SERVICE MANUAL

INTERNATIONAL

CHASSIS

DIESEL TRACTORS

955 + 1055

1091 320 R1

INTERNATIONAL HARVESTER COMPANY M.B.H. 4040 NEUSS/RHEIN

12/78 (Reprinted UK 3/85)

TABLE OF CONTENTS

General

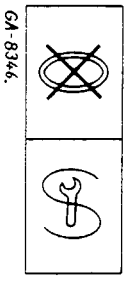
This Chassis Service Manual has been prepared as part of and to complete a series of manuals – such as for engine, transmission, hydrostatic steering and hydraulic draft control – for the guidance of the skilled serviceman who is responsible for the repair and overhaul of International Tractors.

In addition to being a comprehensive workshop guide this Service Manual also points out the various possibilities of re-equipment and replacement to improve the tractor's performance for a specific application.

For general directions e.g. special torques etc. see Service Manual "General Service Information".

Key to Symbols

The following symbols are shown on some Illusts. in this manual.



Replace on every tear-down

Use "Special Tool"

Special Tools

A minimum of special tools is required. For details see corresponding section of this Service Manual and/or Parts Catalog.

SI Measurements

A standard of measurement known as International System of Units (SI) has been adopted for world-wide use. These units are used throughout this manual.

SI Unit		*English Equivalent*
mm	– milimeter	0.039 inches
cm	– centimeter	0.39 inches
cm^3	– cubic centimeter	0.06 cubic inches
m^3	– cubic meter	35.31 cubic feet
l	– liter	1.057 quarts
kg	– kilogram	2.205 pounds weight
kPa	– kilopascal	0.145 psi
MPa	– Megapascal	145 psi
N	– Newton	0.225 pounds force
daN	– dekanewton	2.25 pounds force
Nm	– Newton meter	0.738 foot pounds force
daNm	– dekanewton meter	7.38 foot pounds force
°C	– degrees-Celsius	°Fahrenheit = 1.8 x °C + 32
kW	– kilowatt	1.34 horsepower
l/min	– liter/minute	0.219 gallons per minute
km/h	– Kilometer/hour	0.621 miles per hour
1/min		rpm

Safety Precautions

This symbol is used to call your attention to instructions concerning your personal safety. Be sure to observe and follow these instructions.

1. Caution is the most effective safeguard against accidents during a repair.

2. Keep the place of repair, surrounding area as well as ladders, tools, etc. free of oil and grease.

3. When working on rear axle or removing engine, block front axle with wooden wedges to prevent tilting.

4. Be extra careful in the vicinity of a running engine, fan blades or exposed shaft ends. Wear tight clothing.

5. Never attempt to loosen or tighten hose couplings or fittings of air pressure or hydraulic system while the engine is running or power cylinders are under pressure.

6. Beware of hot oil and coolant when draining.

7. Keep your tools in good condition. Worn or damaged tools may cause accidents or spoil good machine parts.

8. Keep lifting equipment in proper order. Do not overload! Tie heavy parts securely before lifting.

9. Take care when removing preloaded springs! Keep under control until spring is relieved.

10. Wear approved protective goggles when grinding and cleaning with compressed air.

11. When in-doors or in built-up areas observe existing fire regulations for combustion engines. Make sure exhaust gases are diverted into the open and rooms are sufficiently ventilated.

12. When testing brakes or steering system always perform on open premises (not public roads!). Make test in safe distance from persons or obstacles.

13. Before working on the elctrical system, disconnect battery negative (ground) cable first. After repair reconnect this cable last.

14. When charging batteries observe manufacturer's safety instructions. Wear protective clothing and glasses, if necessary.

15. For welding repairs carefully observe all safety regulations.

Service Brake

Hydraulically operated, twin disk type wet brake, acting on the rear wheels.

Parking Brake

Mechanical band and drum type acting on the differential drive

Clutch

Dual Clutch
Make =

F & S

Model = Engine Clutch
PTO–Clutch

– single type dry disk –
– single type dry disk –

Front Wheel Drive Axle

Make =
Type =

ZF
APL 3052

Advanced drive of front wheels in respect to rear wheels in %

+5 to -1

Ratio front to rear axle

1.376

Dimensions (in mm)	955		1055	
	Standard	Four wheel drive version	Standard	Four wheel drive version
Length overall (with three-point suspension hitch)	4194	4229	4194	4229
Width overall (to outside edge of rear wheel fenders)	2306	2306	2306	2306
Height overall (to top of exhaust muffler)	2744	2884	2778	2918
Height overall (to top of cabin) max.	2649-2675	2649-2675	2649-2699	2649-2699
Wheel base	2627	2587	2627	2587
Ground clearance (under front axle)	512	412	512	412
(under transmission)	401	401	401	401
Turning radius, with steering brake applied	4400	4700	4400	4700
without steering brake applied	5050	5350	5050	5350

Note: Dimensions apply to the following tire equipment:

Front 7.50 – 18 AS
Rear 18.4/15 – 34 AS 6 PR
FWD 11.2/10 – 28 AS 6 PR with
18.4/15 – 34 AS 6 PR

General

To ensure maximum tire life and satisfactory performance of wheels, rims and disks must be in good condition, i.e. out-of-round as well as out-of-true must not exceed specified limits and tread lugs on rims must not be loose or distored.

The above faults are mainly due to a slight warpage or distortion of the disk or rim, caused by incorrect mounting of wheel weights or by hitting solid obstacles with the wheel side.

Four wheel drive tractors can be equipped with various tire combinations, see charts on following pages.

It is important to adhere to these tire combinations.

Loss of power, excessive tire wear and damage to the power train may result if the relationship between front axle and rear axle is disturbed by an unauthorized tire combination.

Caution! Never attempt to mount tires without proper equipment and knowledge to use it.

The following tools should be available:

- Jack of sufficient capacity
- 2 tire levers (one cranked end)
- 1 long lever
- 1 removing tool (to loosen beads)
- 1 rubber hammer
- 1 pressure gauge
- tire lubricant, soap suds or a similar gliding agent.

Be sure the shop floor is clean and dry. Oil and grease affect tires and tubes.

For details, such as tire pressure, loading capacity, speed limitations, etc. refer to the tire manufacturer's instructions or see your tire representative.

