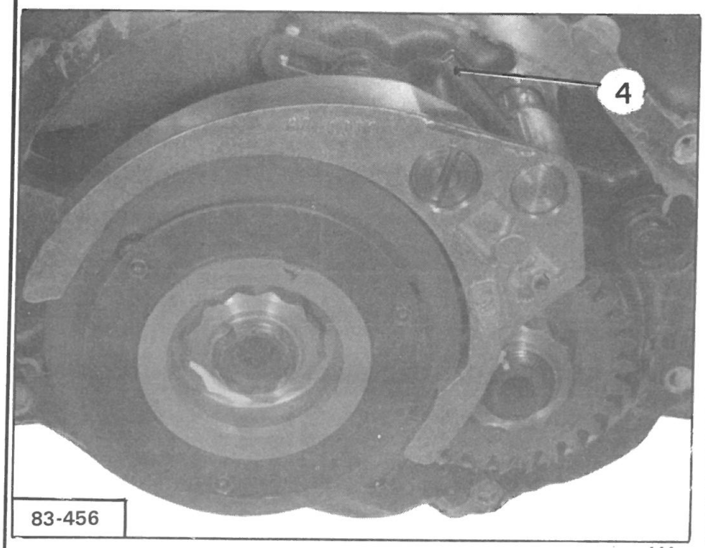
Fit protector (6), the wheel and lower the vehicle to the ground.



