

REDUCTEUR DE ROUE A COURONNE FIXE FAST RING GEAR WHEEL EPICYCLIC REDUCTION

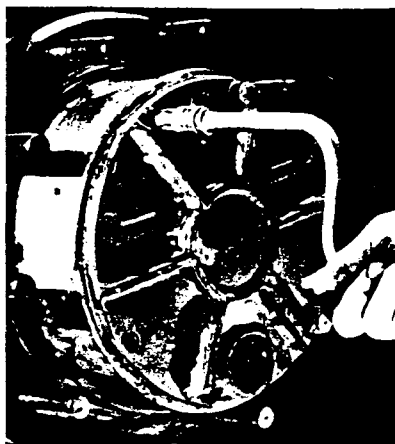
APRES VIDANGE DU REDUCTEUR
ET APRES AVOIR DEPOSE SES TROIS
VIS DE POSITIONNEMENT, DEPOSER
LE TAMBOUR DE FREIN A L'AIDE DE
TROIS VIS D'EXTRACTION (TYPE M 10)
S'IL Y A LIEU.



2.1.1

AFTER REMOVING DRAIN PLUG AND
DRAINING LUBRICANT, AND AFTER
REMOVING THE THREE LOCATING
SCREWS, REMOVE THE BRAKE DRUM,
WITH THE HELP OF EXTRACTION
SCREWS IF NECESSARY.

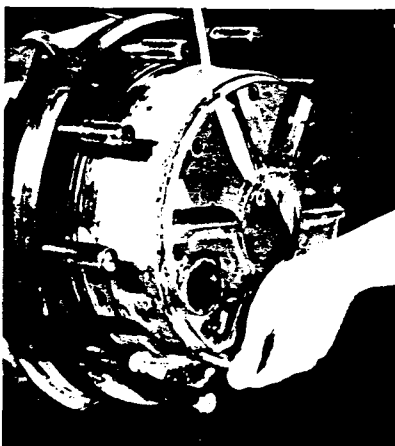
DEPOSER LES VIS DE FIXATION
DU COUVERCLE ET LEURS
RONDELLES.
POUR LES REDUCTEURS A ARBRE
DEBRAYABLE VOIR PAGE SUIVANTE.



2.1.2

REMOVE THE COVER PLATE SCREWS
AND THE WASHERS.
IN CASE OF A DISENGAGEABLE
COUPLING SHAFT SEE ON NEXT
SHEET.

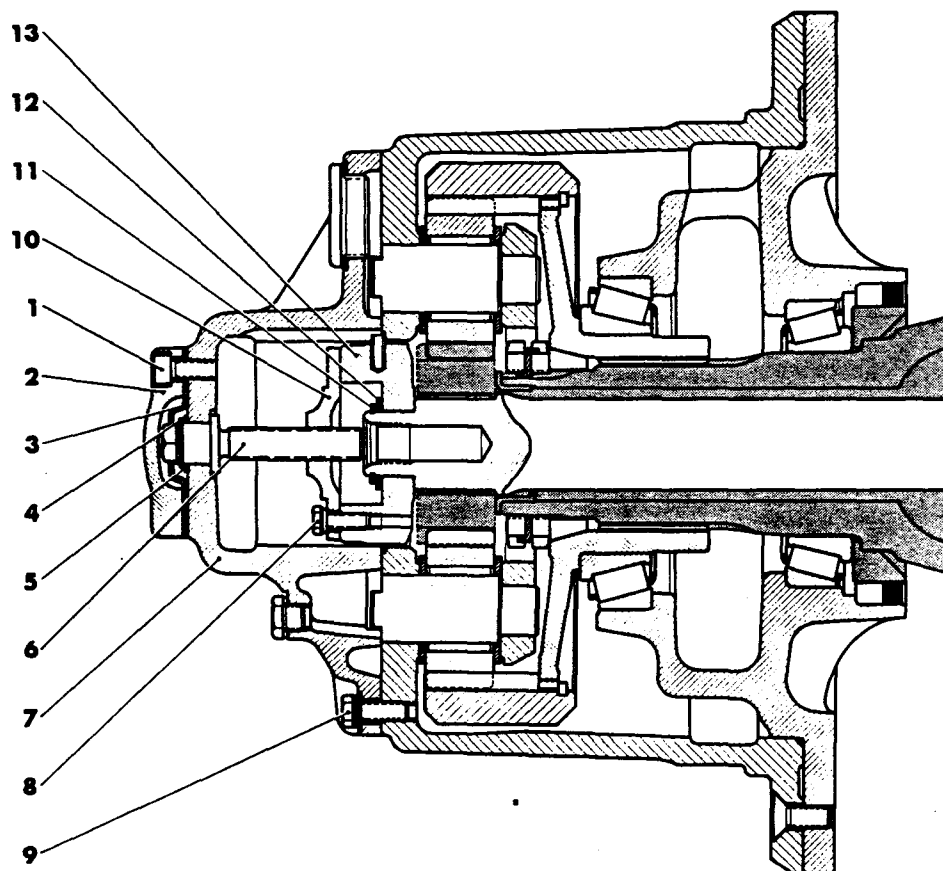
DEPOSER LE COUVERCLE EN LE
DECOLLANT A L'AIDE D'UN OU DE
DEUX TOURNEVIS.



2.1.3

REMOVE THE COVER PLATE WITH
THE HELP OF ONE OR TWO SCREW
DRIVERS.

DISENGAGEABLE COUPLING SHAFT



Remove the three screws (1). Remove the cap (2) and the locking washer (3).

Remove the circlip (4) and the washer (5). Remove the cover plate screws (9).

Remove the extraction screw (6) and the cover plate (7).

Remove the three screws (8) and the nut (10).

Remove the circlip (11), the washer (12) and the puller (13).

Assembly: it is necessary to assemble the screw (6) in the nut (10) in order to install the cover plate.

Tightning torques screws (8, 1, 9): 2,5 mdaN.

REDUCTEUR DE ROUE A COURONNE FIXE FAST RING GEAR WHEEL EPICYCLIC REDUCTION

DECOLLER LE JOINT DE PAPIER.
 NETTOYER SOIGNEUSEMENT LE
 COUVERCLE ET LE PORTE
 SATELLITES AVEC UN GRATTOIR PUIS
 AVEC UN PAPIER ABRASIF TRES FIN.
 IL EST IMPORTANT QUE LES
 SURFACES DE CONTACT SOIENT
 PARFAITEMENT PROPRES POUR
 OBTENIR UNE BONNE ETANCHEITE
 AU REMONTAGE.



REMOVE THE PAPER SEAL.
 CLEAN CAREFULLY THE COVER PLATE
 AND THE PLANET GEAR CARRIER
 FIRST WITH A SCRAPER THEN WITH A
 VERY FINE GRAIN ABRASIVE PAPER.
 IT IS VERY IMPORTANT THAT THE
 TWO FACES ARE CLEAN TO GET A
 PERFECT SEALING AFTER ASSEMBLY.

2.1 4

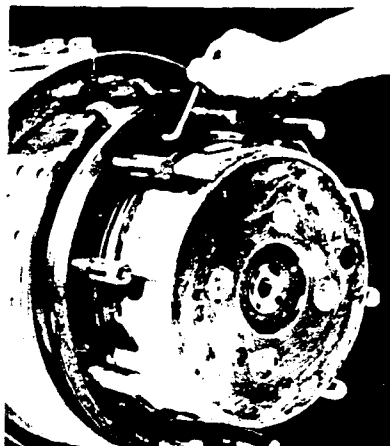
DEPOSER LE GRAIN DE REGLAGE DE
 POSITION AXIALE DE L'ARBRE.
 DEPOSER LE CIRCLIPS D'EXTREMITÉ
 D'ARBRE.



REMOVE THE END SHAFT
 POSITIONNER.
 REMOVE THE CIRCLIP ON THE SHAFT.

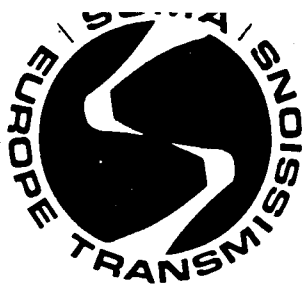
2.1 5

DEPOSER LES VIS MAINTENANT
 LE PORTE SATELLITES SUR LE
 MOYEU.



REMOVE THE THREE LOCATING
 SCREWS FROM THE PLANET GEARS
 CARRIER.

2.1.6



2.1.11

REDUCTEUR DE ROUE A COURONNE FIXE FAST RING GEAR WHEEL EPICYCLIC REDUCTION

DECOLLER LE PORTE SATELLITES EN
VISSANT LES 3 VIS D'EXTRACTION
DANS LES TROUS FILETES.



2.1.7

BREAK THE SEAL OF THE PLANET
GEARS CARRIER WITH THE HELP OF
3 PULLER SCREWS.

DEPOSER LE PORTE SATELLITES.



2.1.8

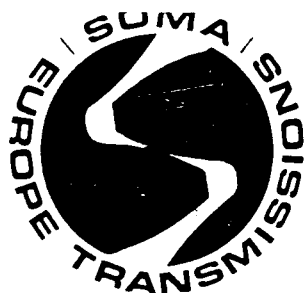
REMOVE THE PLANET GEARS
CARRIER.

DEPOSER LE PLANETAIRE.



2.1.9

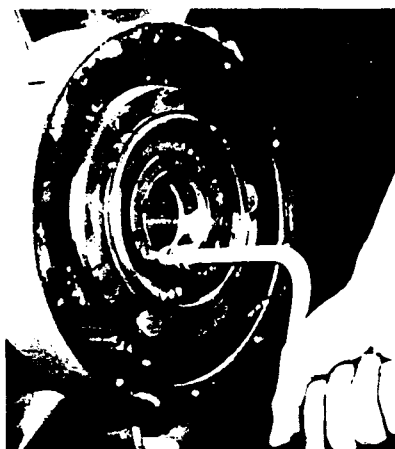
REMOVE THE SUN GEAR.



2.1.12

REDUCTEUR DE ROUE A COURONNE FIXE FAST RING GEAR WHEEL EPICYCLIC REDUCTION

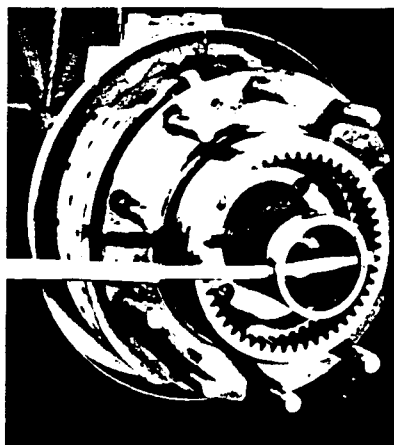
COUPER LE FIL DE SECURITE.
DEPOSER LES VIS D'ARRET DE
L'ECROU DE FUSEE.



2.1.10

CUT THE LOCKING WIRE.
REMOVE THE TWO LOCKING SCREWS
FROM THE NUT.

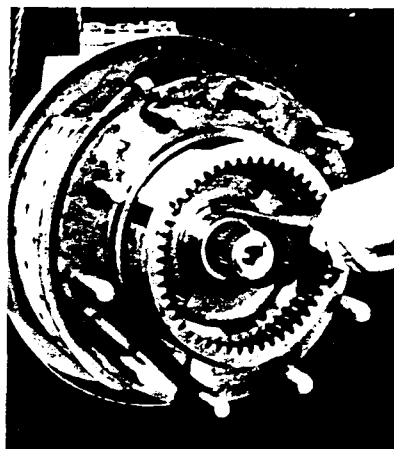
DEPOSER L'ECROU FENDU A L'AIDE
D'UNE CLE A ERGOTS.
NB - CERTAINS REDUCTEURS SONT
EQUIPES DE 2 ECROUS A CRENEAUX
SEPARES PAR UNE RONDELLE
ARRETOIR.



2.1.11

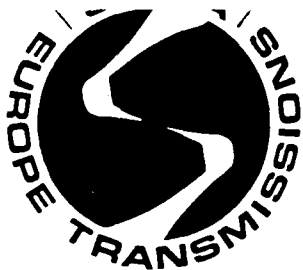
UNSCREW THE SPINDLE NUT.
NB - SOME REDUCERS ARE EQUIPPED
WITH TWO SPINDLE NUTS
SEPARATED BY A LOCKING WASHER.

DECOLLER LA BAGUE CONIQUE A
L'AIDE D'UN TOURNEVIS OU EN
DONNANT QUELQUE CHOCS SUR LA
COURONNE A L'AIDE D'UNE
MASSETTE.
DEPOSER LA BAGUE CONIQUE.



2.1.12

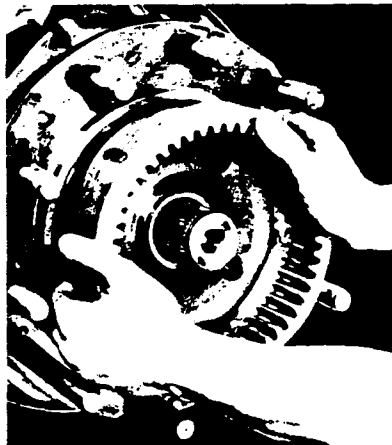
UNSTICK THE TAPPER RING WITH
THE HELP OF A SCREW DRIVER OR
BY KNOCKING THE RING GEAR WITH
A RAWHIDE HAMMER.
REMOVE THE TAPPER RING.



2.1.13

REDUCTEUR DE ROUE A COURONNE FIXE FAST RING GEAR WHEEL EPICYCLIC REDUCTION

DEPOSER LE PORTE COURONNE
ASSEMBLE.
LA COURONNE ET SON SUPPORT
NE SE VENDENT PAS SEPAREMENT
EN PIECES DE RECHANGES.



2.1.13

REMOVE BOTH THE RING GEAR AND
BRACKET.
THEY CANNOT BE SEPARATED.
THEY ARE SUPPLIED FULLY
ASSEMBLED AS SPARE PARTS.

EXTRAIRE LE ROULEMENT DE PORTE
COURONNE A L'AIDE D'UN CHASSE
GOUPILLE ET D'UN MARTEAU PAR
LES 3 TROUS DISPOSES A CET EFFET.



2.1.14

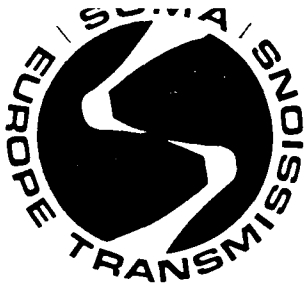
DRAW OUT THE RING GEAR BEARING
USING A DRIFT AND A HAMMER.
THREE HOLES ARE PREVIOUSLY
DRILLED FOR THIS OPERATION.

SUIFFER LA PORTEE DE ROULEMENT.
MONTER LE ROULEMENT SUR LE
PORTE COURONNE ASSEMBLE APRES
CHAUFFAGE A 80 °C ENVIRON.
GRAISSER LE ROULEMENT.



2.1.15

TALLOW THE BEARING SURFACE.
HEAT THE BEARING (TO 80 °C
APPROX.) AND PLACE THE BEARING
IN POSITION.
APPLY SOME GREASE ON THE
BEARING.



REMOVAL AND ASSEMBLY OF THE HUB

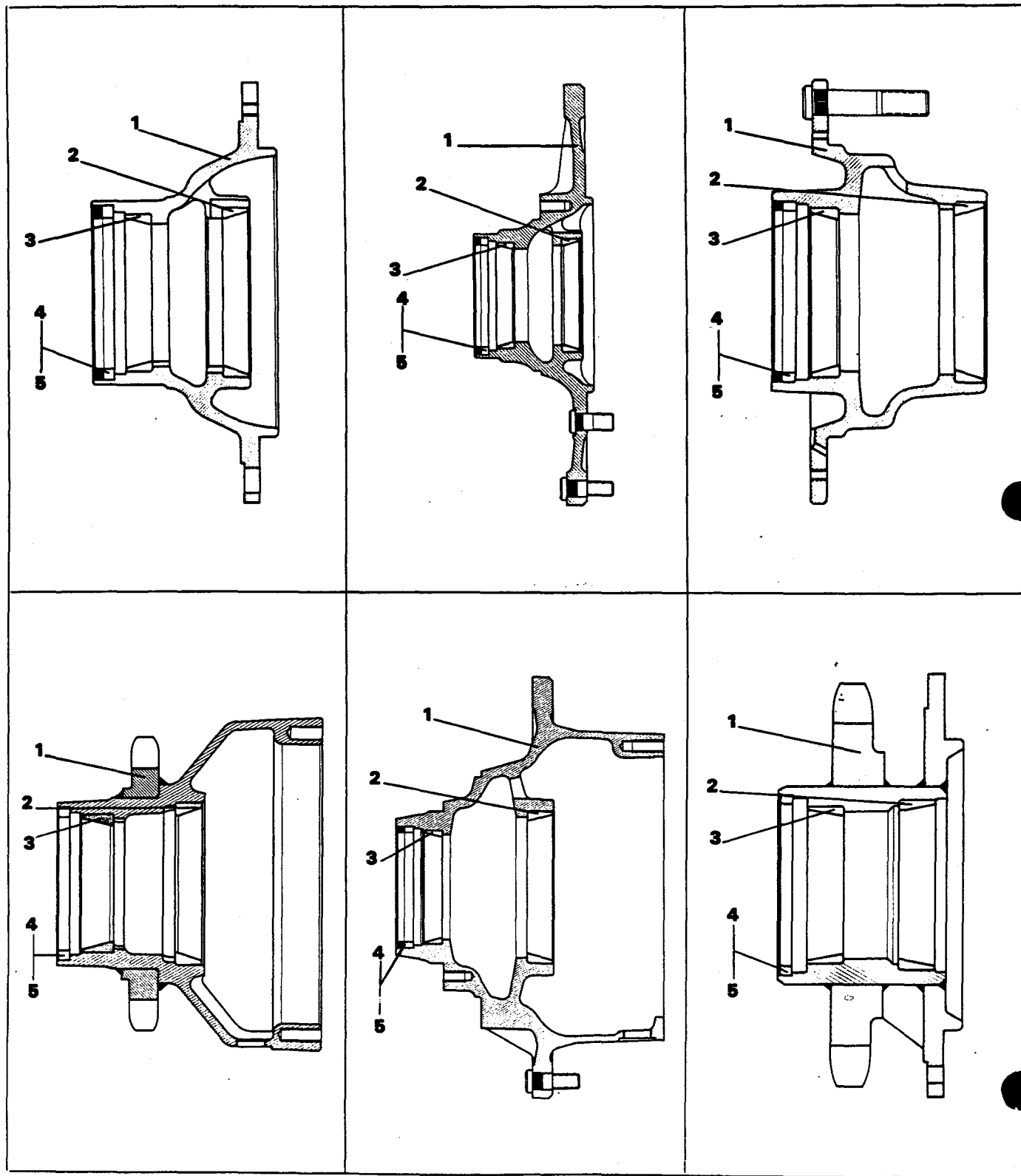
There are several hub models which differ by the pattern and dimensions depending on the application. Therefore the removal and assembly of the main parts are the same as below illustrated on the following sheets and parts list.

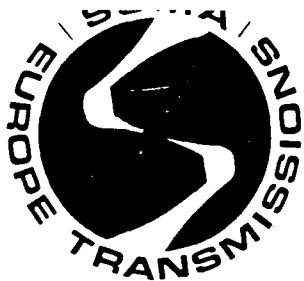
The six drawing on the following pages show the different kinds of hub one may have in these reduction models, except for some minor alterations.

PART LIST

- 1) Hub
- 2) Outer bearing
- 3) Inner bearing
- 4) Oil seal
- 5) Oil seal

REDUCTEUR DE ROUE A PLANETAIRE FIXE FAST SUN GEAR EPICYCLIC REDUCTION





REDUCTEUR DE ROUE A COURONNE FIXE FAST RING GEAR WHEEL EPICYCLIC REDUCTION

DEPOSER LE MOYEU ASSEMBLE.
POUR LES PONTS EQUIPES DE FREINS
A DISQUE IL FAUT AUPARAVANT
DEPOSER L'ETRIER DE FREIN (VOIR
NOTICE 4.1).