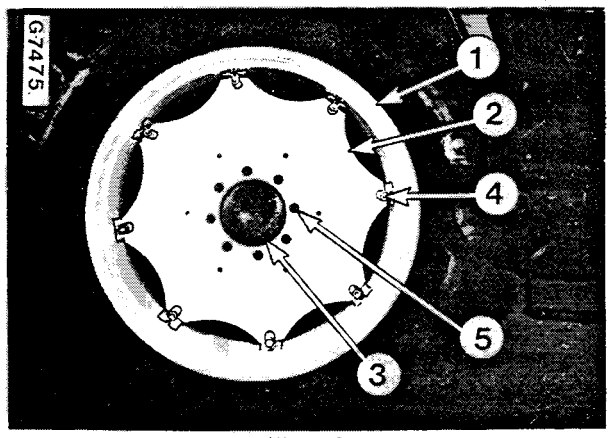
Specifications

	Maximum permissible	
	out-of-round mm	out-of-true mm
Wheel disks	0.4	2.0
Rear wheel rims	5.0	5.0
Front wheel rims (also on four-wheel-drive tractors)	2.5	2.5

Torque Data

	daNm
Rim nuts, front wheel FWD	30
Rim nuts rear wheel M 14	18
Rim nuts rear wheel M 18	35
Disk nuts rear wheel	35
Disk bolts front wheel	15–18
Disk nuts front wheel FWD	35
Dual tires, nuts	16–18

Removal



Illust. 1
Rear wheel

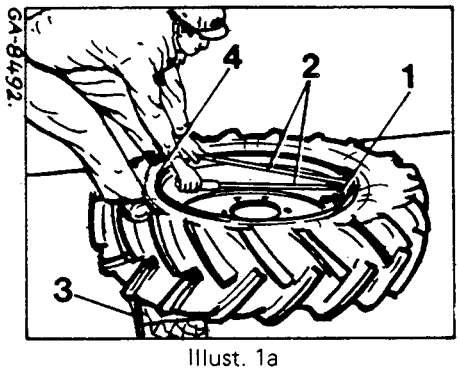
1 – Rim
2 – Disk
3 – Axle flange
4 – Rim nuts
5 – Wheel nuts or bolts

Loosen nuts (5) Illust. 1.

Jack up until wheels clear the ground and safely support the tractor.

Remove wheels and deflate tires. Drain off liquid weight if tires are water-ballasted (refer to Operator's Manual).

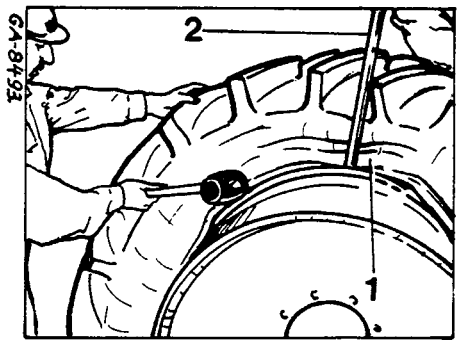
Loosen tire beads from rim flanges all around using a suitable commercial tool. Never attempt to loosen beads with hammer and wedge because damage to rim and beads may result.



Illust. 1a

1 – Valve
2 – Tire lever
3 – Wooden block
4 – Opposite beads

Starting near valve (1) Illust. 1a work the bead over the rim flange using two tire levers (2). Make sure opposite beads (4) are well in the rim base. Place tire wall on wooden block (3) to facilitate this work. Remove tube. Use a long tire lever (1) Illust. 1b to work the second bead over the rim flange. It is good practise to apply some soap suds to facilitate removal. An assistent may drive the bead (1) over the rim flange.

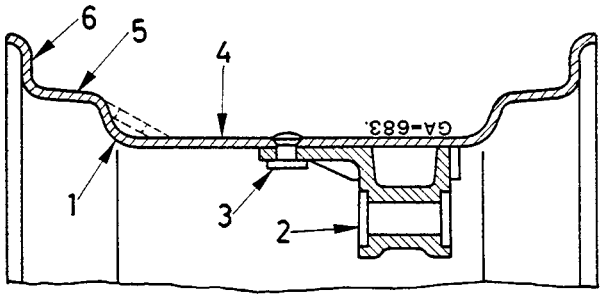


Illust. 1b

1 – Tire bead
2 – Long tire lever

Never lever in line with your head.

Cleaning, Inspection and Repair



Illust. 1c

1 – Rim profile
2 – Rim lug
3 – Rivets (on some applications welded)
4 – Rim base
5 – Bead seat
6 – Rim flange

Bolt rear wheel disks, rims and front wheels to their respective hubs or axles and check for out-of-true on flange (6) Illust. 1c and out-of-round on bead seat (5) while spinning the wheel.

When checking run-out on wheel disks, measure on the outer diameter.

Inspect wheel bolts and ball flange nuts for serviceability. Check wheel disks for cracks around holes and replace with new parts, if necessary. Do not attempt welding!

Check each welding seam on rim lugs for cracks.

If necessary cut out cracks by grinding and reweld.

Rims and wheel disks are cold extruded sections. No heat, whatsoever, must therefore be used for straightening!

Dents and other deformations on the rim flange are easy to be taken out.

Out-of-true can be corrected, if within reasonable limits. Excessive out-of-round calls for replacement of the rim.

Before remounting tire on wheel, clean rust from rim base and bead seats by wire bushing or sand blasting. Paint these surfaces, preferably with one coat of zinc chromate, red lead, or a good grade of aluminium paint, and allow paint to dry thoroughly.

Inspect the tire for tear and other damage, giving special attention to the bead and side wall areas.

Recapping is remommended only if the cord body is still in good condition. If in doubt, consult a reputable recapper firm.

Mounting

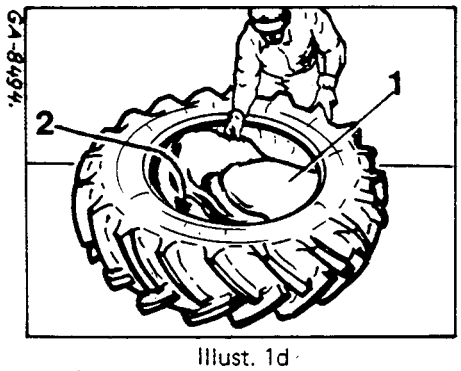
It is important to match tires and rims correctly.
Rims have a rim size code near the valve hole. See also manufacturer's matching records.
Make sure the arrow on the tire points in forward drive direction (self-cleaning effect).

Note: Use soap suds as mounting aid.

Mounting of Tires with Inner Tube

Clean rim and apply some soap suds to tire beads and rim flanges. Place rim with valve hole up. Apply some talcum powder and install tube into tire so that valve stem can be inserted into valve hole later on.

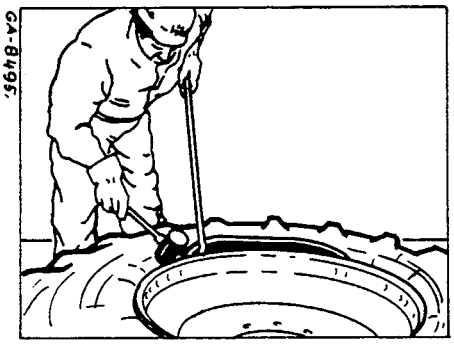
Slightly inflate tube to prevent crumbling. Pull the tube (1) Illust. 1d out of the tore opposite the valve stem (2) to prevent damage.



Illust. 1d

1 – Tube
2 – Valve

Lever the thus cleared lower bead over the rim flange using a cranked end tire lever. Use a hammer to help the last bead section over the rim flange. Make sure the inner tube is in the tire without twist and the valve stem is properly secured. Fit the upper bead in the same way starting on the far end of the valve see Illust. 2. Support the lower bead of the tire with a wooden block on the opposite side when working over the last section. Be sure tire beads are in all around.



Illust. 2

Mounting of Tubeless Tires

Use a new valve assembly and install with a commercial fitting tool. Apply some gliding agent to the tapered section of the valve stem.