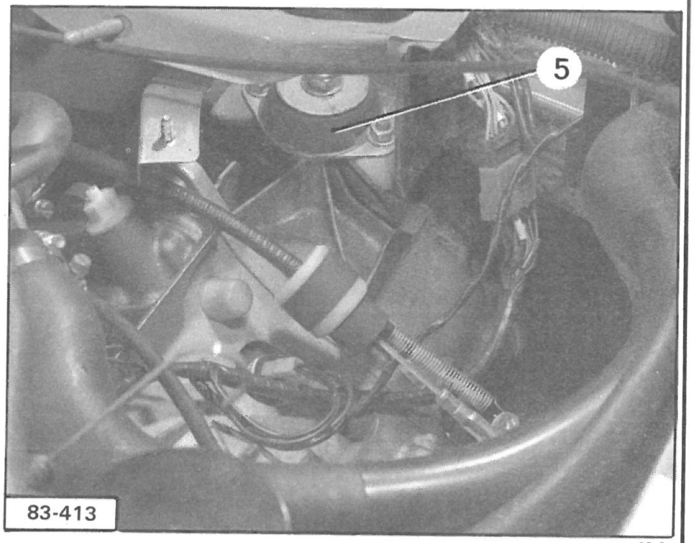
I



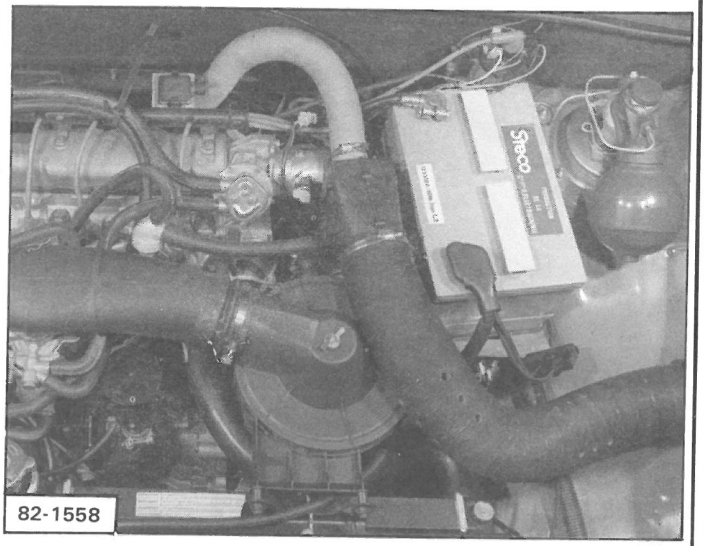
II



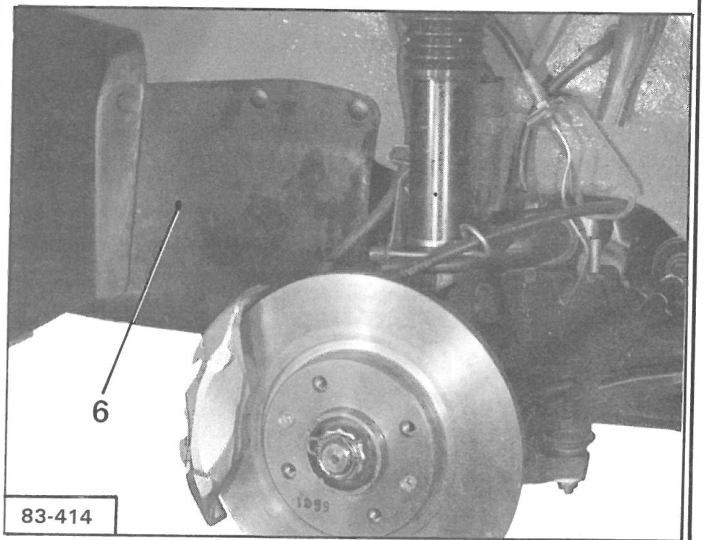
III



IV



VI



VI

CHARACTERISTICS AND SPECIAL FEATURES OF THE DRIVE-SHAFTS

CHARACTERISTICS

- Internally sliding constant velocity « tri-axe » joint, drive end.
- Constant velocity ball-joint, wheel end.

SPECIAL FEATURES

FITTING

When fitting the drive-shaft, take care not to damage the gearbox drive outlet seal.
On XB 14, a damaged seal may cause a total loss of the engine and gearbox oil.

Lubrication : MOLYKOTE LONGTERM 2 or TEROSON M.O.

The grease is sold by the Replacement Parts Department in cartons, alone or with the drive-shaft repair kit.

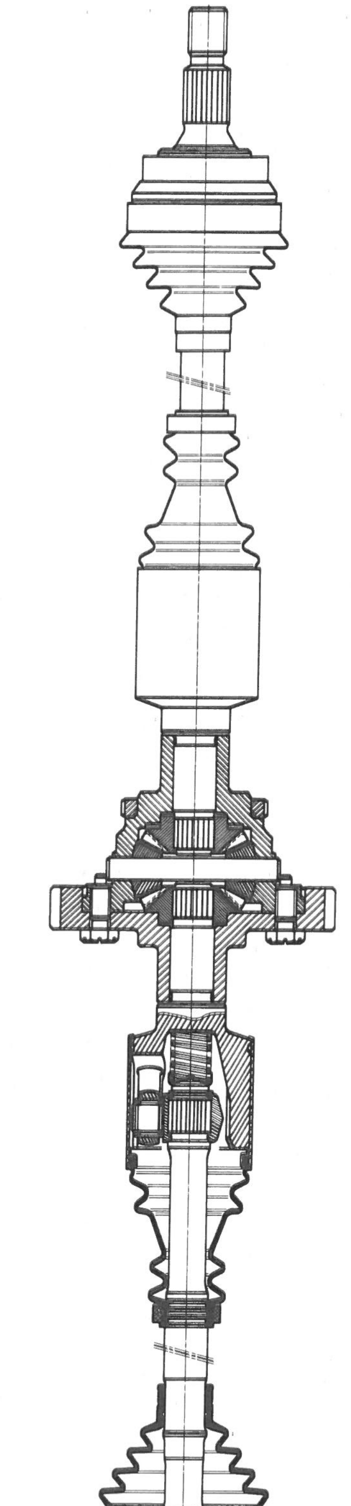
Quantity of grease :