2.1.16

REMOVE THE HUB.
IN CASE OF AN AXLE EQUIPPED
WITH DISC BRAKES, THE CALIPERS
MUST FIRST BEEN REMOVED
(SEE DISC BRAKES MAINTENANCE
MANUAL).

SUIVANT LE CAS, DEPOSER LE
DEFLECTEUR OU DEPOSER LE DISQUE.



2.1.17

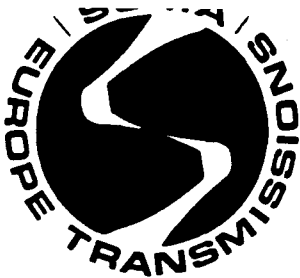
DEPENDING ON THE MODEL,
REMOVE THE OIL BAFFLE OR
REMOVE THE DISC.

DEPOSER LE JOINT FEUTRE AVEC UN
PIED DE BICHE OU UN TOURNEVIS.
DEPOSER LE JOINT A LEVRE.
CES ELEMENTS DOIVENT ETRE
CHANGES AU REMONTAGE.



2.1.18

WITH THE HELP OF A LEVER BAR OR
A SCREW DRIVER, REMOVE THE TWO
OIL SEALS. THESE PARTS TO BE
REPLACED BY NEW ONES DURING
ASSEMBLY.



2.1.18

REDUCTEUR DE ROUE A COURONNE FIXE FAST RING GEAR WHEEL EPICYCLIC REDUCTION

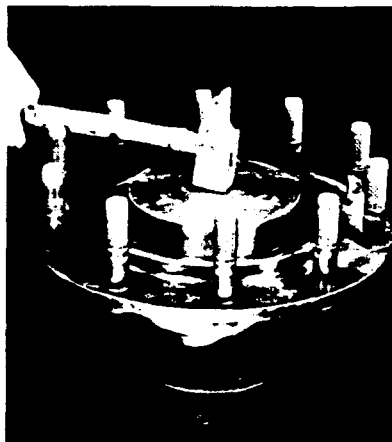
DEPOSER LA CUVETTE DE
ROULEMENT ARRIERE DE MOYEU.
DEPOSER LA CUVETTE DE
ROULEMENT AVANT.



2.1.19

IF THE BEARING ARE TO BE
RENEWED WITHDRAW THE INNER
AND OUTER BEARING CUPS.

MONTER LES CUVETTES DE
ROULEMENT A L'AIDE D'UN TAMPON



2.1.20

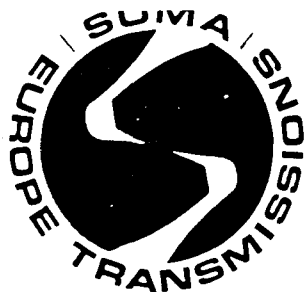
WITH THE HELP OF A SPECIAL
INSTALLER TOOL ASSEMBLE INNER
AND OUTER BEARING CUPS.

POSER LE JOINT A LEVRE (LEVRE
VERS LE ROULEMENT) A L'AIDE D'UN
TAMPON.
POSER LE JOINT FEUTRE.



2.1.21

INSTALL THE TWO OIL SEALS.



REDUCTEUR DE ROUE A COURONNE FIXE FAST RING GEAR WHEEL EPICYCLIC REDUCTION

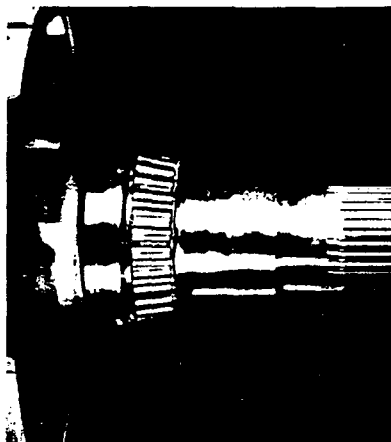
POSER LA TOILE DE DEFLECTEUR.
 SERRER LES VIS A 2,5 mdaN.
 POUR LES MOYEUX EQUIPES D'UN
 DISQUE DE FREIN :
 - POSER LE DISQUE DE FREIN,
 - POSER LES VIS DE FIXATION ET LES
 SERRER DE 26 A 27 mdaN.
 POUR UNE BONNE TENUE DE
 L'ENSEMBLE IL EST TRES IMPORTANT
 DE RESPECTER CE COUPLE DE
 SERRAGE.



2.1.22

ASSEMBLE THE OIL BAFFLE.
 TIGHTNING TORQUE: 2,5 mdaN.
 IN CASE OF AXLES EQUIPPED WITH
 DISC BRAKES:
 ASSEMBLE THE DISC AND TIGHTEN
 THE SCREWS TO 26 OR 27 mdaN.
 IT'S VERY IMPORTANT TO TAKE CARE
 OF THIS TIGHTNING TORQUE.

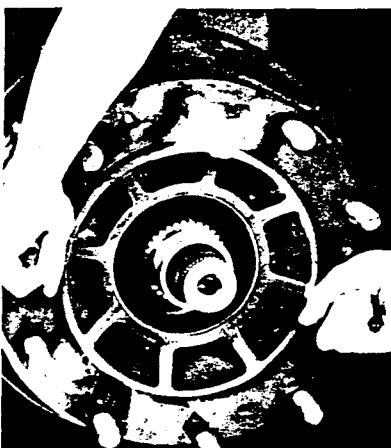
POUR LA DEPOSE ET LA REPOSE
 DE ROULEMENT DE FUSEE ET DE LA
 PISTE DE JOINT, VOIR LA NOTICE
 3.1 OU 3.2.



2.1.23

FOR REMOVAL AND ASSEMBLY OF
 THE SPINDLE PARTS (SEE 3.1 OR
 3.2 MAINTENANCE MANUALS).

REPOSER LE MOYEU EQUIPE. ON
 VEILLERA A EMMANCHER LE MOYEU
 BIEN EN LIGNE PAR RAPPORT A LA
 FUSEE POUR EVITER D'ABIMER LES
 JOINTS.



2.1.24

RE-INSTALL THE COMPLETE
 ASSEMBLED HUB.
 TAKE CARE IN PUSHING IT SQUARELY
 ON TO THE AXLE IN ORDER NOT TO
 DAMAGE THE SEALS.



2.1.20

REDUCTEUR DE ROUE A COURONNE FIXE FAST RING GEAR WHEEL EPICYCLIC REDUCTION

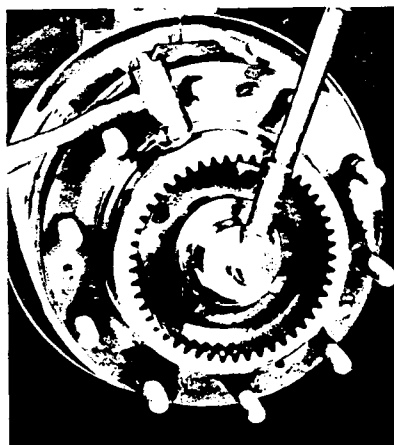
POSER LE PORTE COURONNE
ASSEMBLE.
POSER LA BAGUE CONIQUE DE
FIXATION DU PORTE COURONNE.



ASSEMBLE THE RING GEAR.
INSERT THE TAPER RING.

2.1.25

REDUCTEUR DE ROUE A COURONNE FIXE FAST RING GEAR WHEEL EPICYCLIC REDUCTION



2.1.26

Poser et serrer l'écrou de fusée en faisant tourner le moyeu. Il est nécessaire de donner quelques chocs sur la couronne à l'aide d'une massette (à moins que l'on se serve d'une clé pneumatique) pour que la bague conique se mette convenablement en position sur le porte couronne et sur la fusée.

Le couple moyeu de serrage est de 50 mdaN mais il varie suivant l'utilisation : pour les engins routiers on desserre de 1/8 de tour pour éviter l'échauffement des roulements.

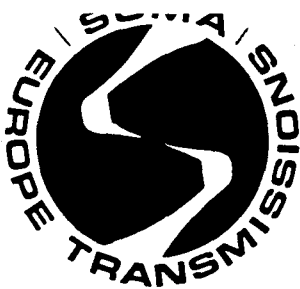
Dans tous les cas, il est important de vérifier que le moyeu tourne sans jeu.

Le moyeu doit tourner pour une force tangentielle de 7 à 10 daN au niveau du goujon de roue.

Poser et serrer les vis de freins :

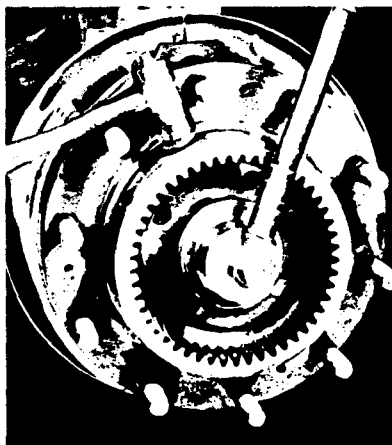
- presserrage 1,2 mdaN
- serrage $1,8 \pm 0,2$ mdaN

NB : sur certains réducteurs cet écrou est remplacé par 2 écrous à créneaux séparés par une rondelle arrêtoir.



2.1.21

REDUCTEUR DE ROUE A COURONNE FIXE FAST RING GEAR WHEEL EPICYCLIC REDUCTION



2.1.26

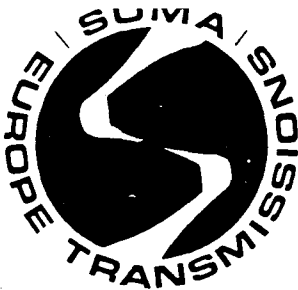
Assemble the spindle nut and at the same time revolve the hub. Lock the nut using a pneumatic shock wrench or if available it might be necessary to knock the ring gear to position it squarely.

Nominally the tightning torque is 50 mdaN; this varies according to the type of vehicle. For finer adjustment, one must check there is no backlash on the hub and the tangential force at the wheel bolt be 7 daN for on road vehicles and 10 daN off highway vehicles.

Then assemble the locking screws:

- first tightning torque: 1.2 mdaN
- tightning torque 1.8 mdaN.

NB: Some of the reductions are equipped with two nuts separated by a locking washer.



2.1.22

REDUCTEUR DE ROUE A COURONNE FIXE FAST RING GEAR WHEEL EPICYCLIC REDUCTION

POSER LE JOINT TORIQUE.



2.1.27

POSITION THE OIL SEAL.

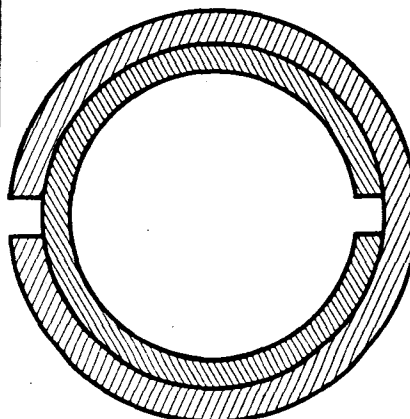
- REPOSER LE PORTE SATELLITE,
 - SERRER SES VIS DE POSITIONNEMENT,
 - SI LE REDUCTEUR EN COMPORTE POSER LES VIS OU ECROUS DE FIXATION SERRAGE.
- 25 mdaN POUR DOUILLE DE 24.



2.1.28

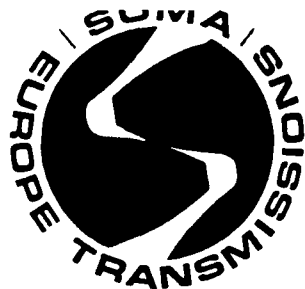
- ASSEMBLE THE PLANET GEARS CARRIER.
- ASSEMBLE THE POSITIONNING SCREWS.
- IN THE CASE OF FIXATION BOLTS, TIGHTEN THEM TO 25 mdaN.

SI LE REDUCTEUR EN COMPORTE, POSER LES GOUPILLES FENDUES SUIVANT LE SCHEMA CI-CONTRE.



2.1.29

IN THE CASE OF SPLIT TUBES ON THE PLANET GEARS CARRIER, ASSEMBLE THEM AS ILLUSTRATED.



2.1.23

REDUCTEUR DE ROUE A COURONNE FIXE FAST RING GEAR WHEEL EPICYCLIC REDUCTION

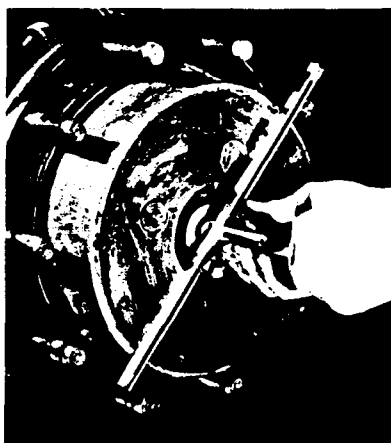
POSER LE PLANETAIRE.
POSER LE CIRCLIPS D'EXTREMITÉ
D'ARBRE.



2.1.30

INSERT THE SUN GEAR.
ASSEMBLE THE CIRCLIP.

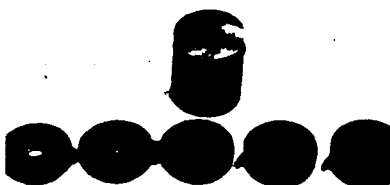
REPOSER LE GRAIN D'EXTREMITÉ
D'ARBRE.
A L'AIDE D'UN PIED A COULISSE DE
PROFONDEUR, VERIFIER QUE LE
JEU AXIAL DE L'ARBRE SE SITUE
ENTRE 1,5 ET 3 MM.



2.1.31

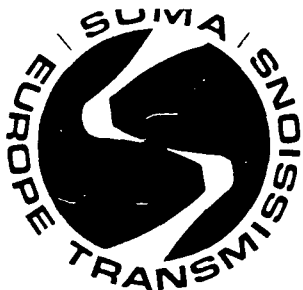
ASSEMBLE THE SHAFT END
POSITIONNER.
WITH THE HELP OF A SLIDING
GAUGE CHECK THE BACKLASH OF
THE SHAFT. IT MUST BE OF
1.5 TO 3 MM.

SI LE JEU DEPASSE 3 MM LA
POCHETTE DE CALES PERMET
D'AJUSTER LA POSITION AXIALE DU
GRAIN.
PIECE DE RECHANGE N° 77.000.131.



2.1.32

THE BACKLASH MAY BE CHANGED
WITH THE SHIM KIT No 77.000.131.



2.1.24

REDUCTEUR DE ROUE A COURONNE FIXE FAST RING GEAR WHEEL EPICYCLIC REDUCTION

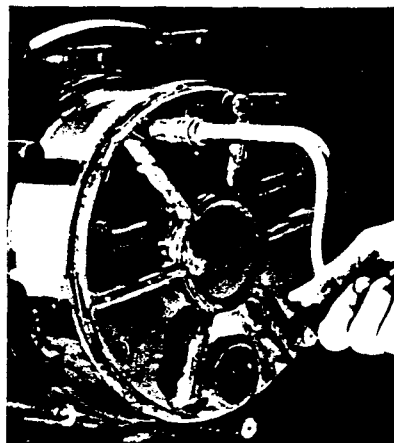
ENDUIRE LA FACE D'APPUI DU
COUVERCLE DE PATE A JOINT.
POSER LE JOINT PAPIER SUR LE
COUVERCLE.



2.1.33

APPLY A SMALL AMOUNT OF SEAL
PASTE ON THE COVER PLATE.
AND FIX A NEW PAPER SEAL.

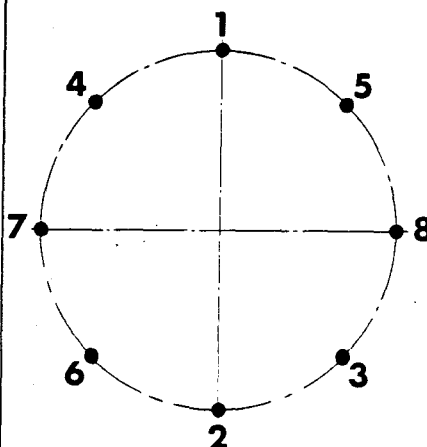
POSER LE COUVERCLE.
POSER LES VIS DE FIXATION ET
LEURS RONDELLES.



2.1.34

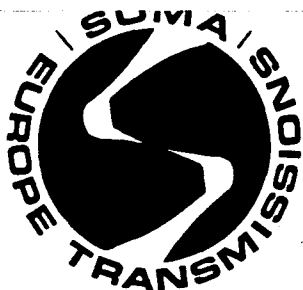
ASSEMBLE THE COVER PLATE.

SERRER LES VIS A :
12 mdaN POUR DOUILLE 19
6 mdaN POUR DOUILLE 17
2,5 mdaN POUR DOUILLE 10.
DANS L'ORDRE INDIQUE CI-CONTRE.



2.1.35

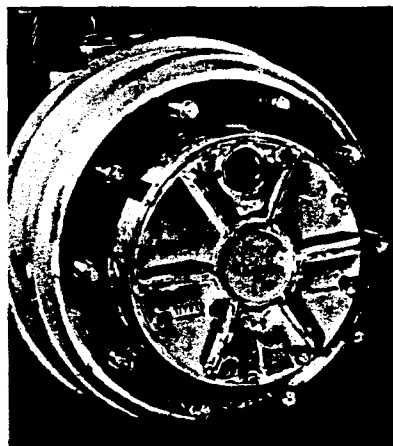
TIGHTEN THE SCREWS TO:
12 mdaN FOR 19 MM SPANNER
6 mdaN FOR 17 MM SPANNER
2.5 mdaN FOR 10 MM SPANNER
AS ILLUSTRATED.



2.1.25

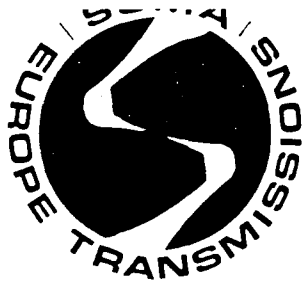
REDUCTEUR DE ROUE A COURONNE FIXE FAST RING GEAR WHEEL EPICYCLIC REDUCTION

REPOSER LE TAMBOUR DE FREIN ET
SES VIS (S'IL Y A LIEU).
FAIRE LE PLEIN D'HUILE PAR LE
BOUCHON DE VIDANGE
(PRECONISATION EP 90).
REPOSER LE BOUCHON DE VIDANGE
ET SON JOINT.
FAIRE TOURNER LE MOYEU POUR
AMENER LE REPERE DE NIVEAU EN
POSITION ET VERIFIER LE NIVEAU.



2.1.36

ASSEMBLE THE BRAKE DRUM.
FILL THE HUB WITH OIL TO THE
SPECIFIED LEVEL (NIVEAU).
FIT THE PLUGS.