It is good practice to apply some soap suds to beads and rim flanges. Be careful not to damage beads or rim flanges. Use good tools to ensure tight sealing. Fit tire in the same way as described at tire mounting with inner tube.

Inflation

As a rule tire beads will seal on rim flanges. Removing stem of inflation valve makes air blast more effective. Should this present problems or beads do not stay in contact; roll the wheel assembly somewhat. This usually helps to start up inflation. If not use a commercial tightener strap around the tire tread to spread beads against rim flanges.

To seat tires properly on their rims inflate tire to twice of operating pressure. Take care that beads are not twisted or distorted, but seat properly on both rim flanges. If not do not inflate above max. operating temperature. Relieve pressure and correct the tire seat on the rim.

If an improperly mounted tire is inflated above max. operating pressure there is a danger of stretching the wire core of the bead or even breaking it which might cause accidents.

Check coat of tire lubricant on beads and improve where necessary.

Be sure that tire seats properly on its rim before inflating to max. assembly pressure.

Recheck correct seating of beads. When properly mounted the centering marker on the tire should be an even distance to the rim flange all around.

Deflate to specified operating pressure.
For water ballasting refer to "Operator's Manual".

Refer to the manufacturer's instructions for cold weather precautions.

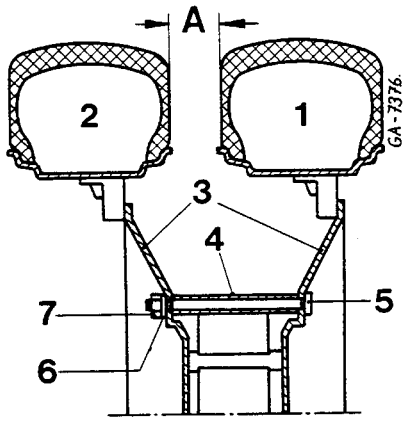
Protect inflation valves with dust caps.

Mounting of Wheels

Tighten bolts and nuts to the torque values shown under "Torque Data". Retighten wheel nuts or bolts after 20 operating hours.

Assemble dual tires using the spacer hexagon provided for this purpose and the specified square neck carriage bolts (5) Illust. 3. Retighten these bolts after the trial run and after each day of operation, until they have taken a set. Torque of theses bolts must not be exceeded!

Replace lock washers (6) that have lost tension.



Illust. 3
Mounting of dual tires

1 – Inner wheel
2 – Outer wheel
3 – Disks
4 – Spacer hexagon
5 – Square neck bolt
6 – Lock washer
7 – Nut
A – 29 mm minimum

Tire Combinations, 25 km/h Version

FWD-Tractors

GA-8466

CONTI	AS-Farmer			a		V			J	E	n
DUNLOP	T 84 A			d		9			1		
	T 33									5	
	T 32					U			w	f	
FIRESTONE	F 151			W		O			z	B	
	ATC					N			i		
FULDA	AS-Pionier					8			2		
GOODRICH	FR 125 R				u						
	Powergrip B			Y		P			F		
GOOD YEAR	G 800 Traction				k						
	ST			q							
	TSG			c					4	D	
	SGAS			b		R			H	C	
KLEBER	V10 Super 50	A									
	V10 Super-Tracsol				h			g			
METZELER	A 7					6			K		
MICHELIN	Bibagrip 3			e		S			L	r	
PHOENIX	AK 6					7			3		
SEMPERIT	M 171								M	P	
VEITH PIRELLI	TM 52		v		s		m	10			
	AS Agrar			X		T			I		
VREDESTEIN	TSGR				t						
	TT			Z		Q			G		
	PR	8	6	6	6	6	8	6	6	6	6
VORDERREIFEN FRONT TIRES PNEUS AVANT		13.6 R–28	13.6 R–28	13.6–28	12.4 R–28	12.4–28	11.2 R–28	11.2 R–28	11.2–28	14.9–24	13–24

Explanation of "Tire Combination" chart

Only front and rear tires with the same letter and/or the same number must be used.

Example:

	size	PR	make	letter
Rear tire	18.4–34	8	Dunlop T32	H
Front tire	11.2–28	6	Good Year SGAS	H

GA-8467

CONTI	AS-Farmer		TXYZ abcd eqv		CDERS fprtuv 5,9		FGHIJK Limns w 1, 2, 4	BHIJK Lnsw 1, 2, 3, 4
	Agrar							FHIJK Lnsw 1,2
DUNLOP	T 101 Dylon		ASTUVW frtuv 6,7,8		CDEMP QRSprt uv 5, 9		FGHIJK Lnsw 1,2,3	
	T 32						FH ig	
FIRESTONE	F 151				IKL kn			
GOODRICH	FR 125 R	CDEPR SUfprt uv 8, 9		BIJKLN Ohknw 1,2		FGH gi ms		
	ST		ASTUVW frtu 6,7,8		CDEIL MPQSh kpr 5, 9		FGHIJK Lmnsw 1, 2, 3, 4	
GOODYEAR	TSG							FHJ gi 4
	SGAS							FHJ gi 4
KLEBER	V10 Super 50	AUW ftu 6,7,8		BIKLO hkn 5		gi		
METZELER	A7		ATUVW tu 6,7,8					
MICHELIN	Bibagrip Delta 3		TVXYZ abcdeq v 6,8		CDEIMPQ RSUfhkp rtuv 5, 8		BFGHIJKL NOhkns w 1, 2, 3, 4	
SEMPERIT	M 171		TUVXYZ abcde qv 6				BHIJKL nsw 1, 2, 3, 4	
VEITH PIRELLI	TM 52	CDEIPR STUfrt uv 6, 7, 8		AFGHIJL mns 4,10				
	AS-Agrar				CDEIMP QRSkp r 5,9		BHIJKL Nnsw 1,2,4	BHIJKL nsw 1, 2, 3, 4
VREDESTEIN	TSGR	CDEPRS Ufprtu v 8		BIJKLN Ohknw 1 2 5		AFGH gims		
	PR	8	8	8	8	8	8	6
HINTERREIFEN REAR TIRES PNEUS ARRIÈRE		18.4 R–38	18.4–38	16.9 R–38	16.9–38	18.4 R–34	18.4–34	18.4–34

Tire Combinations, 30 km/h Version

FWD-Tractors

GA-8468

CONTI	AS-Farmer			F				R
DUNLOP	T 32			M			A	
	T 33						Q	
	T 84 A	J						
GOODRICH	FR 125 R		L					
GOOD YEAR	SGAS	G						
	TSG	H						
	ST	I						
METZELER	A 7			O		D		
SEMPERIT	M 171					C		
VEITH PIRELLI	AS Agrar	N		P		B		
VEITH PIRELLI	TM 52				E			
VREDESTEIN	TSGR		K					
	PR	6	6	6	8	6	6	6
VORDERREIFEN FRONT TIRES PNEUS AVANT		13.6–28	12.4 R–28	12.4–28	11.2 R–28	11.2–28	14.9–24	13–24

CONTI	AS-Farmer		GHIJNP		AKLQ		BDER	BDR
DUNLOP	Agrar							DR
	T 101 Dylon		AFKLMOP		CKLQ		BDR	
FIRESTONE	F 151				BDR			
GOODRICH	FR 125 R	AKLM		BDQR		BE		
GOOD YEAR	ST		AFKLMOP		BCQ		BER	
KLEBER	V 10 Super 50	AKLMO		BDQR				
MICHELIN	Bibagrip Delta 3		FGHIJNOP		ABCKLMQ		BDR	
SEMPERIT	M 171		FGHIJ MNOP				BDR	
VEITH PIRELLI	AS Agrar				BCQ		BDR	BDR
	TM 52	ABKLMOP		BER				
VREDESTEIN	TSGR	AKLM		BDQR		BE		
	PR	8	8	8	8	8	8	6
HINTERREIFEN REAR TIRES PNEUS ARRIÈRE		18.4 R–38	18.4–38	16.9 R–38	16.9–38	18.4 R–34	18.4–34	18.4–34

Explanation of "Tire Combination" chart

Only front and rear tires with the same letter must be used.