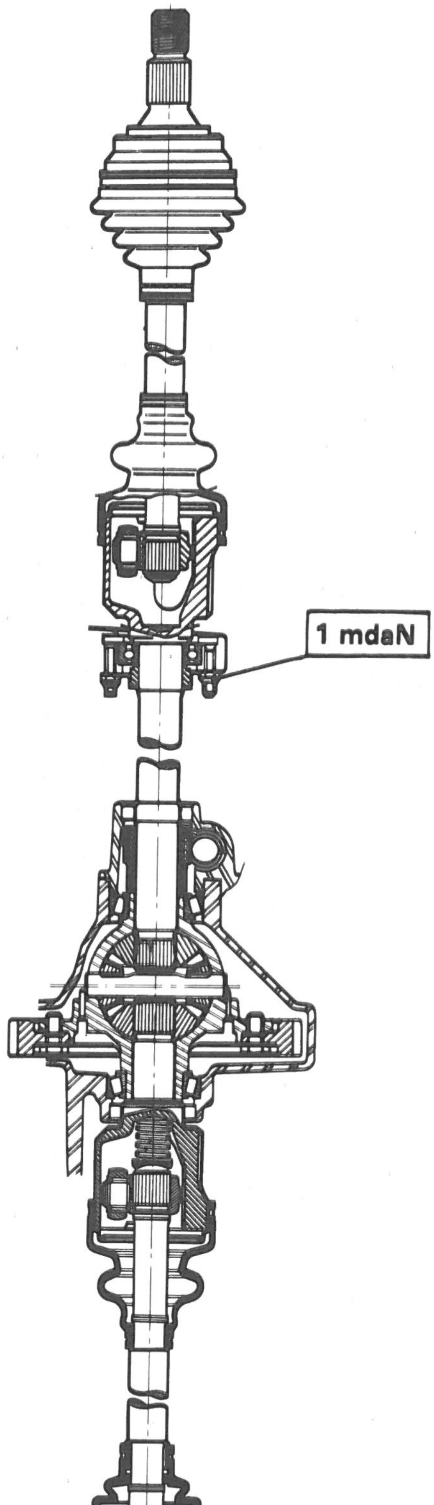
	XB 14	XB 16
Ball-joint	100 grams	100 grams
« Tri-axe » joint	185 grams	150 grams

Evenly grease the rollers, the journals and the bearing raceways.

XB 14

XB 16





27 mdaN

BX 37-2

BX 37-1

REMOVING AND FITTING THE DRIVE-SHAFTS

The removal and fitting of the L.H. drive-shaft, complete, and of the R.H. drive-shaft, at wheel end, are identical on XB 14 and XB 16.

XB 16 : see page 5, before removing the R.H. drive-shaft.

REMOVAL.

Be careful when removing the drive-shafts, approximately a litre of oil will run off.

Chock the front of the vehicle, wheels hanging free. Remove the wheel.

Remove pin (1) and locktab, **Fig. I.**

Remove the nut, **Fig. II** (35 mm across flats).

Use tool 6310-T only, secure it using the wheel bolts to avoid the shearing of the disc securing screws (2).

Loosen nut (3).

Release the lower arm from the ball-joint, **Fig. III.**

Use extractor **1892-T.**

Leave nut (3) in place to protect the ball-joint stem.

Free the hub splines and remove drive-shaft (5) **Fig. IV.**

FITTING.

Grease the lips of differential drive outlet (6) and hub (4) oil seals, **Fig. V and IV.**

Insert the drive-shaft into the differential sun gear and into the hub splines.