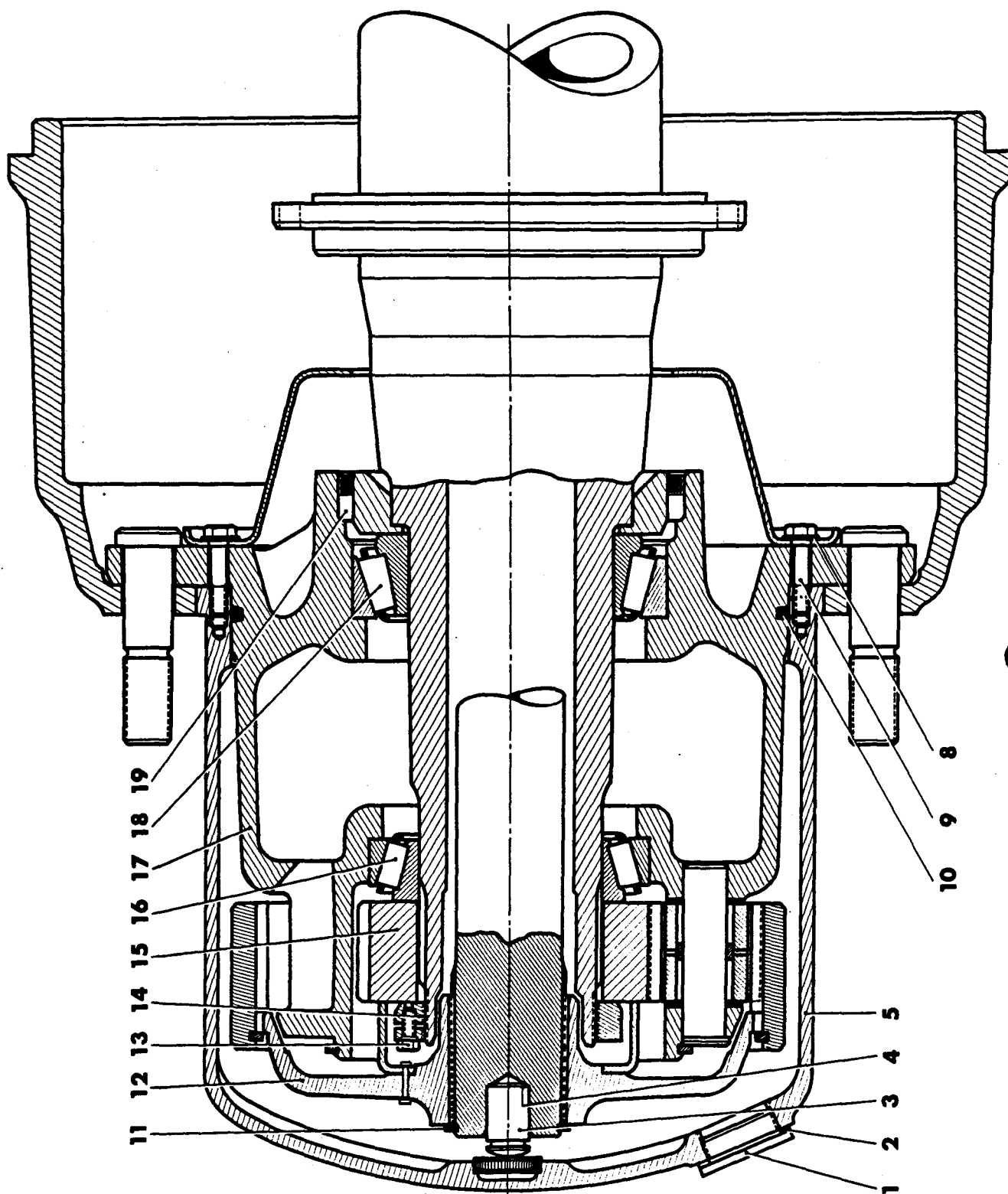


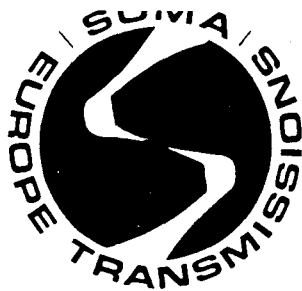
FAST SUN GEAR EPICYCLIC REDUCTION

PARTS LIST (See drawing on next sheet)

- 1) Drain plug
- 2) Drain plug seal
- 3) Shaft and shim kit
- 4)
- 5) Cover
- 6) Checking level plug
- 7) Checking level plug seal
- 8) Cover screw washer
- 9) Cover screw
- 10) Cover paper seal
- 11) End shaft circlip
- 12) Ring gear
- 13) Hub nut locking screw
- 14) Hub nut
- 15) Sun gear
- 16) Outer bearing
- 17) Hub
- 18) Inner bearing
- 19) Hub oil seals

One cannot see any special tools reference number in the text for they are different depending on the model of the axles.





2.2.3

REDUCTEUR DE ROUE A PLANETAIRE FIXE FAST SUN GEAR EPICYCLIC REDUCTION

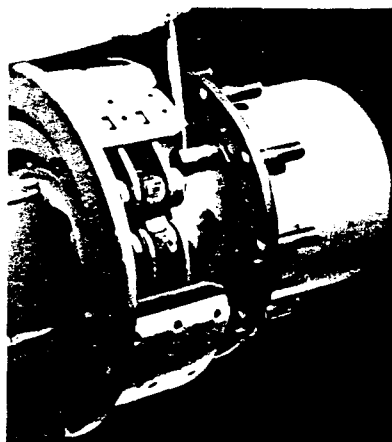
APRES AVOIR VIDANGE LE
REDUCTEUR, DEPOSER LE TAMBOUR
DE FREIN A L'AIDE DE 3 VIS
D'EXTRACTION TYPE M 10 X 70.



AFTER REMOVING THE DRAIN PLUG
AND DRAINING LUBRICANT, REMOVE
THE BRAKE DRUM WITH THE HELP OF
THREE EXTRACTION SCREWS
(M 10 X 70).

2.2.1

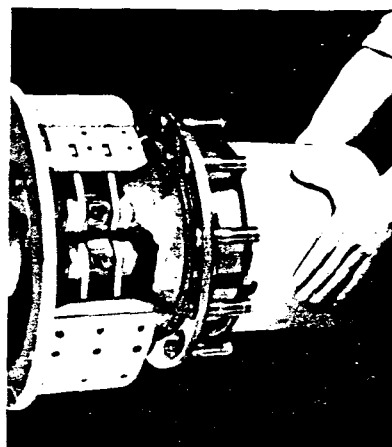
DEPOSER LES 8 VIS DE FIXATION DU
DEFLECTEUR ET DU COUVERCLE, ET
LEURS RONDELLES.



REMOVE THE 8 SCREWS AND
WASHERS OF THE COVER AND OIL
BAFFLE.

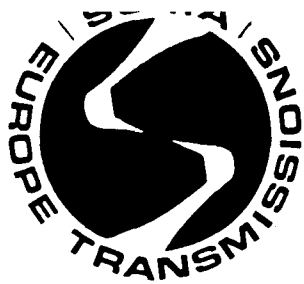
2.2.2

DEPOSER LE COUVERCLE DU
REDUCTEUR, APRES L'AVOIR
DECOLLE SI NECESSAIRE, A L'AIDE DE
VIS D'EXTRACTION SUR L'ARRIERE
DU MOYEU.
DEPOSER LE JOINT TORIQUE.



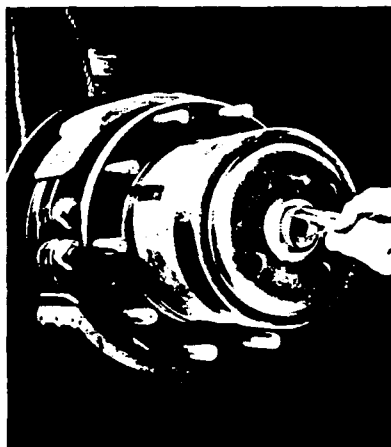
REMOVE THE COVER.
IF NECESSARY BREAK THE SEAL
WITH THE HELP OF PUSHER SCREWS
BEHIND THE HUB.
REMOVE THE OIL SEAL.

2.2.3



REDUCTEUR DE ROUE A PLANETAIRE FIXE FAST SUN GEAR EPICYCLIC REDUCTION

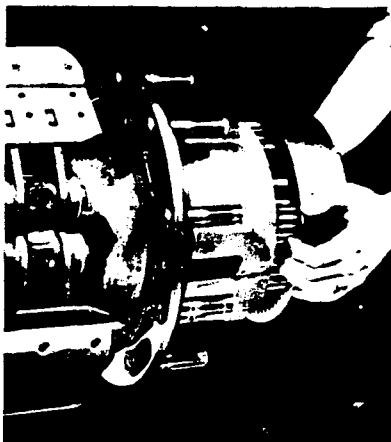
DEPOSER LE GRAIN DE POSITIONNEMENT LONGITUDINAL DE L'ARBRE ET LE CIRCLIPS D'ARRET DU PORTE COURONNE. SUR LES PONTS NON DIRECTEURS, IL N'EST PAS NECESSAIRE DE DEPOSER LE CIRCLIPS; ON PEUT ALORS DEPOSER L'ARBRE ET LA COURONNE ENSEMBLE.



2.2.4

REMOVE THE END SHAFT POSITIONNER OF AND THE RING GEAR CIRCLIP. ON REAR AXLES IT IS NOT NECESSARY TO TAKE OFF THE CIRCLIP. SHAFT AND RING GEAR MAY BE REMOVED TOGETHER.

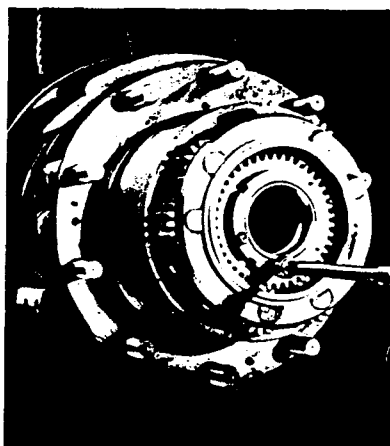
DEPOSER LE PORTE COURONNE ASSEMBLE. CET ENSEMBLE NE SE DEMONTE PAS, IL EST VENDU COMPLET, MONTE, EN PIECES DE RECHANGE.



2.2.5

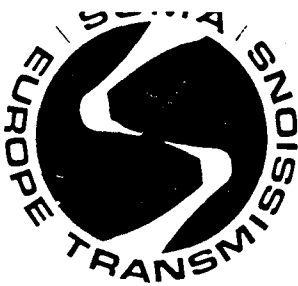
REMOVE BOTH THE RING GEAR AND BRACKET. THEY CANNOT BE SEPARATED. AS SPARE PARTS ARE SUPPLIED COMPLETELY ASSEMBLED.

DEPOSER LES 2 VIS D'ARRET DE L'ECROU FUSEE, APRES AVOIR COUPE LE FIL DE SECURITE.



2.2.6

AFTER CUTTING THE LOCKING WIRE, REMOVE THE TWO LOCKING SCREWS FROM THE SPINDLE NUT.



2.2.5

REDUCTEUR DE ROUE A PLANETAIRE FIXE FAST SUN GEAR EPICYCLIC REDUCTION

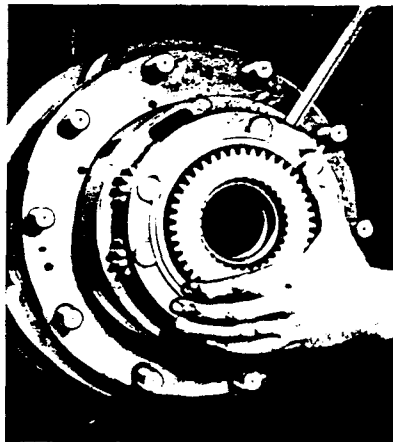
DEPOSER L'ECROU DE FUSEE A
L'AIDE D'UNE CLE A ERGOTS.



REMOVE THE SPINDLE NUT.

2.2.7

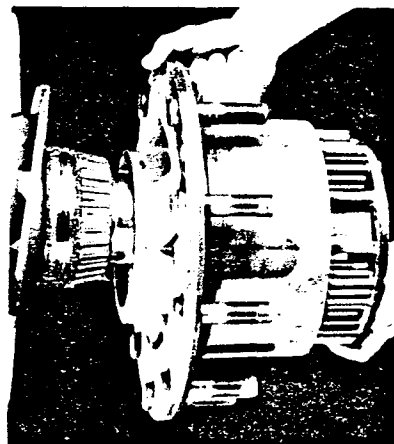
DEPOSER LE PLANETAIRE.



REMOVE THE SUN GEAR.

2.2.8

DEPOSER LE MOYEU PORTE
SATELLITE EN LE TIRANT DANS L'AXE
DU PONT AFIN DE NE PAS
DETERIORER LES JOINTS.
MAINTENIR UNE MAIN A
L'EXTREMITE INFERIEURE DU MOYEU
POUR EVITER DE LAISSER TOMBER LE
ROULEMENT DE MOYEU.



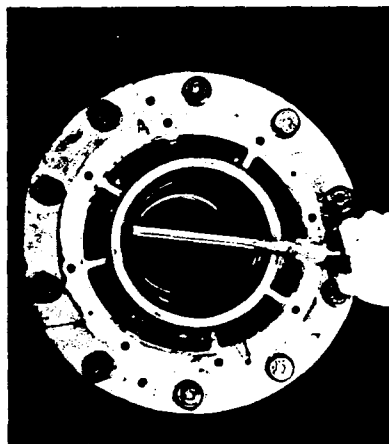
TAKE CARE IN PULLING OFF IT
SQUARELY ON TO THE AXLE IN
ORDER NOT TO DAMAGE THE SEALS.
KEEP A HAND UNDER THE HUB IN
ORDER TO RETAIN THE BEARING.

2.2.9



REDUCTEUR DE ROUE A PLANETAIRE FIXE FAST SUN GEAR EPICYCLIC REDUCTION

DEPOSER LE JOINT FEUTRE ET LE JOINT A LEVRE DU MOYEU A L'AIDE D'UN PIED DE BICHE OU D'UN TOURNEVIS.
 CES JOINTS DEVRONT ETRE REMPLACES PAR DU MATERIEL NEUF AU REMONTAGE.



2.2.10

WITH THE HELP OF A LEVER BAR OR A SCREW DRIVER, REMOVE THE TWO OIL SEALS.
 THESE PARTS TO BE REPLACED BY NEW ONES DURING ASSEMBLY.

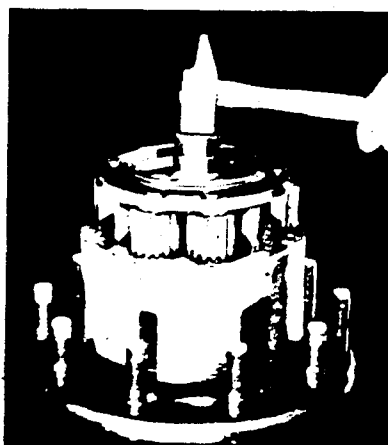
DEPOSER LA CUVETTE DE ROULEMENT ARRIERE.
 DEPOSER LA CUVETTE DE ROULEMENT AVANT.
 DANS LE CAS OU CES PIECES DOIVENT ETRE CHANGEES.



2.2.11

IF THE BEARING ARE TO BE RENEWED WITHDRAW THE INNER AND OUTER BEARING CUPS.

POSER LES CUVETTES DE ROULEMENT DE MOYEU A L'AIDE DE TAMPONS.

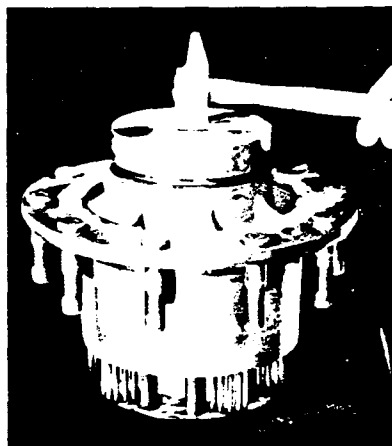


2.2.12

WITH THE HELP OF A SPECIAL INSTALLER TOOL ASSEMBLE INNER AND OUTER BEARING CUPS.

REDUCTEUR DE ROUE A PLANETAIRE FIXE FAST SUN GEAR EPICYCLIC REDUCTION

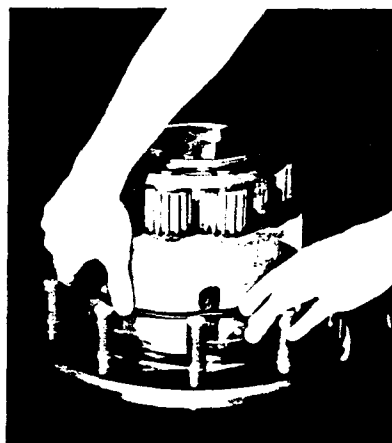
POSER LE JOINT A LEVRE (VOIR NOTICE O) LEVRE COTE ROULEMENT.
 POSER LA BAGUE FEUTRE APRES TREMPAGE QUELQUES INSTANTS DANS L'HUILE (CHAUDE DE PREFERENCE).



2.2.13

INSTALL THE LIPPED SEAL (LIP TOWARDS BEARING).
 INSTALL THE FELT RING AFTER IMMERSION IN HOT OIL FOR A FEW MINUTS.

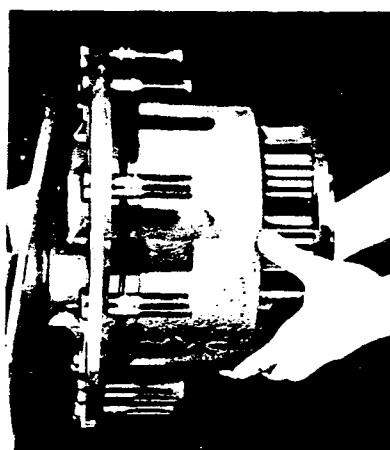
POSER UN JOINT TORIQUE DANS LA GORGE EXTERIEURE DU MOYEU.



2.2.14

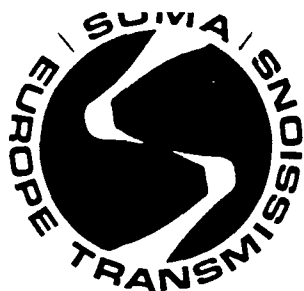
INSTALL A OIL SEAL ON THE HUB.

EMMANCHER LE DEFLECTEUR SUR LA FUSEE.
 EMMANCHER LE MOYEU SUR LA FUSEE EN LE MAINTENANT BIEN EN LIGNE POUR NE PAS ABIMER LES JOINTS.
 LE MAINTENIR EN POSITION TANT QUE LE ROULEMENT AVANT N'EST PAS MONTE.



2.2.15

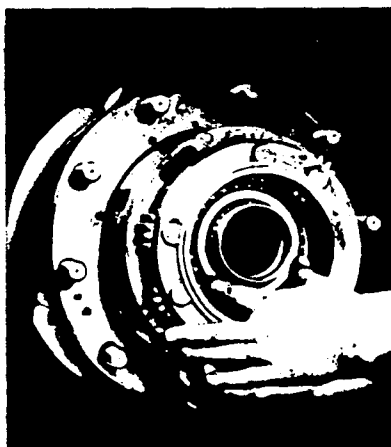
INSTALL THE OIL BAFFLE ON THE SPINDLE.
 TAKE CARE IN PUSHING IT SQUARELY ON TO THE AXLE IN ORDER NO TO DAMAGE THE SEALS. MAINTAIN THE HUB IN POSITION UNTILL THE BEARING IS INSTALLED.



2.2.8

REDUCTEUR DE ROUE A PLANETAIRE FIXE FAST SUN GEAR EPICYCLIC REDUCTION

POSER ET GRAISSER LE ROULEMENT
AVANT DE FUSEE.



2.2.16

INSTALL THE OUTER BEARING.

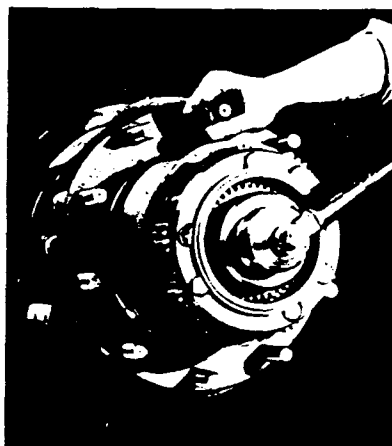
POSER LE PLANETAIRE.



2.2.17

ASSEMBLE THE SUN GEAR.

METTRE EN PLACE L'ECROU DE
FUSEE ET LE VISSER EN FAISANT
TOURNER LE MOYEU.
SERRER L'ECROU A 50 mdaN.