Example: See 25 km/h Version

General

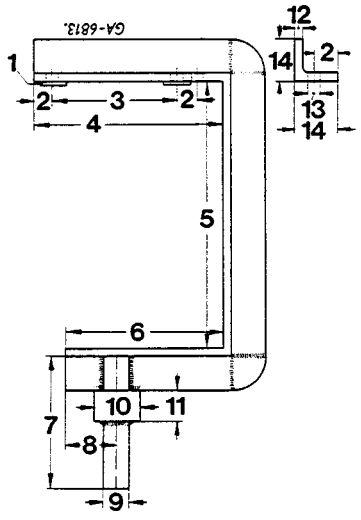
Each rear axle and final drive is lubricated by its own oil bath.

Due to the reduction ratio in the planetary units high torque power results at the rear axle end shafts, protecting the transmission and differential from undue mechanical stress and wear.

Gear ratio of final drive is 1:7.5.

Tighten rear axle mounting bolts after the tractor has been approx. 20 hours in operation, following a repair.

A mounting tool made in accordance with Illust. 4 makes removal and installation of rear axle more convenient.



Illust. 4
Mounting tool

1 – Washer welded

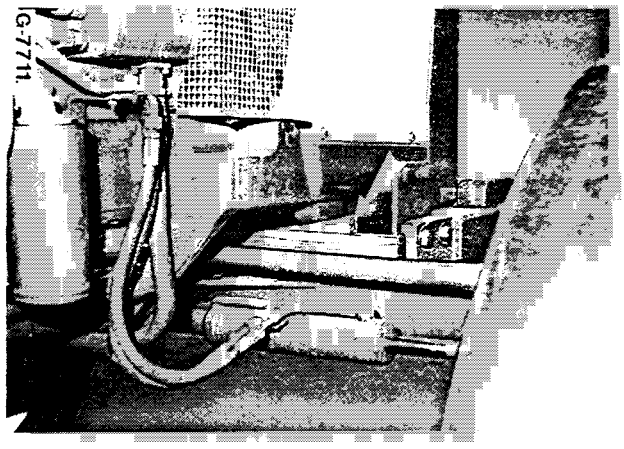
mm		mm	
2 –	25	9 –	32 dia.
3 –	160	10 –	60 dia.
4 –	245	11 –	40
5 –	345	12 –	10
6 –	205	13 –	16 dia.
7 –	170	14 –	55
8 –	66		

A typical rear axle is shown on the following Illusts. The design may differ slightly from the axle installed. The repair procedure is the same.

Removal and Disassembly

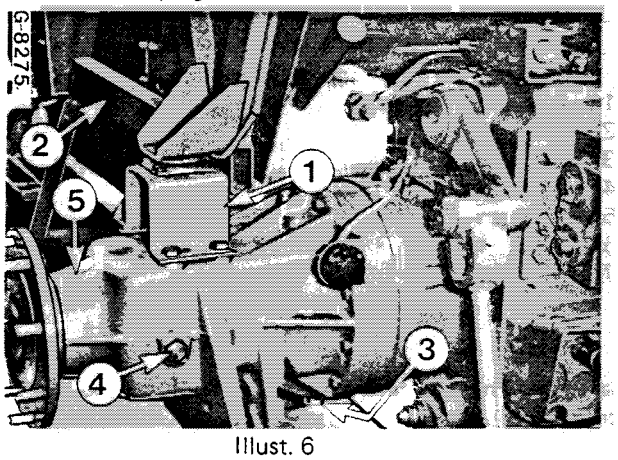
Jack up and support the tractor under transmission case.

Block front axle with wooden wedges to prevent tilting, see Illust. 5.



Illust. 5

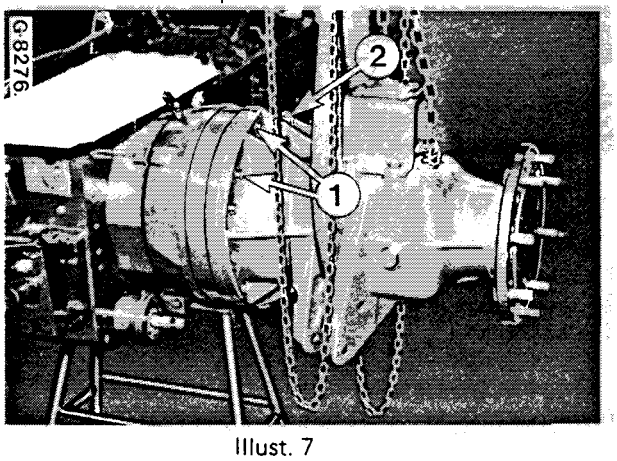
Remove support (1) Illust. 6
Remove rear wheel, fender (2) and three-point linkage as far as necessary.
Remove oil drain plug (3) and allow rear axle oil to drain.



Illust. 6

1 – Support
2 – Fender
3 – Oil drain plug
4 – Oil filter and oil level plug
5 – Axle carrier

Remove cap screws (1) Illust. 7 except the upper one to hold the axle carrier in place.

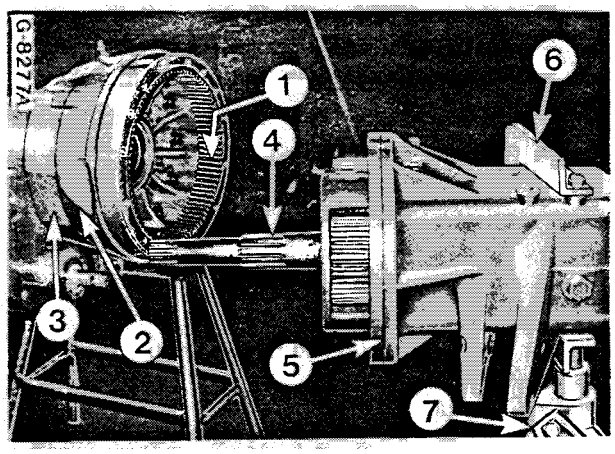


Illust. 7

1 – Cap screws
2 – Breather filter

Take the weight of the axle in a hoist as shown in Illust. 7 or with mounting tool (6) Illust. 8. Installed on a floor jack (7).