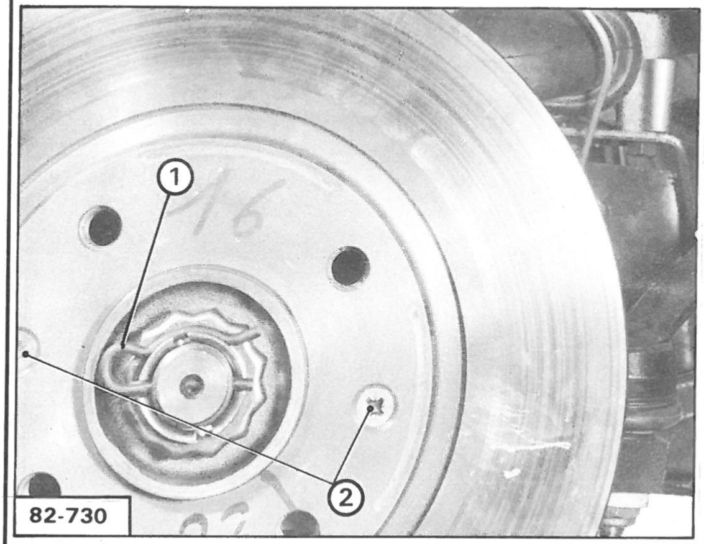
Wipe the ball-joint cone *(do not use solvent)* and insert it into the lower arm, **Fig. VI.**
Fit lock-nut (7).
Tightening torque : 3 m.daN.

Grease the nut face and threads and fit it, **Fig. II.**
Tightening torque : 27 m.daN.
Use tool **6310-T.**

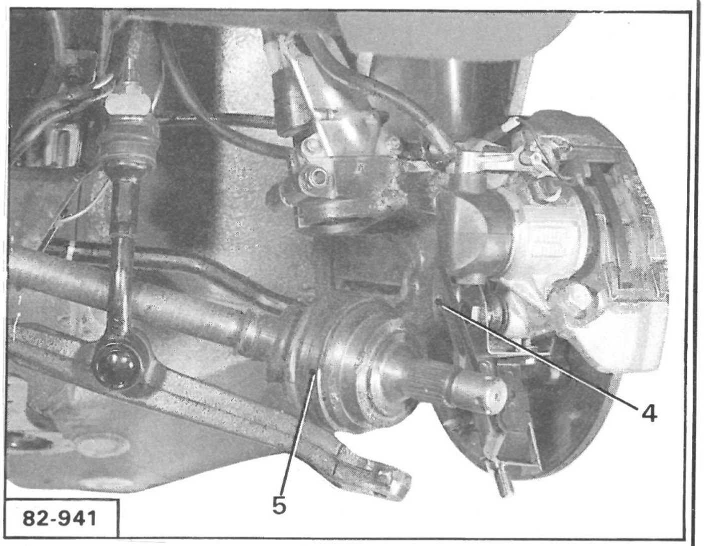
Fit the locktab and pin (1), **Fig. I.**

Fit the wheel.

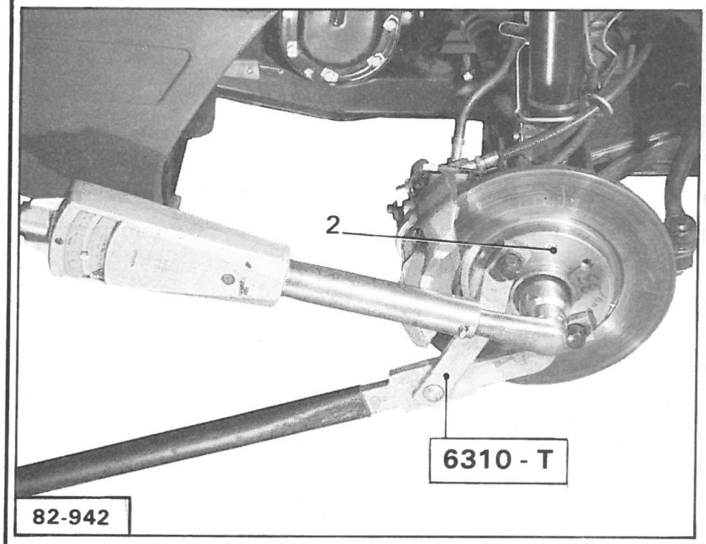
Top up the oil level.