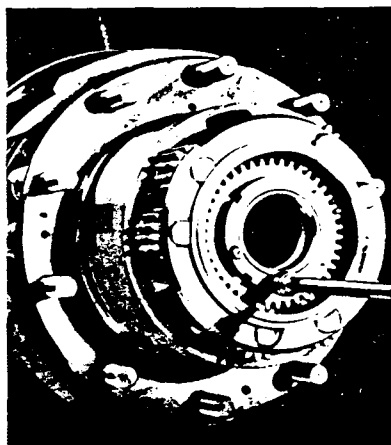


2.2.18

INSTALL THE HUB NUT.
TIGHTEN TO 50 mdaN.

REDUCTEUR DE ROUE A PLANETAIRE FIXE FAST SUN GEAR EPICYCLIC REDUCTION

- POSER LES VIS FREIN DE L'ECROU
PRESERRAGE 1,2 mdaN, SERRAGE
DE 2 mdaN,
- POSER LE FIL DE SECURITE.



2.2.19

SCREW THE TWO LOCKING SCREWS.
FIRST TIGHTNING 1,2 mdaN.
FINAL TIGHTNING TORQUE 2 mdaN.
PUT IN PLACE THE LOCKING WIRE.

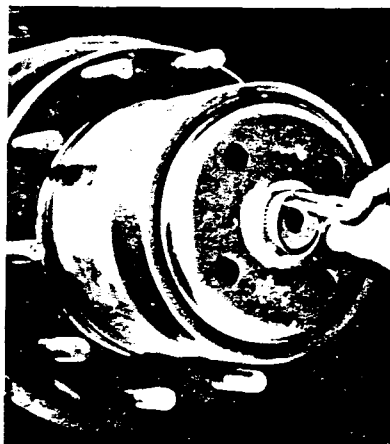
DEGAGER L'ARBRE DE LA MOITIE DE
SA PORTEE DANS LE PLANETAIRE
(25 MM ENVIRON) POUR FACILITER LA
POSE DE LA COURONNE ET DE SON
CIRCLIPS.
POSER LA COURONNE.



2.2.20

PULL THE SHAFT OUT HALF THE
LENGH OF THE DIFFERENTIAL GEAR
SPLINES (APPROX. 1").
IN ORDER TO AVOID DIFFICULTIES IN
ASSEMBLY OF THE RING GEAR.
ASSEMBLE THE RING GEAR.

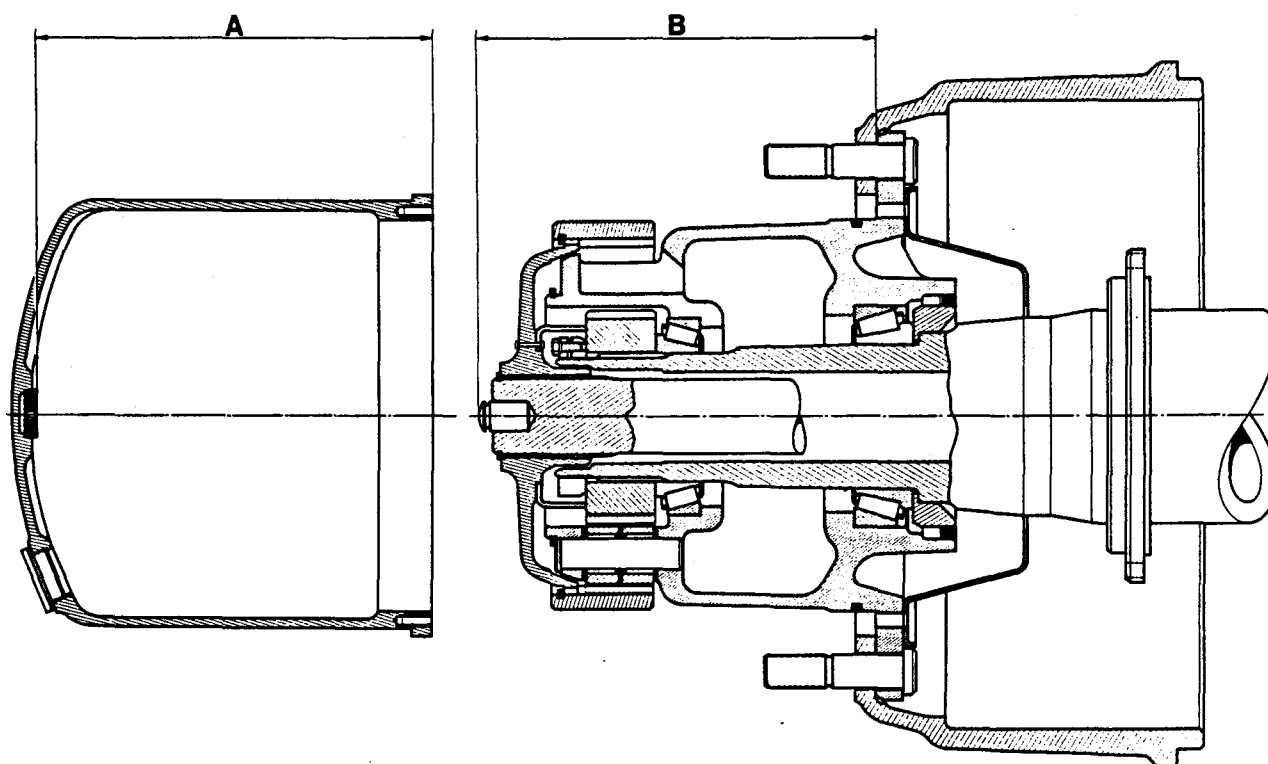
- POSER LE CIRCLIPS.
 - REPOUSSER L'ARBRE.
- NB - IL EST PREFERABLE AU COURS
DE CES OPERATIONS, QUE L'ARBRE
NE SORTE PAS ENTIEREMENT DES
CANNELURES DU PLANETAIRE.



2.2.21

INSTALL THE CIRCLIP AND FULLY
PUSH BOTH THE SHAFT AND RING
GEAR.
NB - DURING THESE OPERATION THE
SHAFT MUST NOT LEAVE
COMPLETELY THE DIFFERENTIAL
GEAR.

FAST SUN GEAR EPICYCLIC REDUCTION



Assemble the end shaft positionner.

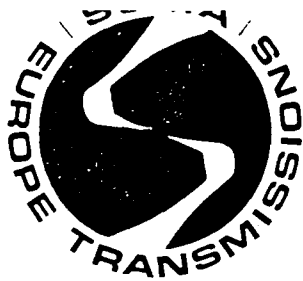
With the help of sliding gange and two liners measure the dimension "B".

Measure the dimension "A".

$J = (A - B)$ is the backlash between the end shaft positionner and the cover plate. This backlash must be between 1.5 to 3 mm.

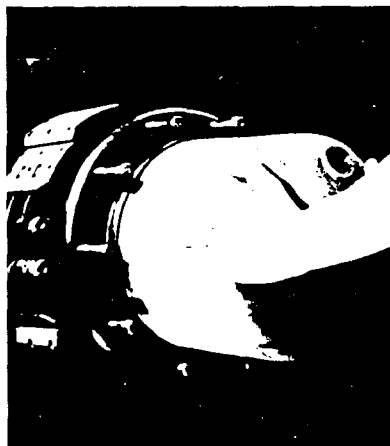
The backlash may be adjusted with the shim kit No 77.000.131 (see on separe parts catalogue).

Apply a small amount of seal paste on the positionner before final assembly.



REDUCTEUR DE ROUE A PLANETAIRE FIXE FAST SUN GEAR EPICYCLIC REDUCTION

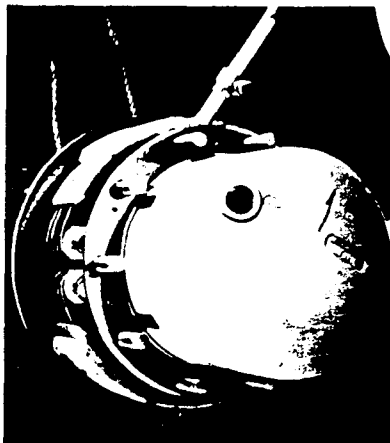
METTRE EN PLACE LE COUVERCLE
SUR LE MOYEU.
IL EST PARFOIS NECESSAIRE DE
L'ENFONCER AVEC UNE MASSETTE.



ASSEMBLE THE COVER ON THE HUB.
IT MAY BE NECESSARY TO USE A
RAWHIDE HAMMER.

2.2.22

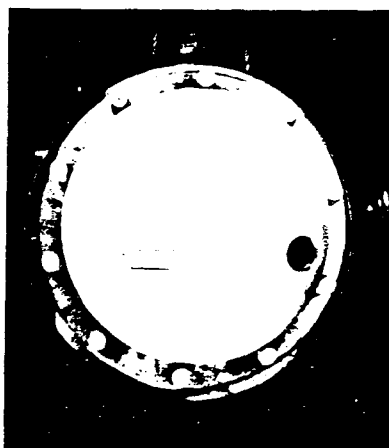
POSER LES 8 VIS DE FIXATION DU
DEFLECTEUR ET DU COUVERCLE,
AVEC LEURS RONDELLES.
LES SERRER A 2,5 mdaN.



INSTALL THE 8 SCREWS AND
WASHERS COVER AND OIL BAFFLE.
TIGHTEN THEM TO 2.5 mdaN.

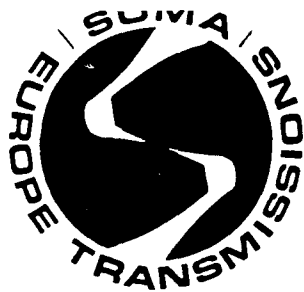
2.2.23

FAIRE LE PLEIN D'HUILE.
VERIFIER LE NIVEAU.
POSER LE BOUCHON DE VIDANGE
(REMPLISSAGE) ET SON JOINT.



FILL THE HUB WITH OIL.
CHECK THE LEVEL.
FIT THE DRAIN PLUG AND SEAL.

2.2.24



2.2.12

REDUCTEUR DE ROUE A PLANETAIRE FIXE FAST SUN GEAR EPICYCLIC REDUCTION

REPOSER LE TAMBOUR ET VISSER
SES 3 VIS DE POSITIONNEMENT.



RE INSTALL THE BRAKE DRUM AND
ASSEMBLE THE 3 LOCATING SCREWS.

2.2.25

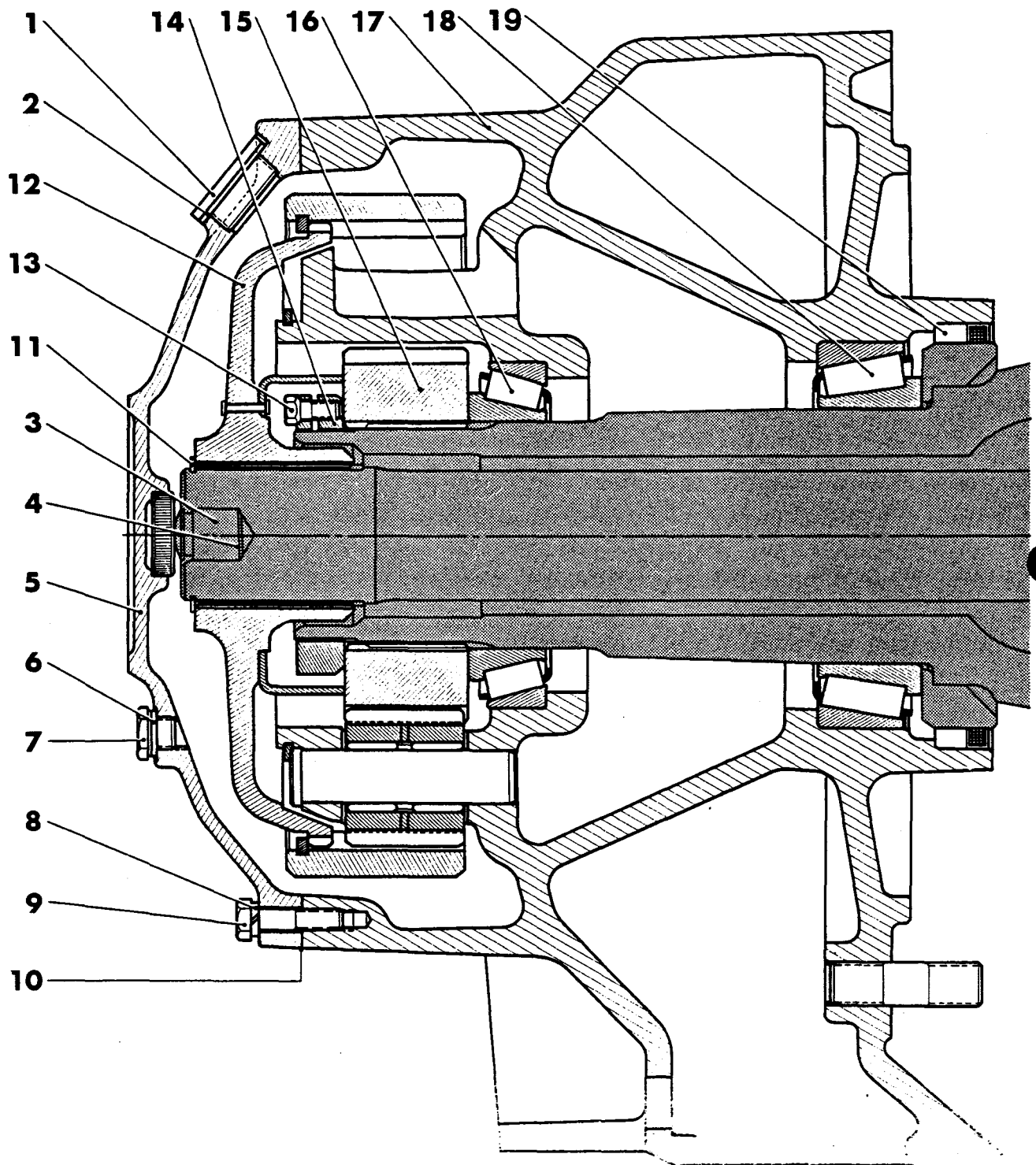


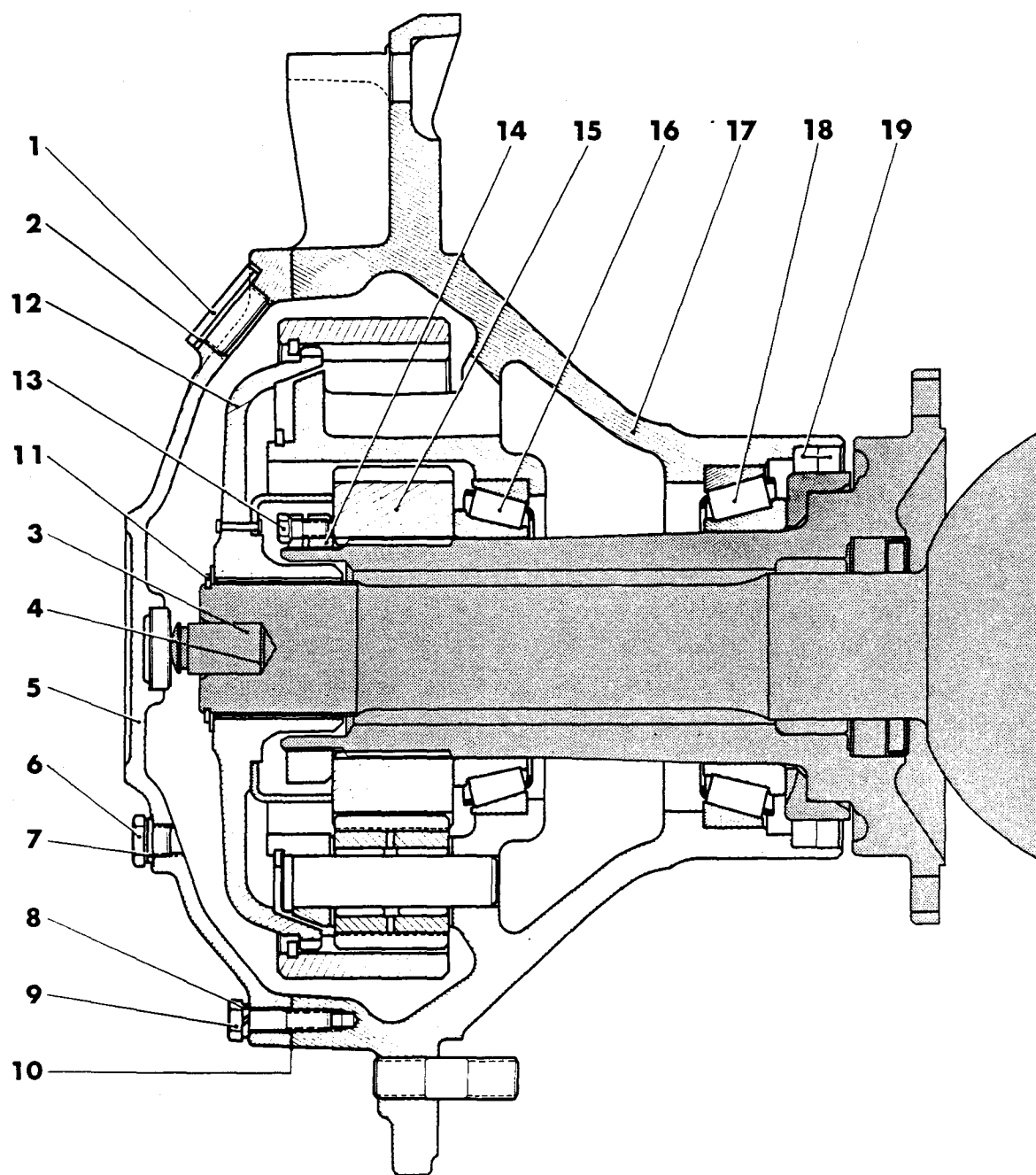
FAST SUN GEAR EPICYCLIC REDUCTION

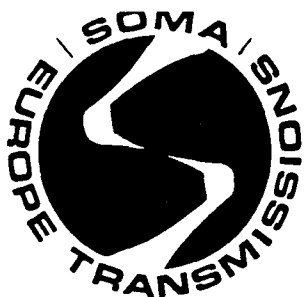
PARTS LIST (See drawing on next sheet)

- 1) Drain plug
- 2) Drain plug seal
- 3) Shaft and shim kit
- 4)
- 5) Cover
- 6) Checking level plug
- 7) Checking level plug seal
- 8) Cover screw washer
- 9) Cover screw
- 10) Cover paper seal
- 11) End shaft circlip
- 12) Ring gear
- 13) Hub nut locking screw
- 14) Hub nut
- 15) Sun gear
- 16) Outer bearing
- 17) Hub
- 18) Inner bearing
- 19) Hub oil seals

One cannot see any special tools reference number in the text for they are different depending on the model of the axles.



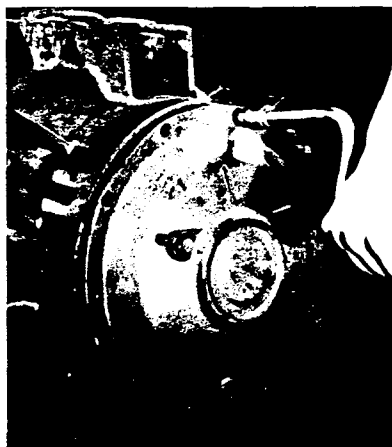




2.3.5

REDUCTEUR DE ROUE A PLANETAIRE FIXE FAST SUN GEAR EPICYCLIC REDUCTION

APRES VIDANGE DU REDUCTEUR,
DEVISSER LES VIS DE FIXATION DU
COUVERCLE.
DEPOSER LES VIS ET LEURS
RONDELLES.



2.3.1

AFTER REMOVING DRAIN PLUG AND
DRAINING LUBRICANT, REMOVE THE
COVER SREWS AND THE WASHERS.