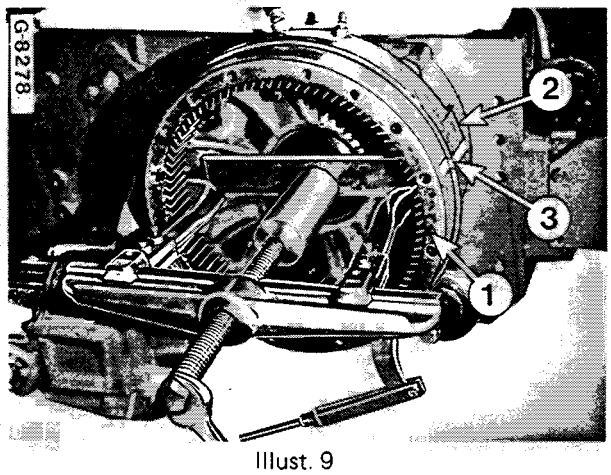
Remove the upper cap screw and pull the axle carrier off the planetary ring gear (1).



Illust. 8

1 – Planetary ring gear
2 – Spacer flange
3 – Brake housing
4 – Differential shaft
5 – Axle carrier
6 – Mounting tool
7 – Floor jack

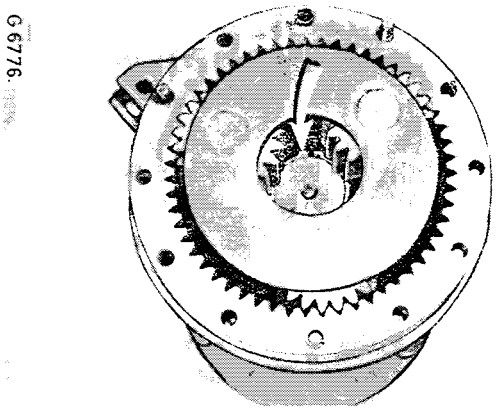
Mark position of planetary ring gear (1) Illust. 9 to spacer flange (2). Remove ring gear as shown in Illust. 9.



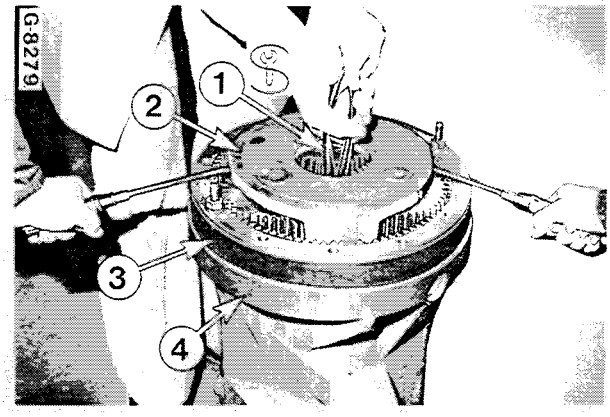
Illust. 9

1 – Planetary ring gear
2 – Spacer flange
3 – Markings

Unseat circlip Illust. 10 using special pliers (1) Illust. 11 and liftout planetary final drive assembly together with circlip.

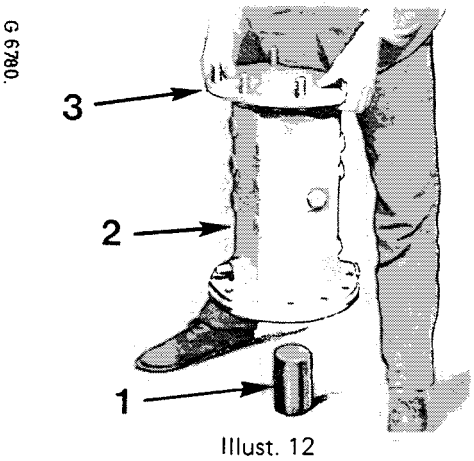


Illust. 10
Arrow = Circlip



Illust. 11

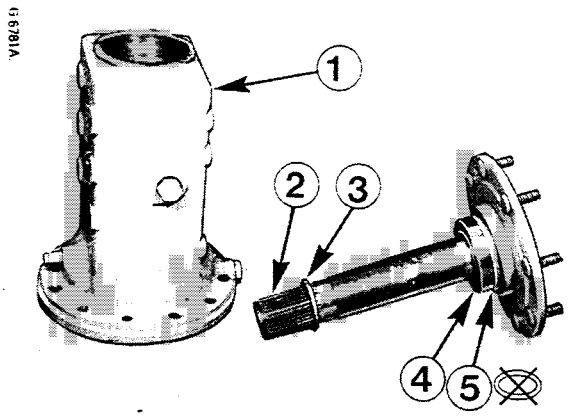
1 – Special pliers, see Parts Catalog
2 – Planetary final drive assembly
3 – Planetary ring gear
4 – Axle carrier



Illust. 12

1 – Round stock, 80 x 120 mm
2 – Axle carrier
3 – Axle shaft

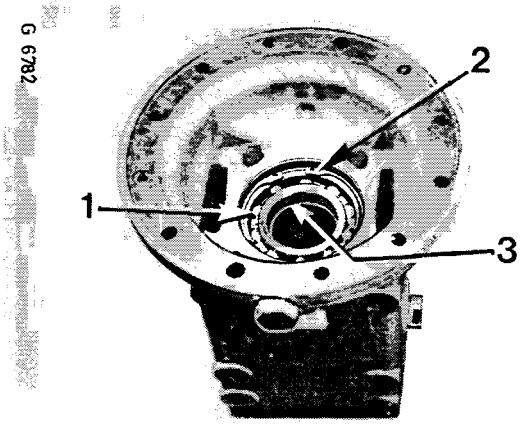
Carefully bump the shaft end face onto a suitable piece of round stock (1) Illust. 12 until the carrier drops off the shaft.



Illust. 13

1 – Axle carrier
2 – Axle shaft
3 – Spacer ring
4 – Ball bearing
5 – Oil seal

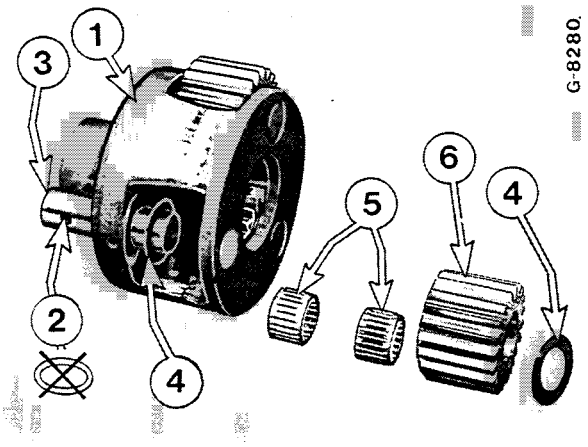
Remove bearing (4) Illust. 13 using a suitable puller tool. Remove seal (5).



Illust. 14

1 – Inner bearing
2 – Circlip
3 – Circlip

Remove circlip (2) Illust. 14 and press out bearing (1). Remove circlip (3).