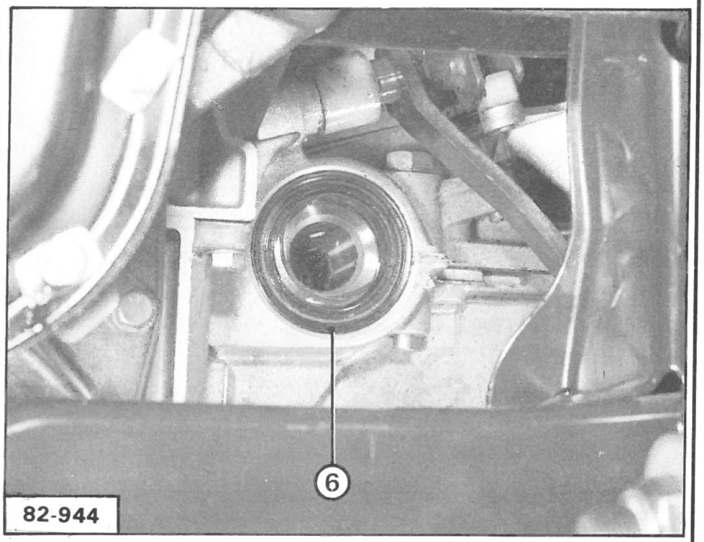
I



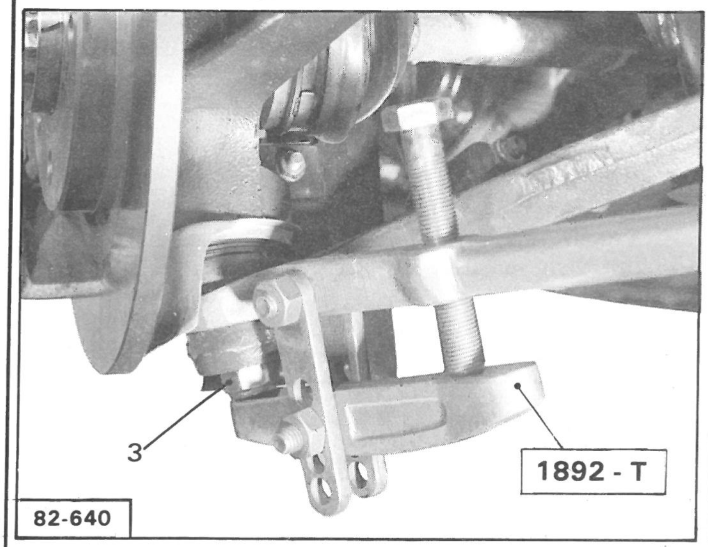
IV



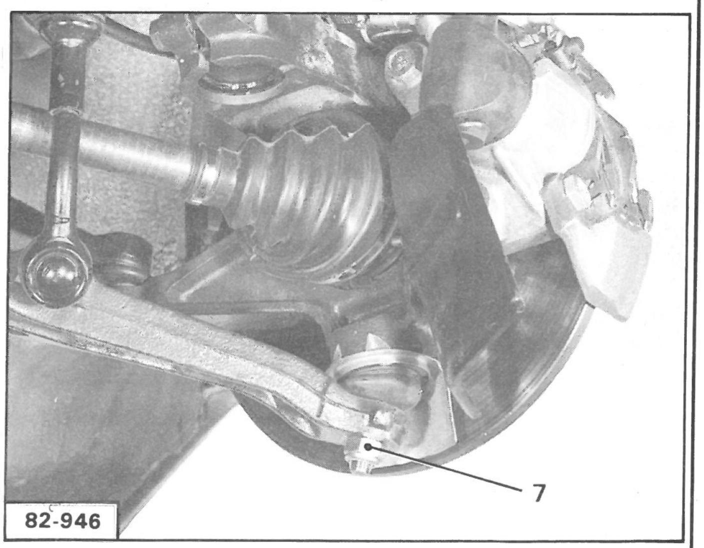
II



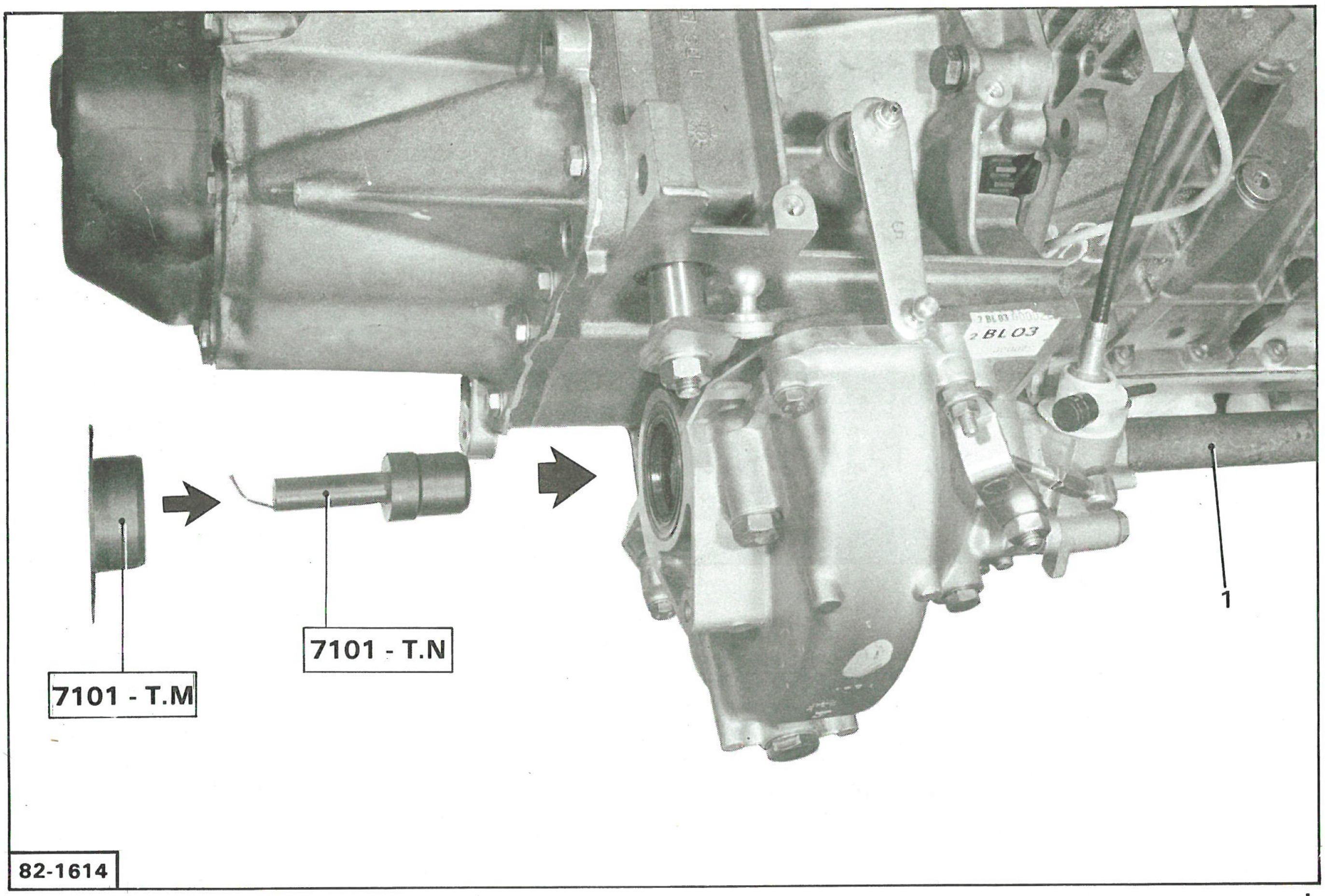
V



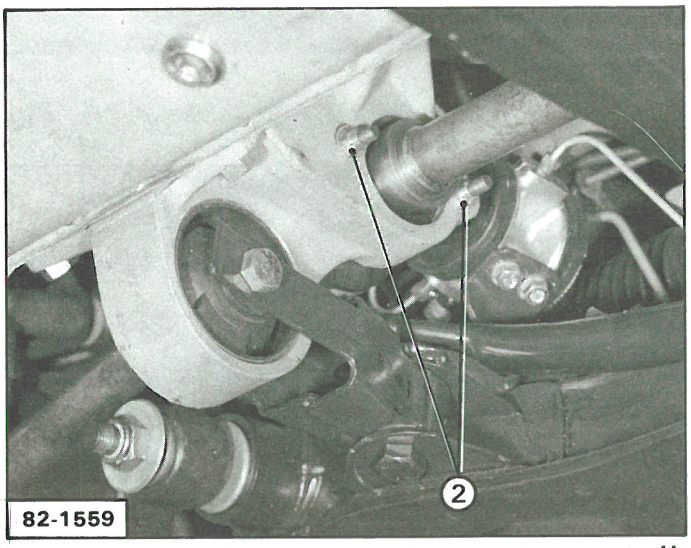
III



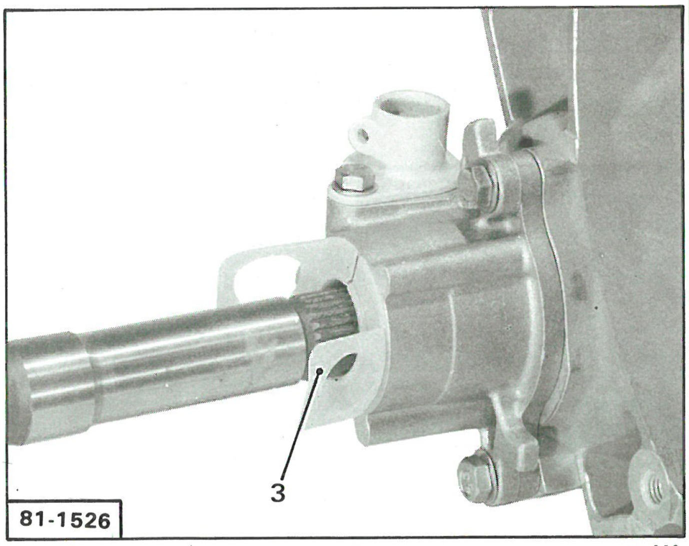
VI



I



II



III

171 TYPE ENGINE (1580 cc) on XB 16

If the two drive-shafts should be removed, it is necessary :

- To remove the L.H. drive-shaft first.

- When removing the second drive-shaft, to hold the sun gears in position by using tools 7101-T.M and 7101-T.N ONLY.

After removing the L.H. drive-shaft, position tools **7101-T.M** and **7101-T.N, Fig. I,** so as to prevent the sun gears from rotating in the differential housing.

Tools 7101-T.M and 7101-T.N should stay in place as long as right-hand drive-shaft (1) is not engaged in the differential housing.

Remove the two nuts (2), **Fig. II.**
Rotate the screws by half a turn to free the drive-shaft bearing.

Use bush (3) to protect the oil seal when engaging the drive-shaft splines, **Fig. III.**

The bush (es) as well as the oil seals are supplied by the Replacement Parts Department.

Position the two screws in the bearing, and slightly lubricate the bearing outer race before engaging the drive-shaft.
Nut (2) tightening torque : 1 m.daN.