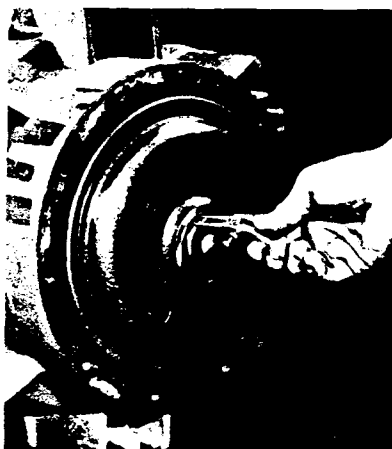
DEPOSER LE COUVERCLE.



2.3.2

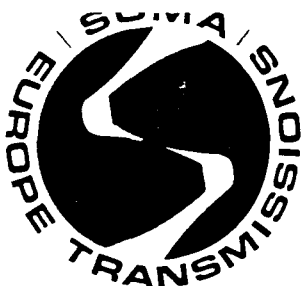
REMOVE THE COVER.

DEPOSER LE CIRCLIPS DE FIXATION
DU PORTE COURONNE.
DEPOSER LA RONDELLE.
DEPOSER LE GRAIN.
SUR UN PONT NON DIRECTEUR
L'ARBRE ET LA COURONNE PEUVENT
ETRE DEPOSES ENSEMBLE.



2.3.3

REMOVE THE SNAP-RING, THE
WASHER, THE POSITIONNER OF
SHAFT END.
THESE OPERATIONS ARE NOT
NECESSARY ON A REAR AXLE FOR
THE RING GEAR AND THE SHAFT MAY
BE REMOVED TOGETHER.



2.3.6

REDUCTEUR DE ROUE A PLANETAIRE FIXE FAST SUN GEAR EPICYCLIC REDUCTION

DEPOSER LA COURONNE ET SON
SUPPORT.
CET ENSEMBLE NE SE DEMONTE PAS.
IL EST VENDU COMPLET EN PIECES
DE RECHANGE.



REMOVE THE RING GEAR AND ITS
BRACKET. THESE PARTS CANNOT BE
SEPARATED.
THEY ARE SOLD TOGETHER IN SPARE
PARTS.

2.3.4

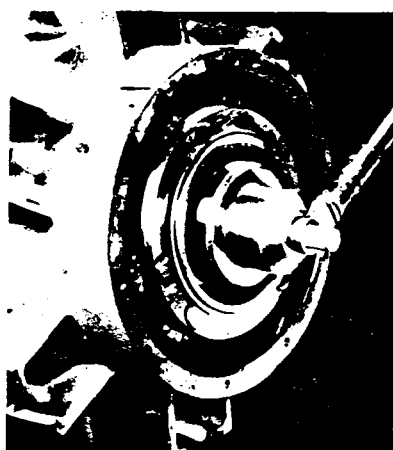
DEFREINER ET DEPOSER LES 2 VIS
FREINS DE L'ECROU FUSEE.



UNLOCK AND UNSCREW THE TWO
LOCKING SCREWS OF THE HUB NUT.

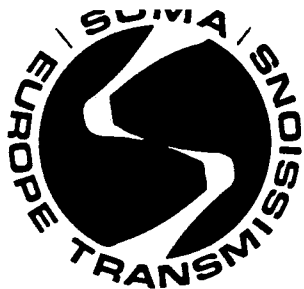
2.3.5

DEVISSER ET DEPOSER L'ECROU DE
FUSEE.



UNSCREW AND REMOVE THE HUB
NUT.

2.3.6



REDUCTEUR DE ROUE A PLANETAIRE FIXE FAST SUN GEAR EPICYCLIC REDUCTION

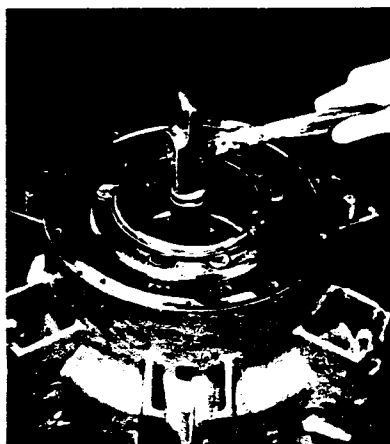
EXTRAIRE LA CUVETTE DE ROULEMENT ARRIERE A L'AIDE D'UN EXTRACTEUR OU D'UNE BROCHE. EXTRAIRE LA CUVETTE DE ROULEMENT AVANT. SEULEMENT DANS LE CAS OU CES ELEMENTS DOIVENT ETRE REMPLACES.



2.3.10

DRAW OUT THE INNER BEARING CUP. DRAW OUT THE OUTER BEARING CUP. ONLY IN CASE OF CHANGE OF THESE PARTS DURING ASSEMBLY.

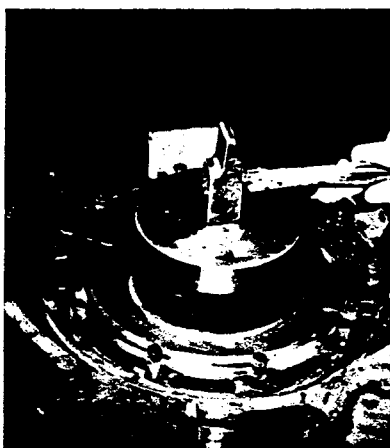
POSER LES CUVETTES DE ROULEMENT DU MOYEU AVEC UN TAMPON, A LA PRESSE OU AU MARTEAU.



2.3.11

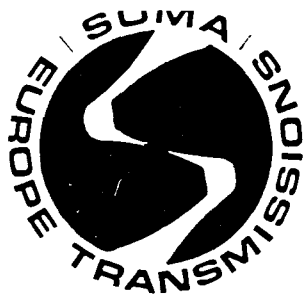
WITH THE HELP OF AN INSTALLER, ASSEMBLE INNER AND OUTER BEARING CUPS.

POSER LE JOINT A LEVRE (LEVRE COTE ROULEMENT) A L'AIDE D'UN TAMPON. POSER LA BAGUE FEUTRE APRES TREMPAGE PENDANT QUELQUES INSTANTS DANS L'HUILE (CHAUDE DE PREFERENCE).



2.3.12

ASSEMBLE THE LIPPED OIL SEAL (LIP TOWARDS THE BEARING). ASSEMBLE THE FELT JOINT (AFTER HAVING BEEN IN HOT OIL DURING A FEW MINUTS).



2.3.9

REDUCTEUR DE ROUE A PLANETAIRE FIXE FAST SUN GEAR EPICYCLIC REDUCTION

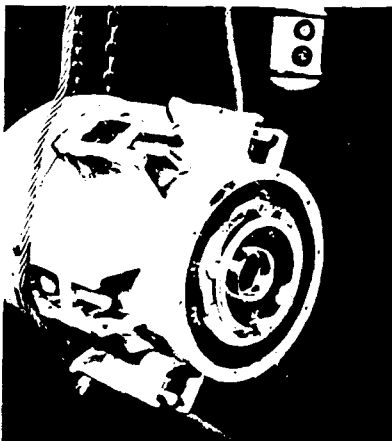
POSER LE TAMBOUR SUR LE MOYEU.
POSER LE DEFLECTEUR.
POSER LES RONDELLES ET LES
ECROUS.
SERRER A 25 mdaN.



2.3.13

ASSEMBLE THE BRAKE DRUM.
ASSEMBLE THE OIL BAFFLE.
PUT IN PLACE THE WASHERS AND
SCREW THE NUTS TIGHT THEM TO
25 mdaN.

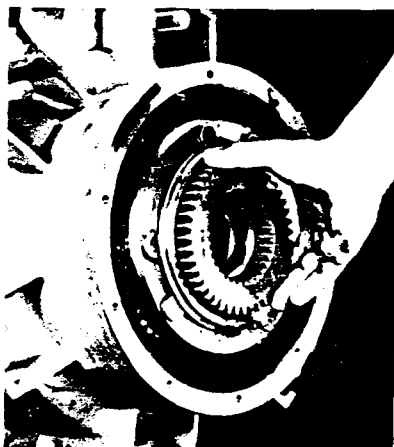
REPOSER LE MOYEU. ON VEILLERA A
EMMANCHER LE MOYEU BIEN EN
LIGNE PAR RAPPORT A LA FUSEE
AFIN DE NE PAS BLESSER LES
JOINTS.



2.3.14

ASSEMBLE THE COMPLETE HUB.
TAKE CARE OF PUSHING IT IN LINE
WITH THE SPINDLE IN ORDER NOT
TO DAMAGE THE OIL SEALS.

POSER LE ROULEMENT AVANT.
POSER LE PLANETAIRE.



2.3.15

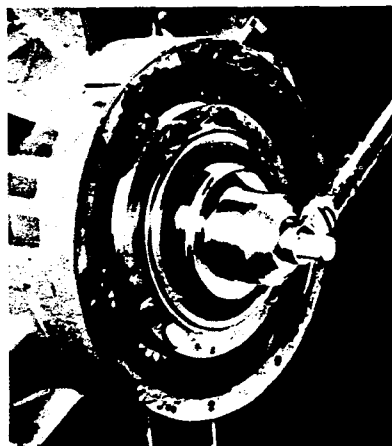
INSTALL THE OUTER BEARING.
INSTALL THE SUN GEAR.



2.3.10

REDUCTEUR DE ROUE A PLANETAIRE FIXE FAST SUN GEAR EPICYCLIC REDUCTION

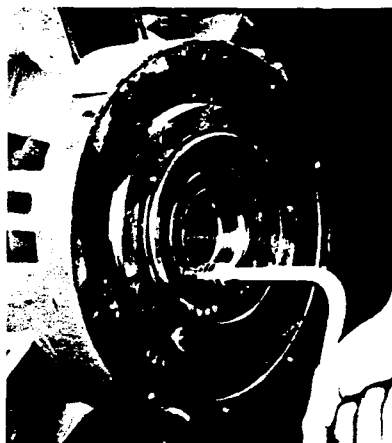
POSER L'ECROU DE FUSEE ET SERRER
A 50 mdaN EN FAISANT TOURNER
LE MOYEU.
LE MOYEU DOIT TOURNER SANS JEU
POUR UNE FORCE TANGENTIELLE DE
7 A 10 daN AU GOUJON DE ROUE.



2.3.16

INSTALL THE HUB NUT AND SCREW
IT TO 50 mdaN; IN THE MEANTIME
HAVE THE HUB ROLLING.
THE HUB MUST ROLL, WITH OUT
BLACKLASH, FOR TANGENTIAL
FORCE OF 7 TO 10 daN AT THE WHEEL
BOLT.

POSER LES VIS DE FREIN SERRER A
2 mdaN.
POSER LE FIL DE SECURITE.



2.3.17

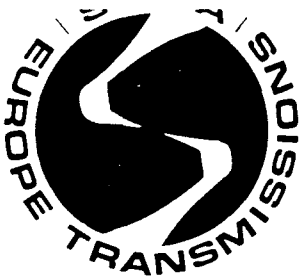
SCREW THE TWO LOCKING SCREWS.
TIGHT THEM TO 2 mdaN.
PUT IN PLACE THE LOCKING WIRE.

POSER L'ARBRE ET SON GRAIN DE
POSITIONNEMENT.
EMMANCHER LA COURONNE SUR
L'ARBRE.



2.3.18

ASSEMBLE THE SHAFT AND ITS
POSITIONNER.
ASSEMBLE THE RING GEAR.



REDUCTEUR DE ROUE A PLANETAIRE FIXE FAST SUN GEAR EPICYCLIC REDUCTION

POSER LA RONDELLE ET LE CIRCLIPS.



INSTALL THE WASHER AND THE SNAP RING.

2.3.19

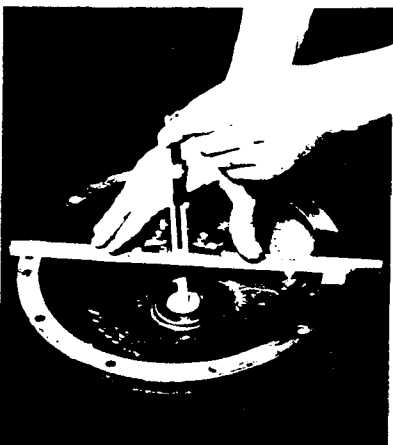
A L'AIDE D'UN PIED A COULISSE DE PROFONDEUR ET DE 2 CALES
MESURER LA COTE B.
B = (HAUTEUR DES CALES),
- (COTE LUE).



WITH THE HELP OF A SLIDING GANGE AND TWO LINERS MEASURE THE DIMENSION "B".
B = (LINERS LENGTH),
- (RED DIMENSION).

2.3.20

MESURER LA COTE A.
LA DIFFERENCE $J = A - B$
REPRESENTE LE JEU ENTRE LE GRAIN ET LA BUTEE DU COUVERCLE.
CE JEU DOIT ETRE COMPRIS ENTRE 1,5 ET 3 MM.



MEASURE THE DIMENSION "A".
 $J = (A - B)$ IS THE BLACKLASH BETWEEN THE END SHAFT POSITIONNER AND THE COVER.
THIS BLACKLASH MUST BE BETWEEN 1,5 TO 3 MM.

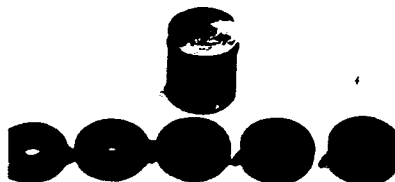
2.3.21



2.3.12

REDUCTEUR DE ROUE A PLANETAIRE FIXE FAST SUN GEAR EPICYCLIC REDUCTION

POUR MODIFIER J, LA POSITION DU
GRAIN PEUT ETRE AJUSTEE A L'AIDE
DE CALES.
PIECE DE RECHANGE N° 77 000 131.



ONE MAY MODIFY J WITH THE SHIM
KIT No 77 000 131 (SEE ON SPARE
PARTS CATALOG).

2.3.22

ENDUIRE LES FACES D'APPUI DU
COUVERCLE ET DU MOYEU DE PATE A
JOINT.
POSER LE JOINT PAPIER SUR LE
COUVERCLE.



APPLY A SMALL AMOUNT OF SEAL
PASTE ON THE COVER.
INSTALL A PAPER OIL SEAL.

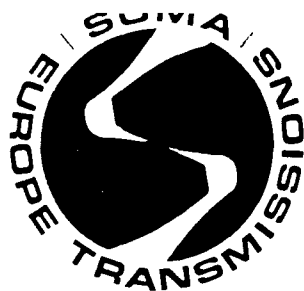
2.3.23

POSER LE COUVERCLE SUR LE
MOYEU.
POSER LES VIS DE FIXATION ET
LEURS RONDELLES.
SERRER LES VIS A 2,5 mdaN.



ASSEMBLE THE COVER.
INSTALL THE SCREWS AND THE
WASHERS.
TIGHT THE SCREWS TO 2,5 mdaN.

2.3.24



2.3.13

REDUCTEUR DE ROUE A PLANETAIRE FIXE FAST SUN GEAR EPICYCLIC REDUCTION

FAIRE LE PLEIN D'HUILE.
POSER LE BOUCHON DE VIDANGE-
REMPLEISSAGE ET SON JOINT.



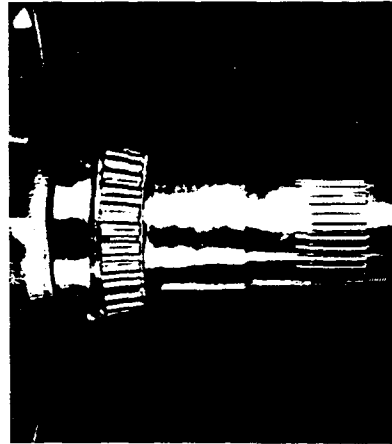
FULL OF LUBRICANT.
CHECK THE LEVEL.
ASSEMBLE THE DRAIN PLUG AND ITS
OIL SEAL.

2.3.25



FUSEE DE PONT MOTEUR REAR AXLE SPINDLE

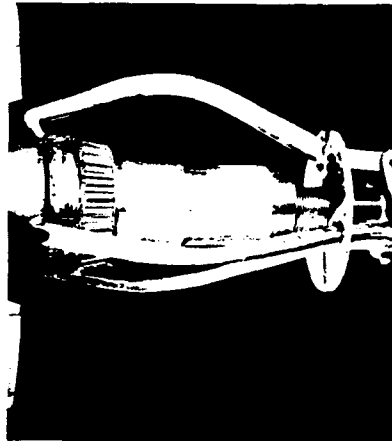
DEPOSER LE REDUCTEUR (VOIR
NOTICE 2.1 OU 2.2 OU 2.3).



3.1.1

REMOVE THE COMPLETE WHEEL
REDUCTION (SEE 2.1 2.2 OR 2.3).

DEPOSER LA PISTE DE JOINT ET LE
ROULEMENT A L'AIDE D'UN
EXTRACTEUR.



3.1.2

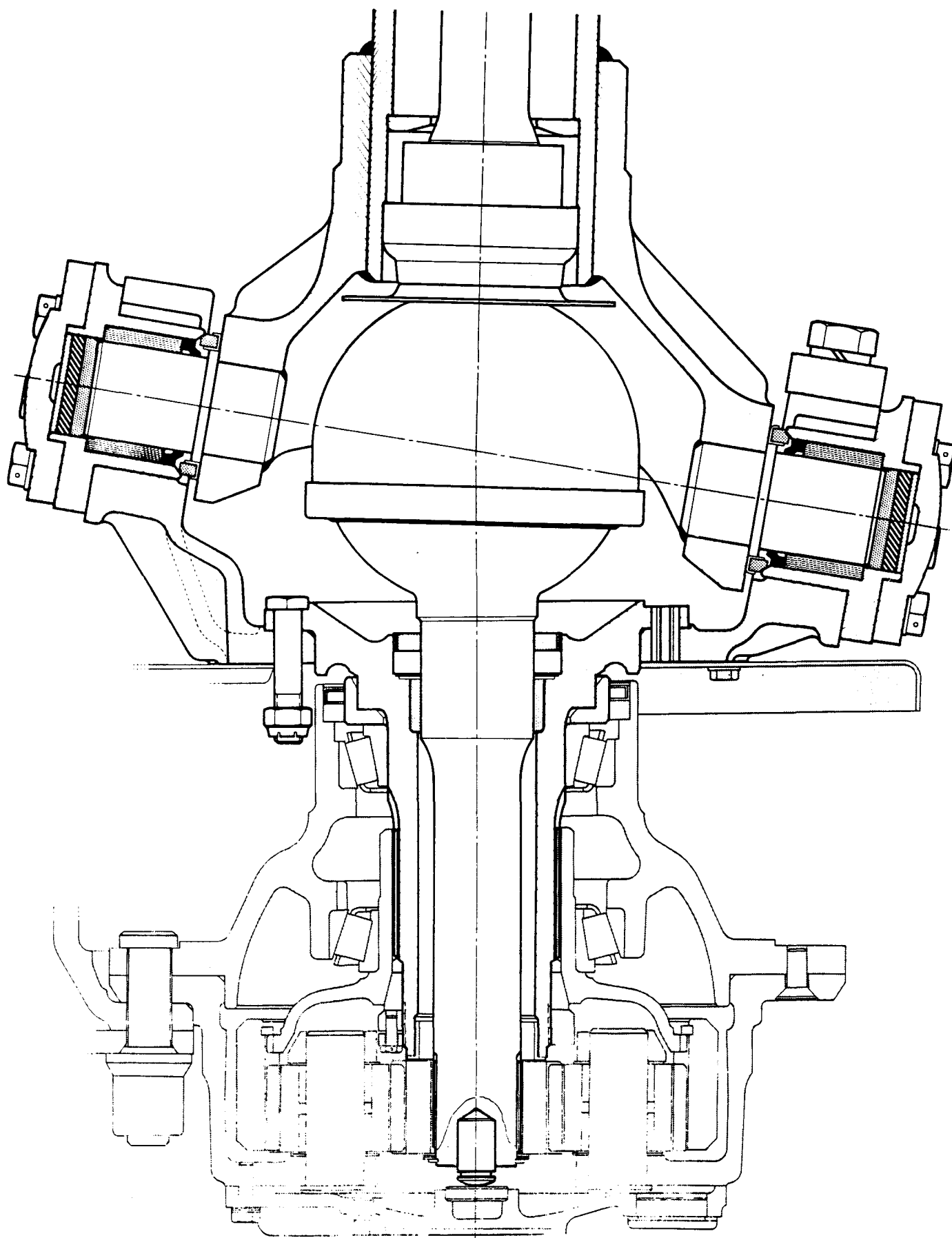
REMOVE TOGETHER THE GRAND
COLLAR AND THE BEARING WITH
THE HELP OF A PULLER.