Illust. 15

1 – Planet carrier
2 – Roll pin
3 – Pinion shaft
4 – Thrust washer
5 – Needle bearings
6 – Planetary pinion

To remove planetary pinions (6) Illust. 15 drive roll pins (2) into shafts (3) far enough to permit pressing the latter out of their seats.

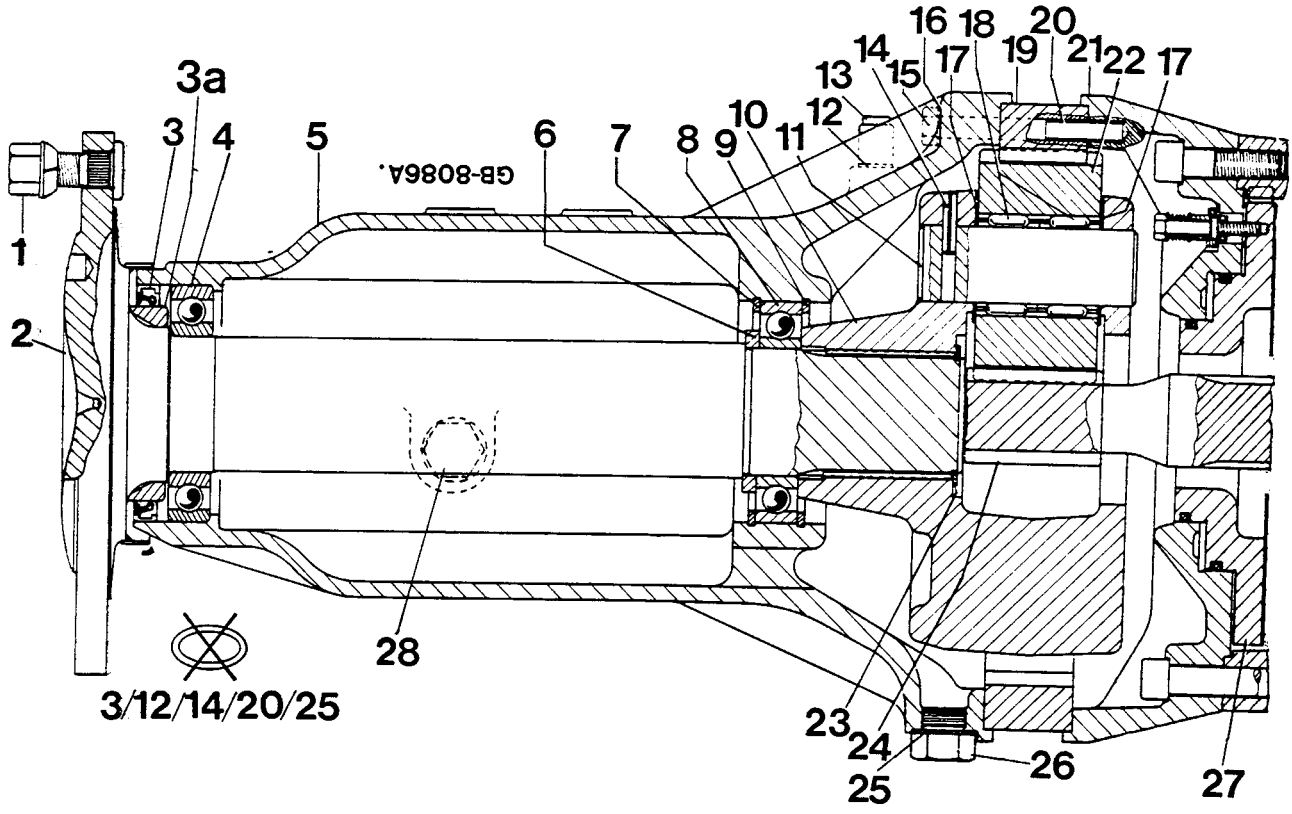
Cleaning, Inspection and Repair

Clean rear axle parts and inspect them for wear and damage.

Change planetary pinions (6) Illust. 15 and needle bearings (5) as a set only.

Reassembly and Installation

Clean breather filter (13) Illust. 16.
If wear ring (3a) shows signs of scouring or if the seal has worked into its face the ring must be replaced.



Illust. 16

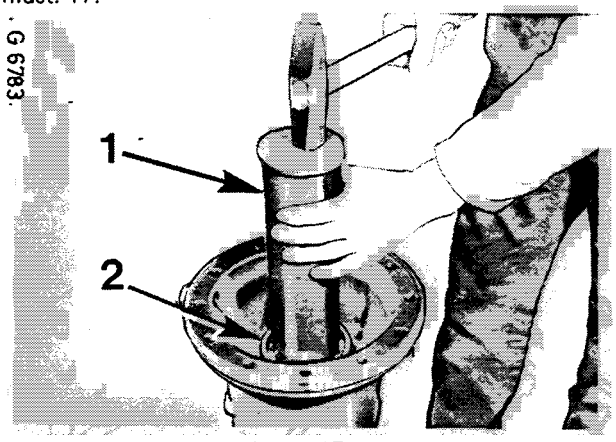
1 – Wheel nut
2 – Axle shaft
3 – Oil seal
3a – Wear ring
4 – Ball bearing, outer
5 – Axle carrier
6 – Spacer ring
7 – Circlip
8 – Ball bearing, inner
9 – Circlip
10 – Planet carrier
11 – Pinion shaft
12 – Packing ring
13 – Breather filter
14 – Roll pin
15 – Cap screw
16 – Lock washer
17 – Thrust washers
18 – Needle bearings
19 – Planetary ring gear
20 – Roll pin
21 – Spacer flange
22 – Planetary pinion
23 – Circlip
24 – Differential shaft
25 – Packing ring
26 – Drain plug
27 – Brake piston
28 – Filler and oil level plug

Install bearing (4) and oil seal (3) into axle carrier as shown in Illust. 16.

Insert circlip (7) and press in rear axle shaft (2).

Slide spacer ring (6) onto rear axle shaft.

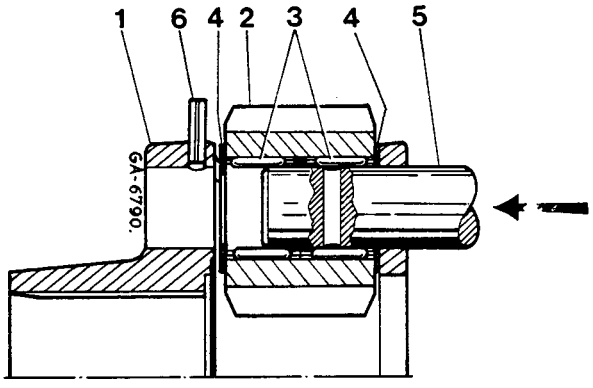
Press the inner ball bearing (8) fully down onto its shaft seat, using a suitable hollow drift on the inner race. See Illust. 17.



Illust. 17
Installation of inner ball bearing (8) Illust. 16

1 – Hollow drift
2 – Ball bearing

When inner ball bearing is properly seated, install circlip (9) Illust. 16.