POSER LA PISTE DE JOINT APRES
CHAUFFAGE A 80 °C ENVIRON. LA
MAINTENIR EN PLACE QUELQUES
INSTANTS PENDANT LE
REFROIDISSEMENT ET S'ASSURER
QU'ELLE PORTE BIEN SUR LA FUSEE.
POSER LE ROULEMENT APRES
CHAUFFAGE A 80 °C ET LE GRAISSER
APRES REFROIDISSEMENT.



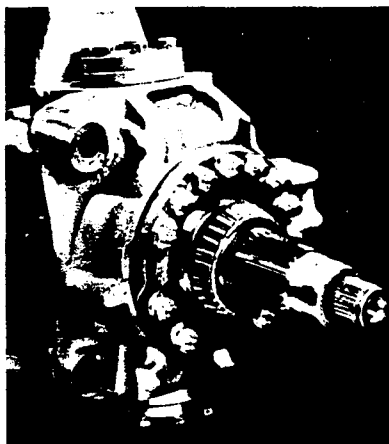
3.1.3

HEAT THE GRAND COLLAR TO
80 °C APPROX. AND INSTALL IT.
MAINTAIN IN POSITION A FEW
MINUTS AND CHECK ITS POSITION
ON THE SPINDLE.
USE THE SAME METHOD TO INSTALL
THE BEARING. APPLY A SMALL
AMOUNT OF GREASE ON BOTH.



FUSEE DE PONT AVANT FRONT AXLE SPINDLE

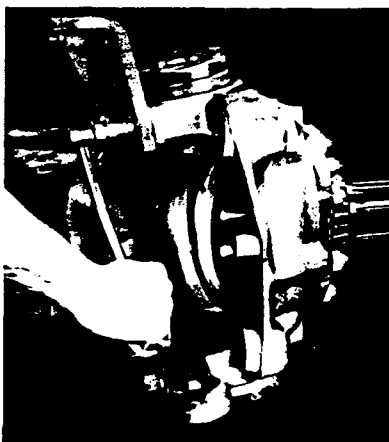
DEPOSER LE REDUCTEUR (VOIR
NOTICE 2.1, 2.2 OU 2.3).
DEPOSER LE FREIN (VOIR
NOTICE 4.1 OU 4.2).



REMOVE THE WHEEL REDUCTION
(SEE 2.1, 2.2 OR 2.3).
REMOVE THE BRAKE (SEE 4.1 OR
4.2).

3.2.1

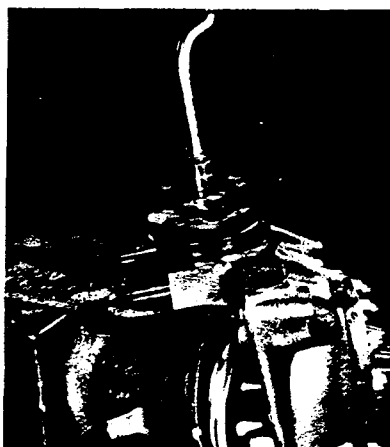
DEVISSER LES VIS DE FIXATION DU
LEVIER DE BARRE D'ACCOUPLEMENT.
DEPOSER LE LEVIER DE BARRE
D'ACCOUPLEMENT.
DEPOSER LE LEVIER DE DIRECTION
S'IL Y A LIEU.



REMOVE THE TIE ROD.
REMOVE THE STEERING ARM.

3.2.2

DEPOSER LE SUPPORT DE FREIN
(S'IL Y A LIEU).
DEPOSER LES COUVERCLES DE
PALIER DE PIVOTS SUPERIEUR ET
INFERIEUR.
DEPOSER LES RONDELLES DE
CALAGE ET LES JOINTS.

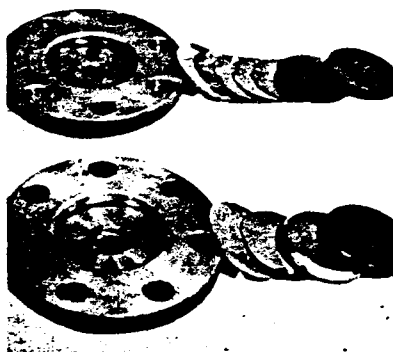


REMOVE THE UPPER AND LOWER
COVERS WITH THE SHIMS.

3.2.3

FUSEE DE PONT AVANT FRONT AXLE SPINDLE

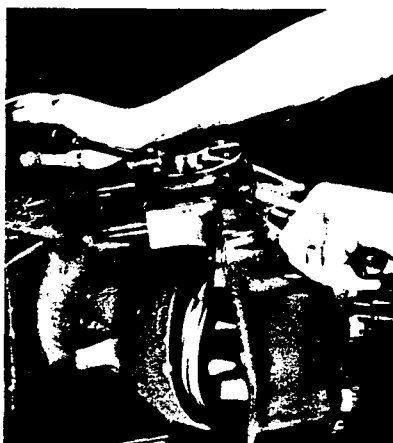
BIEN REPERER LES CALES DE REGLAGE DES PALIERS CAR LES CALAGES SONT DIFFERENTS POUR LES PIVOTS INFÉRIEURS ET SUPÉRIEURS.



3.2.4

NOTE THE POSITION OF SHIMS AS THEY ARE DIFFERENT FOR UPPER AND LOWER KING PIN.

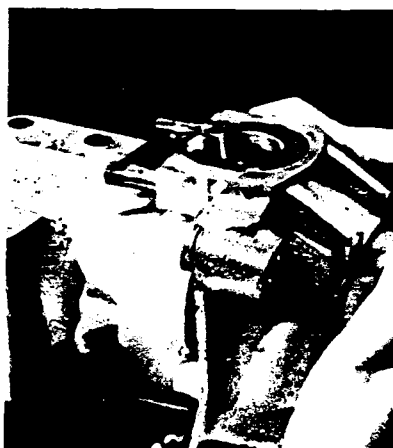
DEPOSER LES PALIERS DE PIVOTS A L'AIDE DE 2 TOURNEVIS (SUR CERTAINS MODELES IL EST PREVU DES TROUS FILETES POUR VIS D'EXTRACTION). LA BAGUE DE TISSU ARME RESTE SOLIDAIRE DU PALIER DE PIVOT. CES 2 ELEMENTS NE SONT PAS VENDUS SEPARÉMENT EN PIÉCES DE RECHANGE.



3.2.5

WITH THE HELP OF TWO SCREW DRIVERS REMOVE THE BEARINGS. SOME OF THE MODELS ARE EQUIPPED WITH THREADED HOLES IN ORDER TO USE EXTRACTION SCREWS.

DEPOSER LE PIVOT AVEC SA FUSEE.



3.2.6

REMOVE THE KNUCKLE AND ITS SPINDLE.

FUSEE DE PONT AVANT FRONT AXLE SPINDLE

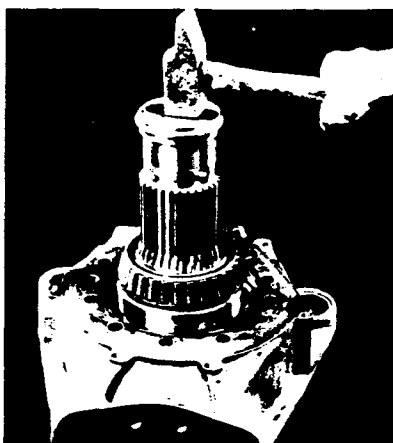
**EXTRAIRE LES JOINTS RACLEURS.
EXTRAIRE LES FEUTRES
D'ETANCHEITE.**



**DRAW OUT THE LIPPED SEALS.
REMOVE THE FELT SEALS.**

3.2.7

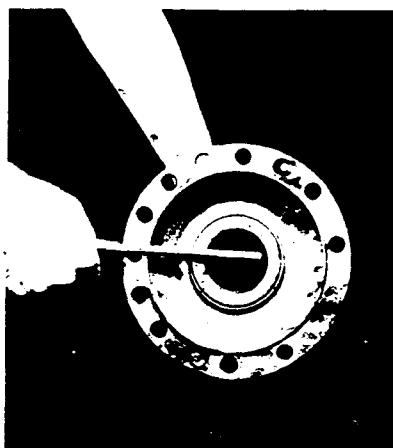
DEPOSER LES VIS DE FIXATION PIVOT
FUSEE.
DEPOSER LA FUSEE.



**UNSCREW AND REMOVE THE
SPINDLE BOLTS.
REMOVE THE SPINDLE FROM THE
KNUCKLE.**

3.2.8

A L'AIDE D'UN TOURNEVIS EXTRAIRE
LE JOINT FEUTRE PUIS LE JOINT A
LEVRE.
CES ELEMENTS DEVONT ETRE
REMPLACES PAR DU MATERIEL NEUF
AU REMONTAGE.



WITH THE HELP OF A LEVER BAR OR
A SCREW DRIVER REMOVE THE OIL
SEALS FROM THE SPINDLE.
THESE PARTS TO BE REPLACED ON
ASSEMBLY.

3.2.9

FUSEE DE PONT AVANT FRONT AXLE SPINDLE

DEPOSER LE CONE DE ROULEMENT
PUIS LA PISTE DE JOINT A L'AIDE
D'UN EXTRACTEUR.
REPOSER LA PISTE DE JOINT.
CHAUFFER LA PIECE A 80 ° C
ENVIRON.
MAINTENIR LA PIECE EN POSITION
QUELQUES INSTANTS APRES
MONTAGE ET VERIFIER QU'ELLE
PORTE CORRECTEMENT SUR LA
FUSEE.
REPOSER LE CONE DU ROULEMENT
(MEME PROCEDE).
APRES MONTAGE ENDUIRE LE
ROULEMENT DE GRAISSE.



3.2.10

WITH THE HELP OF A PULLER REMOVE
THE GRAND COLLAR AND THE
BEARING.
INSTALL NEW ONES AFTER HEATING
TO 80 °C.
MAINTAIN THE PARTS IN POSITION A
FEW MINUTS DURING COOLING.
APPLY A SMALL AMOUNT OF GREASE
ON BOTH PARTS.

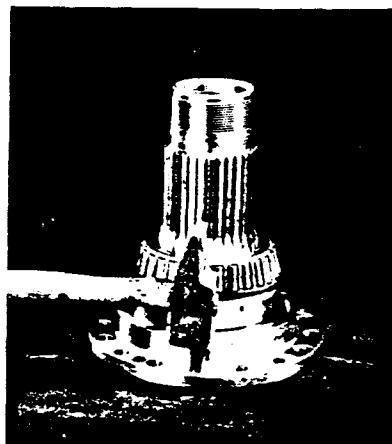
GRAISSER LE JOINT A LEVRE
(NOTICE O).
LE POSER A L'AIDE D'UN TAMPON.
POSER LA BAGUE FEUTRE APRES
TREMPAGE DANS L'HUILE
(CHAUDE DE PREFERENCE) PENDANT
QUELQUES INSTANTS.



3.2.11

APPLY A SMALL AMOUNT OF
GREASE ON THE LIPPED SEAL WITH
THE HELP OF AN SPECIAL INSTALLER
TOOL, ASSEMBLE IT.
INSTALL THE FELT SEAL AFTER
IMMERSION IN HOT OIL FOR A FEW
MINUTS.

POSER LES 3 PLUS GROSSES
GOUPILLES FENDUES.
AVANT DE MONTER LA FUSEE SUR LE
PIVOT VOIR PAGE 3.2.10 LES
NOUVEAUX REGLAGES EVENTUELS
AUXQUELS IL FAUT PROCEDER.



3.2.12

INSTALL THE THREE BIGGEST SPLIT
TUBES.
BEFORE ASSEMBLING THE SPINDLE
ON THE KNUCKLE (SEE PAGE 3.2.10)
THE NEW ADJUSTMENTS.

FUSEE DE PONT AVANT FRONT AXLE SPINDLE

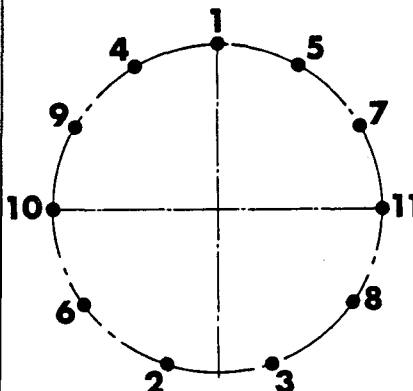
POSER LES VIS DE FIXATION DE
FUSEE SUR LE PIVOT.
POSER LA FUSEE SUR LE PIVOT.
POSER LE FREIN OU LA BAGUE.



3.2.13

INSTALL THE SCREWS.
ASSEMBLE THE SPINDLE ON THE
KNUCKLE.
ASSEMBLE THE BRAKE.

POSER LES ECROUS.
SERRER DANS L'ORDRE 1 A 11
SUIVANT SCHEMA CI-CONTRE.
PRESERRAGE 12 mdaN.
SERRAGE $17,5 \pm 0,5$ mdaN.
IL EST RECOMMANDE DE SUIFFER
LES PREMIERS FILETS.

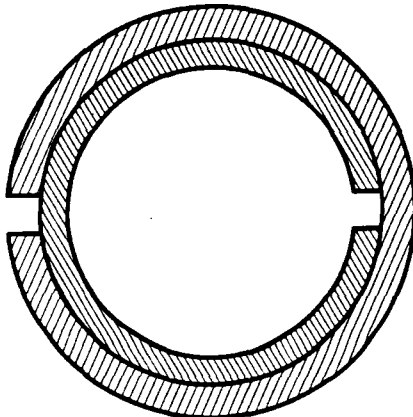


3.2.14

TALLOW THE THREADS.
INSTALL THE NUTS.
TIGHTEN THEM TO:
FIRST TIGHTENING TORQUE 12 mdaN.
FINAL TIGHTENING TORQUE
 $17,5 \pm 0,5$ mdaN.

POSER LES 3 AUTRES GOUPILLES
FENDUES (VOIR SCHEMA DE
MONTAGE CI-CONTRE).

ARRETER LES GOUPILLES PAR UN
POINT DE SOUDURE.



3.2.15

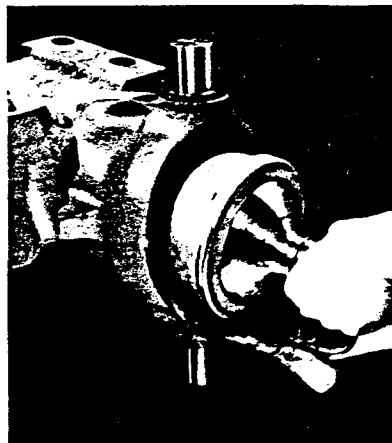
INSTALL THE 3 OTHER SPLIT TUBES
AS ILLUSTRATED LOCK THEM BY A
WELDING POINT.



3.2.6

FUSEE DE PONT AVANT FRONT AXLE SPINDLE

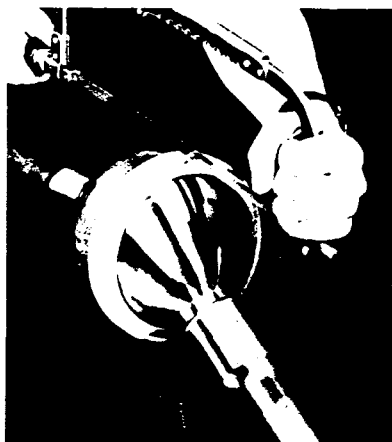
DEPOSER LE JOINT HOMOCINETIQUE,
LE DEGAGER AVEC PRECAUTION ET
EN LIGNE PAR RAPPORT A L'AXE
HORIZONTAL DU PONT AFIN DE NE
PAS BLESSER LE JOINT DE BANJO.



3.2.16

REMOVE THE CONSTANT VELOCITY
JOINT WITH CARE IN ORDER NOT TO
DAMAGE THE OIL SEAL.

SUR CERTAINS TYPES DE JOINTS
HOMOCINETIQUES (NON SERTIS) ON
PEUT CHANGER LE JOINT
D'ETANCHEITE.
SCIER LA BAGUE ECROU DU JOINT
ET LA DEPOSER COTE ARBRE COURT.



3.2.17

FOR SOME MODELS ONE CAN
REPLACE THE INNER OIL SEAL.
SAW THE NUT AND REMOVE IT.

DEPOSER LE JOINT COTE ARBRE
COURT ET LE BOL COTE ARBRE LONG.
POSER LE BOL ET LE NOUVEAU JOINT
A LEVRE.



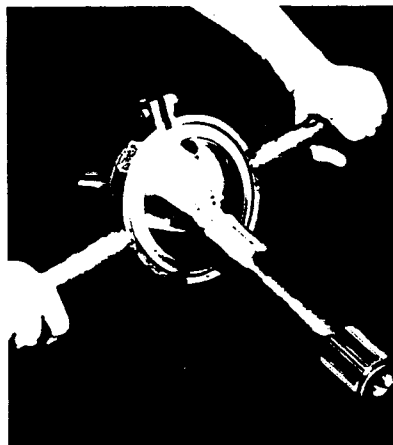
3.2.18

REMOVE THE SEAL.
REMOVE THE BOWL.
INSTALL NEW BOWL AND SEAL.



FUSEE DE PONT AVANT FRONT AXLE SPINDLE

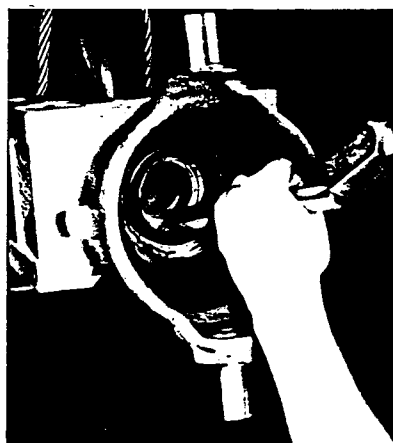
POSER UN NOUVEL ECROU.



3.2.19

INSTALL A NEW NUT.

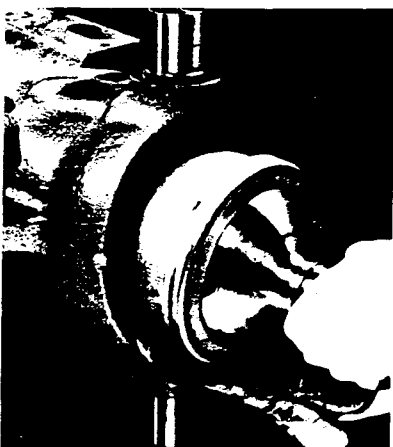
SI NECESSAIRE DEPOSER LE JOINT DE BANJO ; POUR CELA DEFORMER LE JOINT AU BURIN AVANT EXTRACTION.
LE REMONTAGE DU NOUVEAU JOINT SE FAIT AU TAMPON.
AUPARAVANT ON ENDUIRA LA PARTIE EXTERIEURE DE PATE A JOINT PRENDRE SOIN D'EMMANCHER LE JOINT EN LIGNE PAR RAPPORT A L'AXE HORIZONTAL DU BANJO.



3.2.20

IF NECESSARY REMOVE THE OIL SEAL FROM THE BANJO.
APPLY A SMALL AMOUNT OF SEAL PASTE ON THE NEW SEAL.
INSTALL THE NEW SEAL WITH A SPECIAL INSTALLER TOOL CAREFULLY IN LINE.

REPOSER LE JOINT HOMOCINETIQUE (MEME PRECAUTIONS QU'AU DEMONTAGE).
BIEN POUSSER L'ARBRE A FOND JUSQU'A ENGRENEMENT DES CANNELURES DANS LE PLANETAIRE.



3.2.21

INSTALL THE CONSTANT VELOCITY JOINT (SAME CARE AS DURING REMOVAL).

FUSEE DE PONT AVANT FRONT AXLE SPINDLE

POSER L'ENSEMBLE PIVOT EQUIPE
SUR LE SUPPORT DE PIVOT.



3.2.22

INSTALL THE KNUCKLE IN THE BANJO.

APRES TREMPAGE DE QUELQUES
INSTANTS DANS L'HUILE (CHAUDE
DE PREFERENCE), POSER LES
FEUTRES D'ETANCHEITE SUR LES
AXES DE PIVOTS.



3.2.23

AFTER IMMERSION FOR A FEW
MINUTS IN HOT OIL INSTALL THE
FELT RINGS ON THE KING PIN.

POSER LES JOINTS RACLEURS A
L'AIDE D'UN TAMPON.

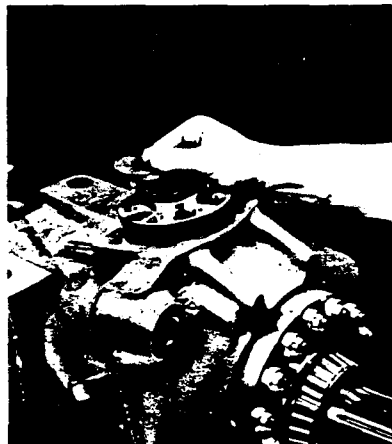


3.2.24

INSTALL THE SEALS WITH THE
HELP OF A SPECIAL INSTALLER
TOOL.

FUSEE DE PONT AVANT FRONT AXLE SPINDLE

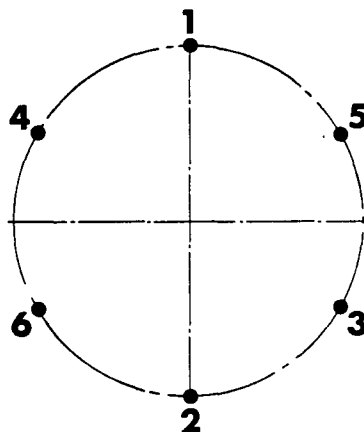
POSER LES PALIERS DE PIVOTS.
POSER LES RONDELLES DE TISSU
ARME (ET LA RONDELLE DE
NEOPRENE SUR L'AXE DE PIVOT
SUPERIEUR).
REPOSER LES CALAGES REPERES
AU DEMONTAGE.
POSER LES COUVERCLES ET LEURS
VIS.



3.2.25

INSTALL THE BEARINGS.
INSTALL THE SPECIAL FELT WASHER
AND THE NEOPREN WASHER.
INSTALL LOWER AND UPPER SHIMS
AS DISSASSEMBLED EARLIER.
INSTALL THE COVERS AND SCREWS.

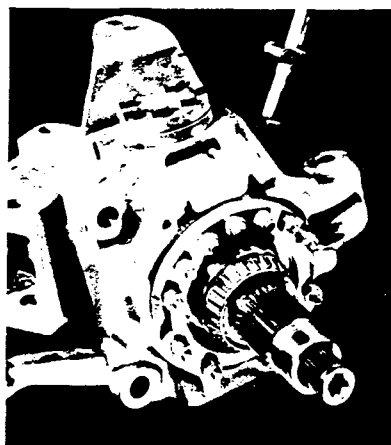
SERRER LES VIS DANS L'ORDRE
1 A 6 SUIVANT SCHEMA CI-CONTRE :
DOUILLE 19 MM 22 MM
PRES. 8,5 12
SERRAGE 12 17,5
en mdaN
LE COUPLE DE BRAQUAGE DOIT ETRE
COMPRIS ENTRE 20 ET 30 mdaN.



3.2.26

TIGHTEN THE SCREWS AS
ILLUSTRATED:
SPANNER 19 MM 22 MM
FST TIGHT 8,5 12
FINAL TIGHT 12 17,5
in mdaN
THE STEERING ARM TORQUE MUST
BE BETWEEN 20 AND 30 mdaN.

LE COUPLE DE SERRAGE DES ECROUS
DE FIXATION DE LA BARRE
D'ACCOUPLEMENT ET DU LEVIER DE
DIRECTION SONT :
PRESER. 18 mdaN 38,5 mdaN
SERRAGE 27 ± 1 58 ± 1

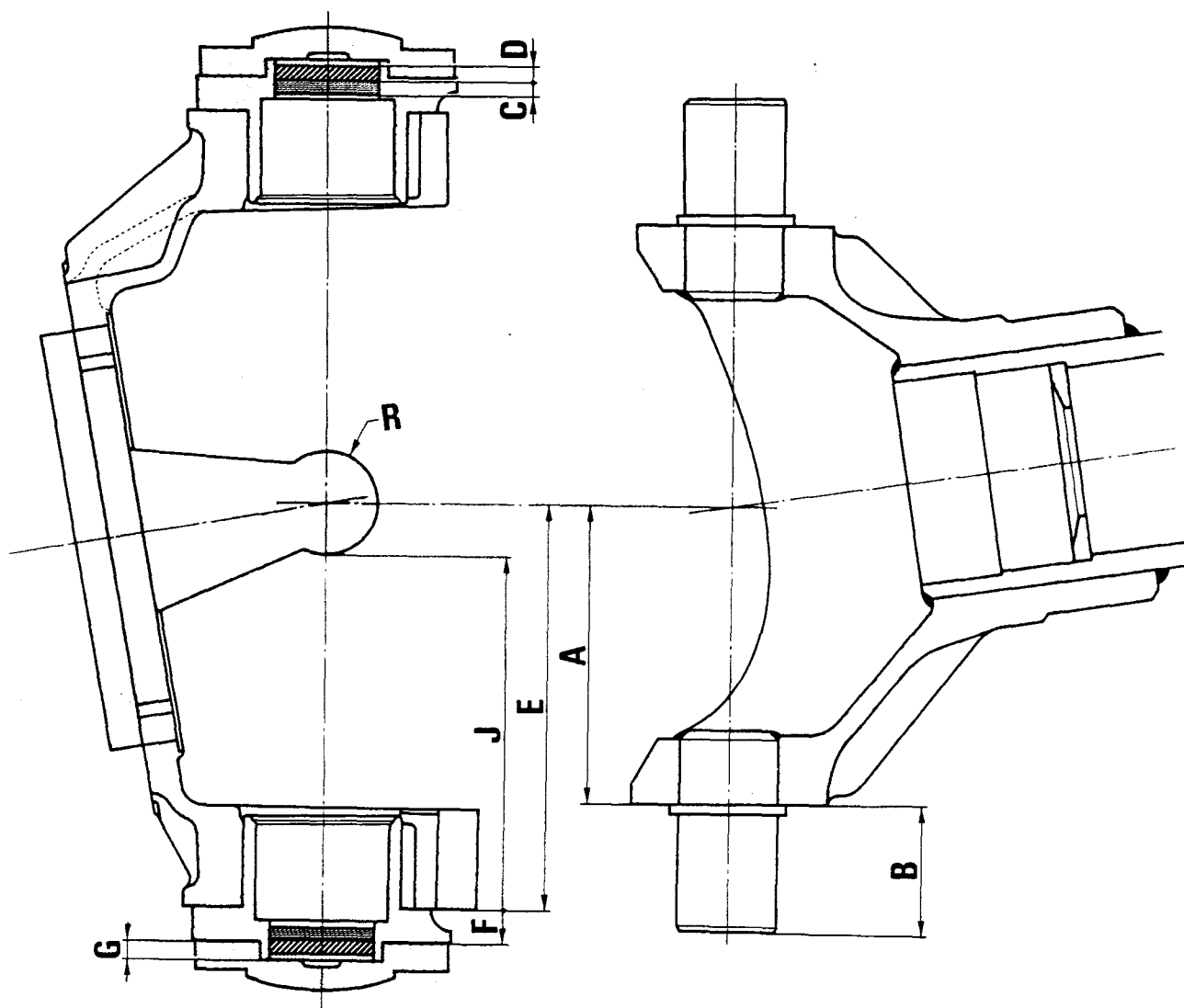


3.2.27

TIGHTENING TORQUES OF THE
TIE ROD AND STEERING ARM NUTS:
FIRST TIGHT 18 mdaN 38,5 mdaN
FINAL TIGHT 27 ± 1 58 ± 1 .

FRONT AXLE SPINDLE

When removing parts such as knuckle, knuckle bearing, knuckle bearing cap, one must figure out the new shimming adjustment.



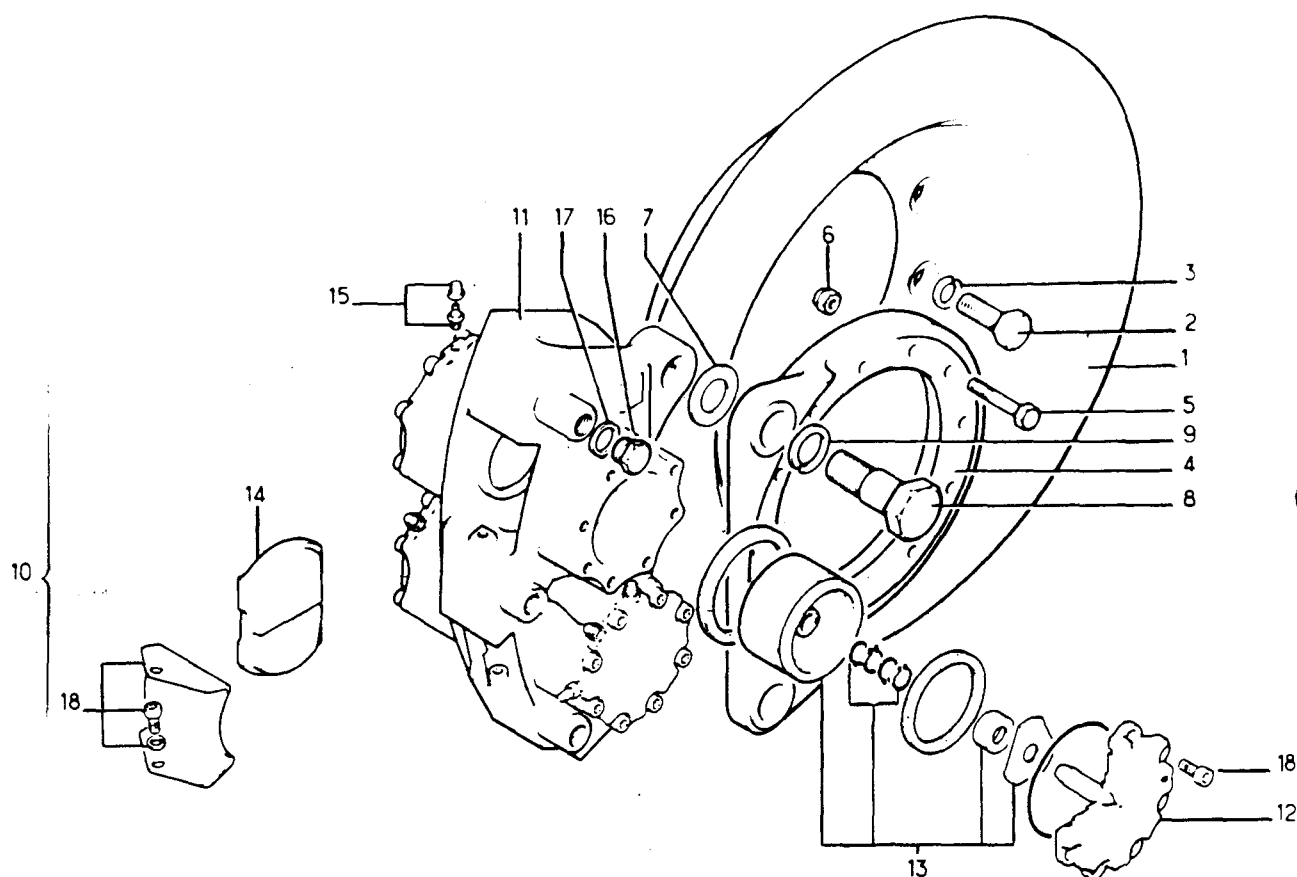
Measure dimensions B, C, D, E, F, G.
 Red dimension A on the banjo.
 New shim dimension X is such as

$$X = (E + F + G) - (A + B + C + D).$$

DISC BRAKE

To remove and to re-assemble the brake disc please see leaflets B1, B2 or B3 concerning the hub reduction.

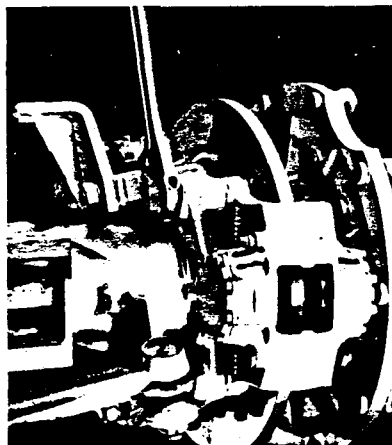
The disc fixing bolts to be tightened to a torque of 25 to 27 mdaN.



- 1) Disc
- 2-3) Bolt and disc fixing washer (27 mdaN)
- 4) Caliper bracket
- 5-6) Bracket fixing kit (8 mdaN)
- 7) Caliper adjusting shims
- 8-9) Caliper fixing kit (80 mdaN)
- 10) Caliper assy
- 11) Caliper
- 12) Piston cover
- 13) Piston assy
- 14) Brake pad
- 15) Bleeding screw
- 16-17) Bolt and washer
- 18) Cover fixing bolt (2,4 mdaN)

FREIN A DISQUE DISC BRAKE

DEPOSER L'ETRIER EN AYANT SOIN
DE RECUPERER LES CALES DE
POSITIONNEMENT.



4.1.1

REMOVE THE CALIPER.
CAREFULLY STORE THE CALIPER
ADJUSTING SHIMS.

FIXER L'ETRIER SUR UN ETAU.
DEBLOQUER ET DEPOSER LES VIS DE
FIXATION DU COUVERCLE.



4.1.2

HOLD THE CALIPER FIRMLY IN A VICE.
REMOVE AND STORE THE COVER
FIXING SCREWS.

A L'AIDE DE 2 TOURNEVIS DEPOSER
LE COUVERCLE ET LE PISTON.
NETTOYER LES FACES D'APPUI DE
L'ETRIER ET DU COUVERCLE.
DEPOSER LE RACLEUR D'ETANCHEITE.



4.1.3

WITH THE HELP OF 2 SCREWS
DRIVERS REMOVE THE COVER AND
THE PISTON.
CLEAN THE CONTACT SURFACE OF
THE COVER AND THE CALIPER.
REMOVE THE OIL SEAL SCRAPER.

FREIN A DISQUE DISC BRAKE

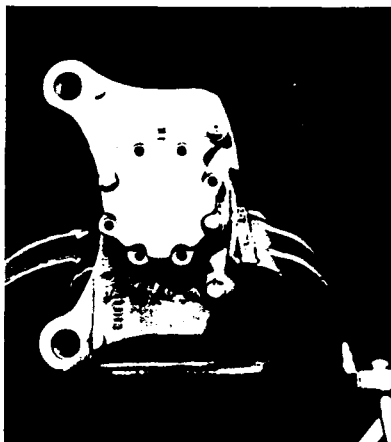
POLIR L'ALESAGE ET LE PISTON A L'AIDE D'UN PAPIER ABRASIF TRES FIN.
SI NECESSAIRE REMPLACER LA GARNITURE D'ETANCHEITE.



4.1.4

POLISH THE BORE AND THE PISTON WITH A VERY FINE ABRASIVE.
IF NECESSARY, REPLACE THE OIL SEALS.

GRAISSER L'ALESAGE.
POSER LE RACLEUR D'ETANCHEITE.
POSER LE COUVERCLE AVEC LE PISTON EN ORIENTANT LES VIS DE PURGE VERS LE HAUT.
SERRER LES VIS DE COUVERCLE A 2,4 mdaN.



4.1.5

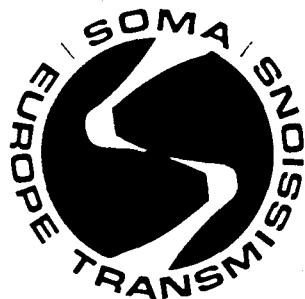
GREASE THE BORE.
RE-POSITION THE OIL SCRAPER RING.
RE-POSITION THE COVER AND THE PISTON WITH THE BLEEDING SCREW IN THE UPPER POSITION.
TIGHTEN THE COVER SCREWS TO A TORQUE OF 2,4 mdaN.

REPOSER L'ETRIER.
EFFECTUER LA PURGE (NE PAS SERRER EXAGEREMENT LES VIS DE PURGE).
REPOSER LES PLAQUETTES.



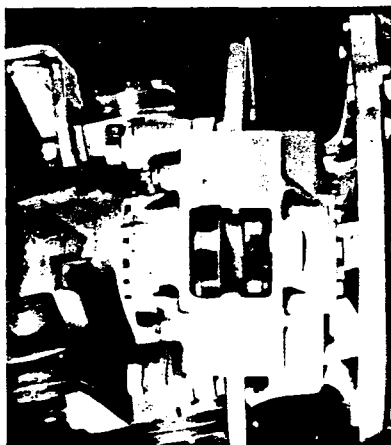
4.1.6

RE-POSITION THE CALIPER.
BLEED THE CALIPER (DO NOT OVERTIGHTEN THE BLEEDING SCREW).
RE-POSITION THE BRAKE PADS.



FREIN A DISQUE DISC BRAKE

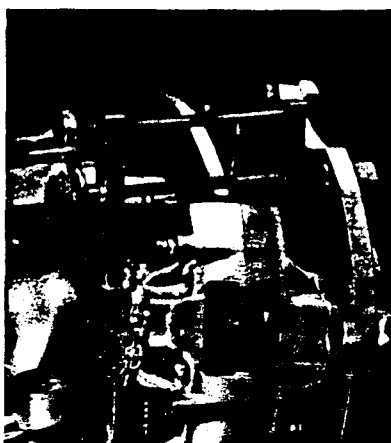
POUR LE REMPLACEMENT DES
PLAQUETTES UNIQUEMENT, IL N'EST
PAS NECESSAIRE DE DEPOSER
L'ETRIER.
DEPOSER LA PLAQUE DE VISITE ET
RETIRER LA PLAQUETTE EN LA
FAISANT PIVOTER DE 1/2 TOUR.



4.1.7

JUST TO REPLACE THE BRAKE PADS,
IT IS NOT NECESSARY TO REMOVE
THE CALIPER.
REMOVE THE INSPECTION PLATE AND
EXTRACT THE PAD BY ROTATING
IT THROUGH HALF A TURN.

POUR LE REMONTAGE : DEVISSER
LEGEREMENT LES VIS DE COUVERCLE
DE CYLINDRE.
A L'AIDE D'UN SERRE JOINT APPUYER
SUR LE COUVERCLE AFIN DE
REMETTRE LE RATTRAPAGE DE JEU
AUTOMATIQUE AU POINT O.

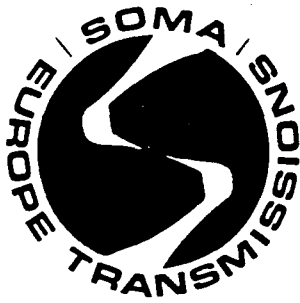


4.1.8

TO REASSEMBLE: GENTLY SLACKEN
THE PISTON COVER SCREWS.
WITH THE HELP OF A CLAMP (AS
ILLUSTRATED) PUSH THE COVER IN
ORDER TO RELEAVE THE SELF
CONTROLLED BACKLASH OF THE
PADS.