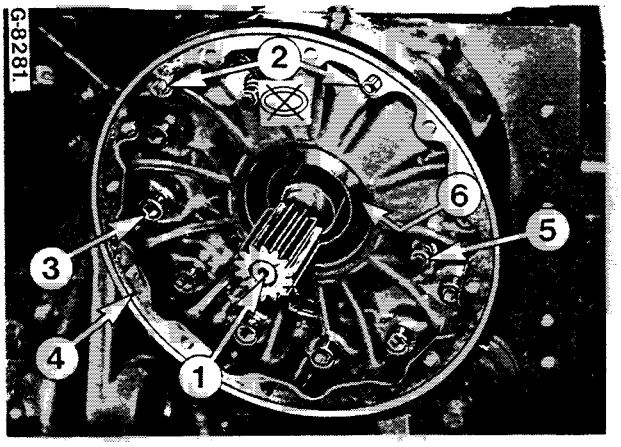
Illust. 18

1 – Planet carrier
2 – Planetary pinion
3 – Needle bearings
4 – Thrust washers
5 – Pinion shaft
6 – Roll pin

Prior of reassembling planetary final drive assembly, insert circlip (23) Illust. 16 into planet carrier (10). Place circlip in such a way, that it can be engaged after final drive assembly is in place.

Assemble planetary pinions in sequence of ref. nos. shown in Illust. 18.

Slide the planet carrier onto the rear axle shaft splines and secure with circlip (23) Illust..16.

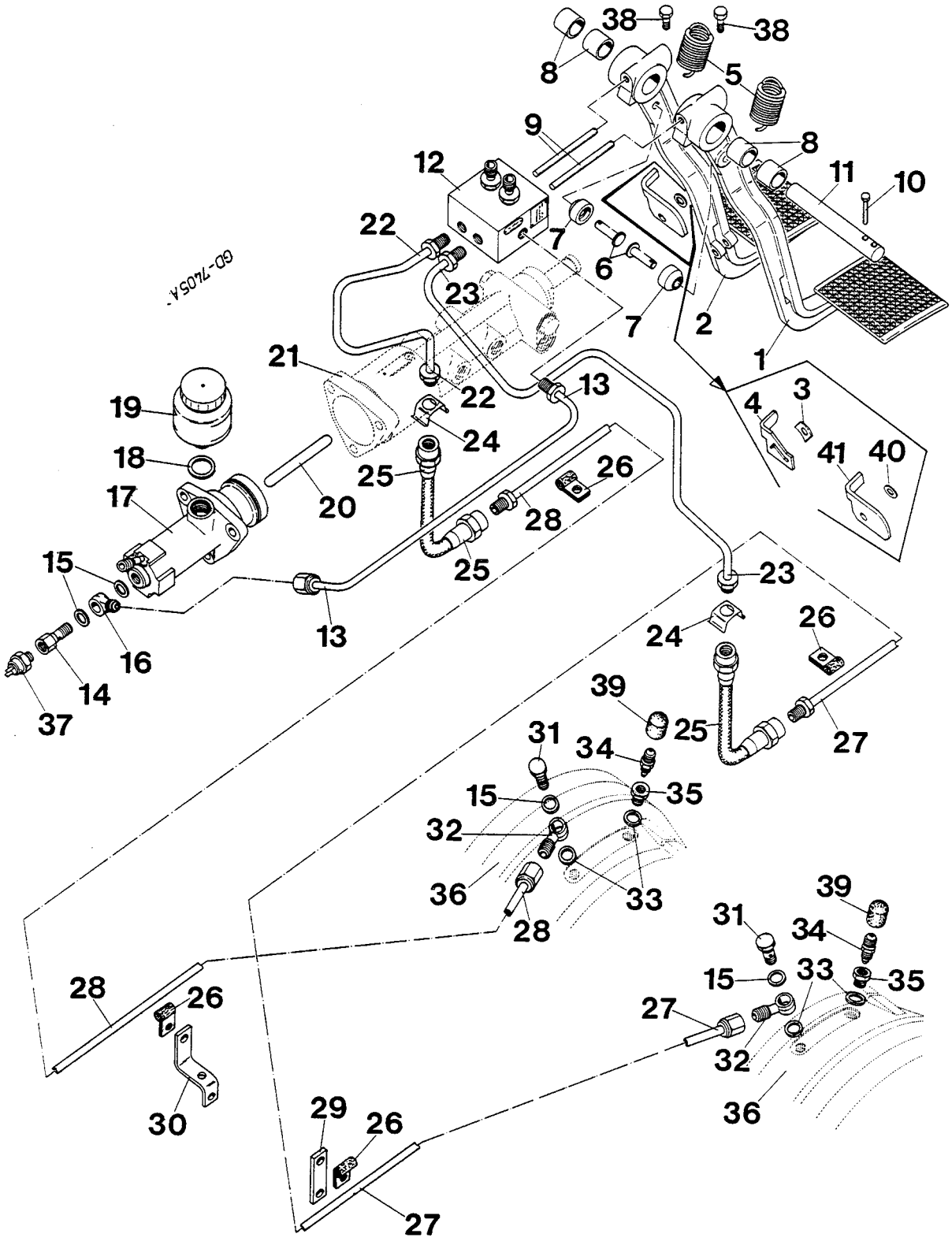


Illust. 19

1 – Differential shaft
2 – Roll pins
3 – Bolts
4 – Spacer flange
5 – Automatic piston return
6 – Brake piston

Install roll pins (2) Illust. 19. Apply a film of liquid sealer to sealing faces and install planetary ring gear (19) Illust. 16 onto spacer flange (4) Illust. 19. Observe markings (3) Illust. 9 made during disassembly.

Insert differential shaft (1) Illust. 19.
Install axle carrier.
Tighten cap screws to 11 daNm in a crosswise sequence.
Fill up with recommended oil
Install all remaining parts.
Make a test run.



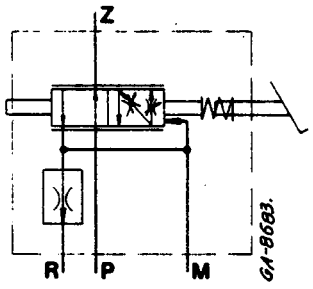
Illust. 20
Brake system

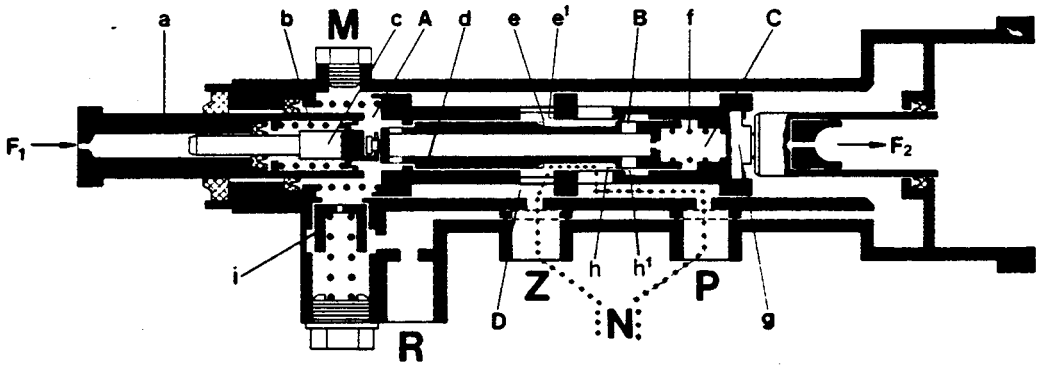
12 — Steering brake valve
17 — Master brake cylinder
21 — Brake booster
36 — Spacer flange

General

The brake is a hydraulically operated, self-adjusting, twin disk type. It is wet, i.e. it runs in the oil bath of the rear axle.