Introduire la plaquette de frein (partie métallique côté piston).
Serrer les vis du couvercle à 2,4 mdaN.
Effectuer la purge.

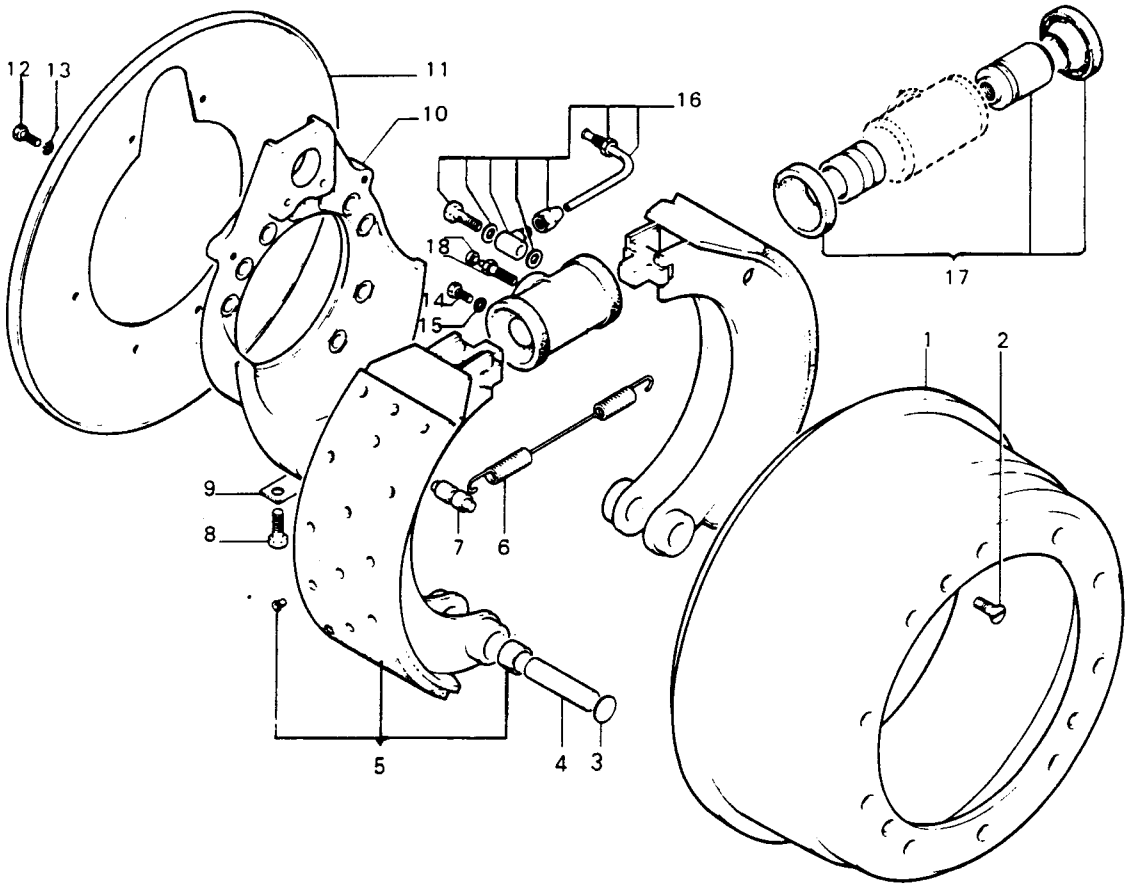
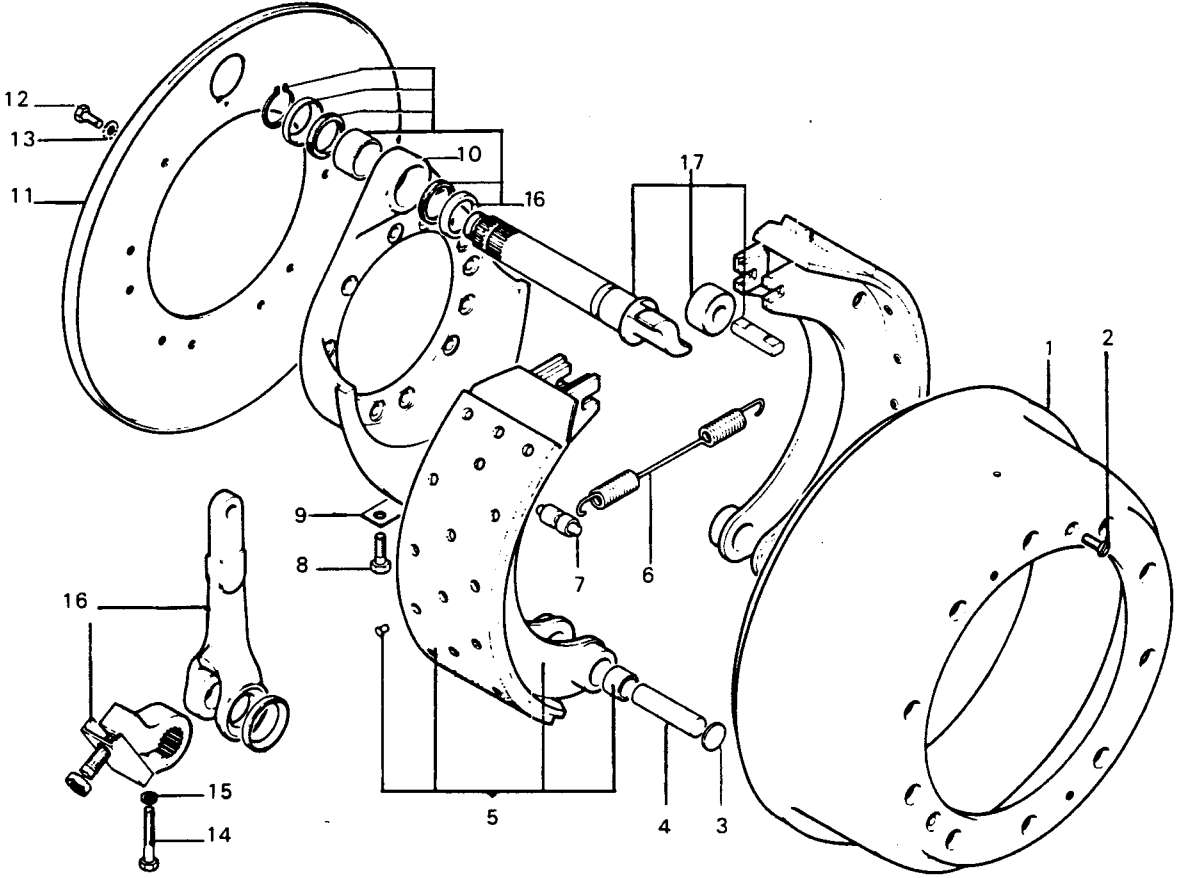
Insert the brake pad (backing plate against the piston).
Tighten the cover screws to a torque of 2.4 mdaN.
Bleed the caliper.

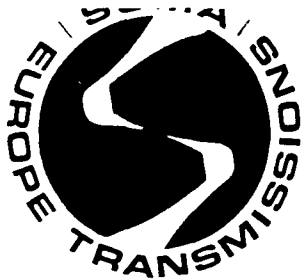


DRUM BRAKE

The air or hydraulic-operated drum brakes are assembled in the same way except the control systems as: illustrated below and according to the parts list.

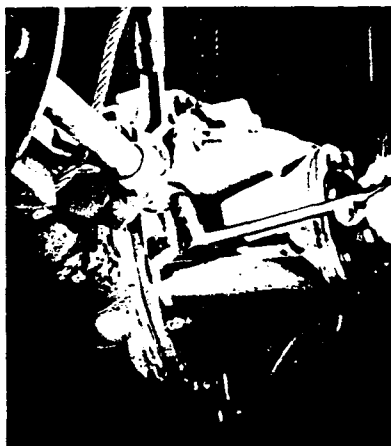
- 1) Drum
- 2) Drum fixing screws
- 3) Brake shoe mounting pin cover
- 4) Brake shoe mounting pin
- 5) Brake Shoe
- 6) Return spring
- 7) Return spring retaining pin
- 8-9) Mounting pin locking screw and plate
- 10) Brake spider
- 11) Dust cover
- 12-13) Dust cover fixing kit
- 14-15) Brake lever fixing kit
- 16) Brake lever
- 17) Hydraulic cylinder or cam shaft (air-operated)
- 18) Bleeding screw





FREIN A TAMBOUR DRUM BRAKE

LE TAMBOUR ET LE REDUCTEUR
ETANT DEPOSES (VOIR NOTICE B1,
B2 OU B3), DEPOSER LA
COMMANDE DE FREIN.



TO REMOVE DRUM AND HUB
REDUCTION, SEE LEAFLET B1, B2
AND B3.
REMOVE THE BRAKE CONTROL.

4.2.1

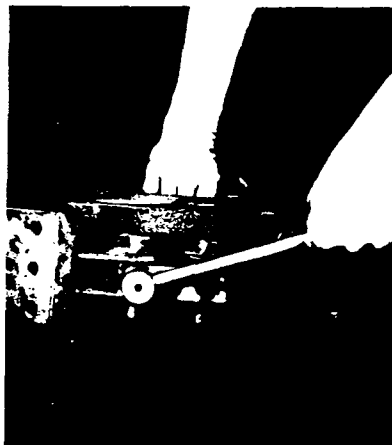
DEPOSER LE FREIN.
DEPOSER LA TOLE DE PROTECTION.



REMOVE THE BRAKE.
REMOVE THE DUST COVER FROM
THE BRAKE.

4.2.2

DEFREINER ET DEPOSER LES VIS
POINTEAU D'AXES D'ARTICULATION
DE MACHOIRES.



RELEASE THE TAB FIXING AND
REMOVE THE BRAKE SHOE
MOUNTING PIN RETAINING SCREWS.

4.2.3

FREIN A TAMBOUR DRUM BRAKE

OU (SUIVANT MODELE) DEPOSER
LES GOUPILLES D'AXE DE FIXATION
DE MACHOIRE.



OR (ACCORDING TO THE TYPE)
REMOVE THE SPLIT PINS.

4.2.4

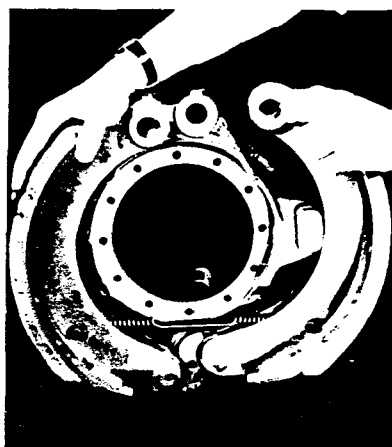
PRENDRE A L'ETAU LE POINT FIXE.
A L'AIDE D'UN BEDANE CHASSER UN
BOUCHON EXPANSIBLE D'AXE
D'ARTICULATION, CHASSER L'AXE ET
L'AUTRE BOUCHON.
MEME OPERATION SUR L'AUTRE
MACHOIRE.
OU (SUIVANT MODELE) CHASSER LES
AXES D'ARTICULATION DE
MACHOIRE.



HOLD THE SPIDER IN A VICE.
REMOVE THE MOUNTING PIN COVER.
PRESS OUT THE MOUNTING PIN AND
THE OTHER PIN COVER.
REPEAT THE OPERATION FOR THE
OTHER BRAKE SHOE OR (ACCORDING
TO THE TYPE) JUST PRESS OUT THE
MOUNTING PINS.

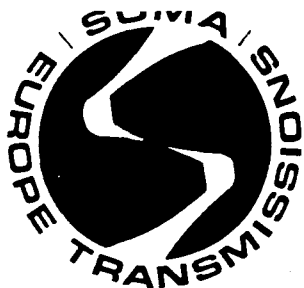
4.2.5

DEPOSER LES 2 MACHOIRES.
DEPOSER LE RESSORT ET SES
2 AXES.



REMOVE BOTH BRAKE SHOES.
REMOVE THE RETURN SPRING AND
THE 2 RETAINING PINS.

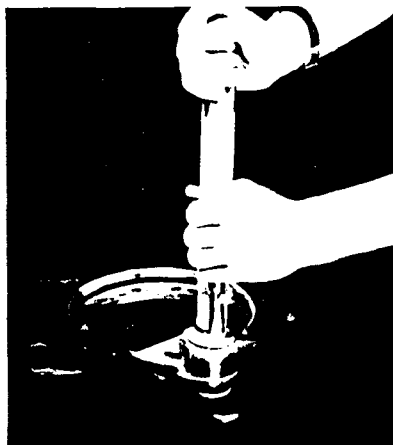
4.2.6



4.2.5

FREIN A TAMBOUR DRUM BRAKE

DEPOSER LE CIRCLIPS DE L'ARBRE
DE CAME.



REMOVE THE CAME SHAFT CIRCLIP.

4.2.7

DEPOSER LA CUVETTE ARRIERE
AVEC SON JOINT D'ETANCHEITE.



REMOVE THE REAR CUP AND SEAL.

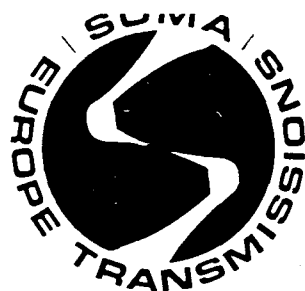
4.2.8

DEPOSER LA CAME.



REMOVE THE CAM SHAFT.

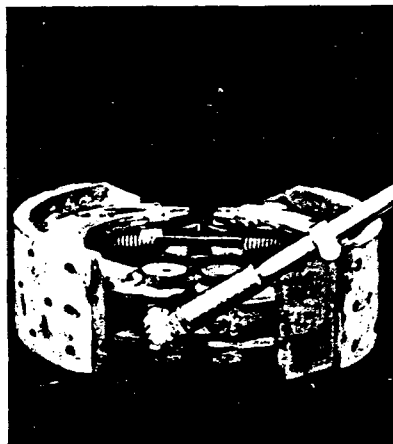
4.2.9



4.2.6

FREIN A TAMBOUR DRUM BRAKE

EMMANCHER LES 2 AXES EN
VEILLANT A L'ORIENTATION DU
TROU DE LA VIS POINTEAU.
POSER LES 2 VIS POINTEAU.
SERRER ET FREINER.



4.2.10

ASSEMBLE THE 2 MOUNTING PINS
BEEFING THE RETAINING HOLE IN
ITS CORRECT POSITION.
ASSEMBLE THE 2 RETAINING
SCREWS.
TIGHTEN TO A TORQUE OF 2,5 mdaN
AND FIX THE LOCKING TAB.

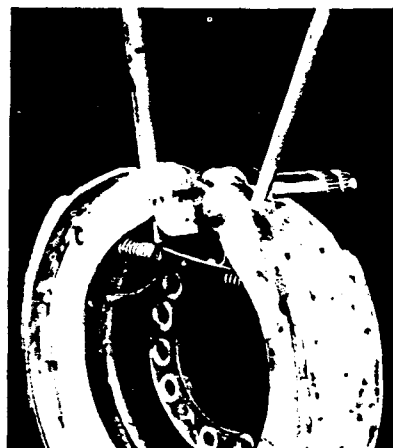
POSER ET SERTIR LES 4 BOUCHONS
EXPANSIBLES.



4.2.11

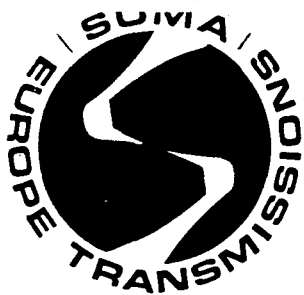
PLACE THE 4 BRAKE SHOE
MOUNTING PIN COVERS INTO
POSITION.

REPOSER LA CAME, LES JOINTS ET
LE CIRCLIPS.



4.2.12

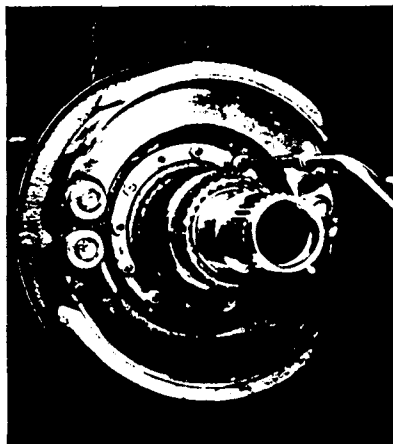
RE-ASSEMBLE THE CAM SHAFT
THE SEALS AND CIRCLIPS.



4.2.7

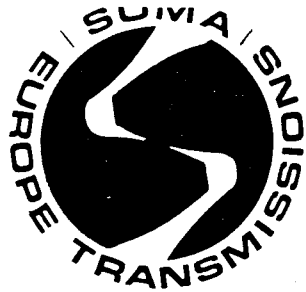
FREIN A TAMBOUR DRUM BRAKE

POSER LA TOLE DE PROTECTION.
REPOSER L'ENSEMBLE SUR LA
FUSEE (VOIR NOTICE B1, B2 ou B3).
REPOSER L'ENSEMBLE DE
COMMANDE.



RE-ASSEMBLE THE DUST COVER.
RE-ASSEMBLE THE BRAKE ASSY OR
THE SPINDLE (SEE LEAFLET B1, B2
and B3).
RE-ASSEMBLE THE BRAKE
CONTROLS.

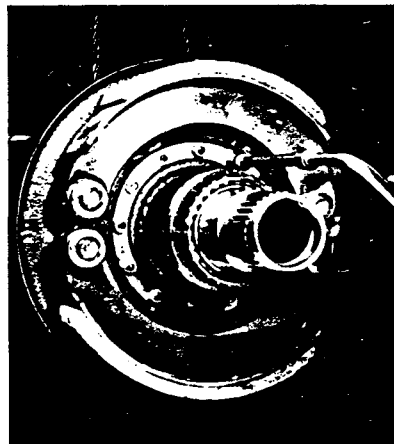
4.2.13



4.2.7

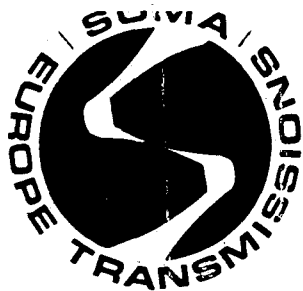
FREIN A TAMBOUR DRUM BRAKE

POSER LA TOLE DE PROTECTION.
REPOSER L'ENSEMBLE SUR LA
FUSEE (VOIR NOTICE B1, B2 ou B3).
REPOSER L'ENSEMBLE DE
COMMANDE.



RE-ASSEMBLE THE DUST COVER.
RE-ASSEMBLE THE BRAKE ASSY OR
THE SPINDLE (SEE LEAFLET B1, B2
and B3).
RE-ASSEMBLE THE BRAKE
CONTROLS.

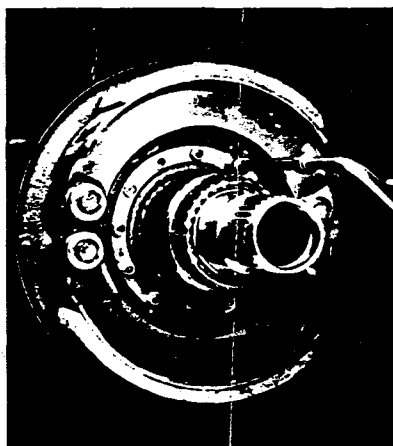
4.2.13



4.2.7

FREIN A TAMBOUR DRUM BRAKE

POSER LA TOILE DE PROTECTION.
REPOSER L'ENSEMBLE SUR LA
FUSEE (VOIR NOTICE B1, B2 ou B3).
REPOSER L'ENSEMBLE DE
COMMANDE.



RE-ASSEMBLE THE DUST COVER.
RE-ASSEMBLE THE BRAKE ASSY OR
THE SPINDLE (SEE LEAFLET B1, B2
and B3).
RE-ASSEMBLE THE BRAKE
CONTROLS.

4.2.13