In the case of hydraulic pump failure the brake system is still operable however without brake booster assistance.





Illust. 21
Brake Booster

M – Test connector
P – Pressure port from hydraulic pump.
R – Return line port (1.5 l/min when brake applied)
Z – Outlet port to hydraulic system
F1 – Pedal force
F2 – Boost force to main brake cylinder
N – Neutral flow

h-h1 – Edges controlling flow to boost camber A+C
e-e1 – flow restriction to hydraulic system oil
A+C – Boost chambers
g – Booster pinion acting on master cylinder

Technical Data

(Brake booster)	
Brake pedal effort reduction ratio =	1:2
Stroke =	36 mm
Booster range =	0–5.7 Pa
Flow rate =	40 l/min
Return flow with brake applied	1.5 l/min
Ambient temperature -30 – +80°C up to 120°C for short periods (1h)	
Test connector	1/8"–27 NPSF
Boosting rise, restricted to 2.4 kN pedal force F1	

Specifications

(Dimensions given in mm)	
Permissible backlash between splines of brake disk and differential shaft new condition	0.135 / 0.054
Permissible wear	0.5
Return spring (5) Illust. 20	
Test length	148.5
Test load	28.0 kg
Brake piston return stroke	0.4–0.5

Special Torque

Automatic brake piston return (8) Illust. 28	
Version "A" =	1.5 daNm
Version "B" =	1.5 daNm
Bolts (10 and 11) =	19 daNm

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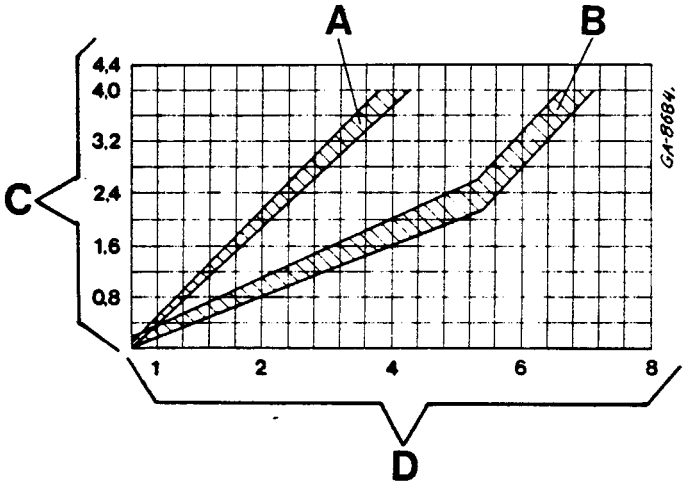
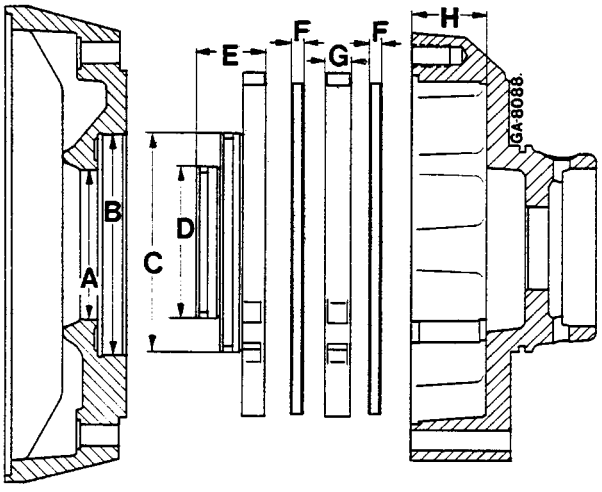


Illust. 21a

A – Without booster
B – Booster assisted
C – Pedal force F1
D – Boost force F2



Illust. 22
Spacer flange and brake housing

A – $\frac{120.054}{120.000}$ dia

B – $\frac{175.063}{175.000}$ dia

C – $\frac{174.857}{174.757}$ dia

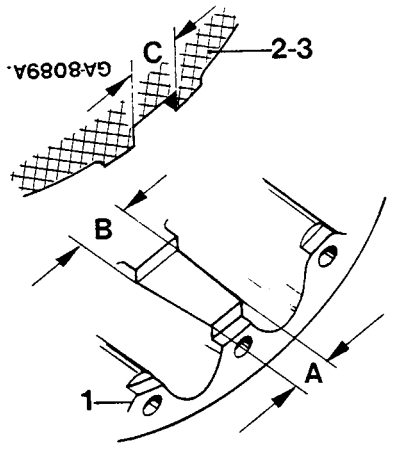
D – $\frac{119.864}{119.764}$ dia

E – $\frac{53.2}{52.8}$

F – $\frac{8.84}{8.70}$ permissible wear = 0.6

G – $\frac{20.0}{19.8}$

H – $\frac{61.2}{60.8}$



Illust. 23
Centering in brake housing

1 – Brake housing

A – $\frac{18.00}{17.50}$

B – $\frac{18.50}{18.00}$

2 – Brake piston

C – $\frac{20.30}{20.00}$

3 – Spacer disk

C – $\frac{20.30}{20.00}$

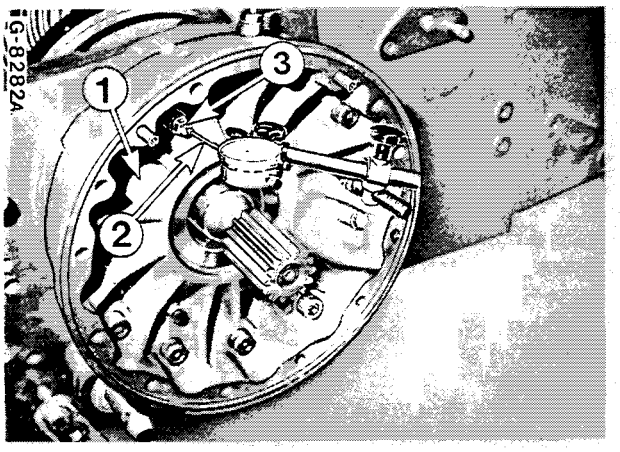
Removal and Disassembly

To remove pedals, remove steering wheel and instrument panel with cowling.

Rear axle with service brake

Remove axle carrier as described in Section "Rear Axle". Drain transmission oil.

Removal of brake housing (10) Illust. 26 necessitates removal of hydraulic lift housing, for details see Service Manual "Hydraulic Draft and Position Control".



Illust. 24

1 – Spacer flange
2 – Stylus of indicator
3 – Head, automatic piston return