

SERVICE MANUAL

SERVICE MANUAL SECTION

OMSI PFT-PCV/3000 Split Shaft PTO

Vendor: OMSI

Model: 7600

Unit Code: 13TSC

Unit Code: 13TSD

Unit Code: 13TSE

Unit Code: 13TSG

Unit Code: 13TSH

Unit Code: 13TSJ

Unit Code: 13TSK

Unit Code: 13TSL

Unit Code: 13TSM

Unit Code: 13TSN

Unit Code: 13TSP

S13037

02/02/2007



OMSI Transmissions, Inc.

OPERATION AND MAINTENANCE MANUAL

MODEL: PFT-PCV/3000

Part Number: 10810047

Direct Drive • 1:1 drive ratio



*PFT-PCV-3000 Direct Drive
Operation and Maintenance Manual*

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PFT-PCV-3000 Direct Drive Operation and Maintenance Manual

1.0 APPLICATION

The PFT-PCV/3000 Transfer Case is used in sewer cleaning combination machines and vacuum loaders.

2.0 DESCRIPTION

2.1 GENERAL DESCRIPTION

2.1.1 - The PFT-PCV/3000 Transfer Case is used to effectively divert the power of the engine to the machine's main and auxiliary systems.

2.1.2 - This Transfer Case is part of a family of modularly designed options that can be selected to assemble the specific group for your particular drive system application.

3.0 TECHNICAL SPECIFICATIONS

3.1 MAIN DRIVE

3.1.1 - The main drive can be engaged and disengaged with the vehicle on a stationary position. It is controlled by a pneumatic double-acting shifter that allows the power diversion from the truck transmission into the rear axle drive or PTO outputs.

3.1.2 - The shifter incorporates a mechanical by-pass lever that can be used in case of loss of air pressure or pneumatic system failure.

3.1.3 - The double-acting shifter provides a safety system that maintains its position under load even in the event of pressure loss in the system. It also incorporates an optional switch that provides a signal when the shifter function is fully actuated.

3.1.4 - The main drive of the PFT-PCV/3000 Transfer Case is capable of 15500 lb./ft. of torque on a continuous basis and 25100 lb./ft. on an intermittent condition. The maximum speed of the main drive is 3300 RPM.

3.2 POWER TAKE-OFF OUTPUTS

3.2.1 - The power take-off outputs are automatically connected when the main drive to the rear axle is disengaged.

3.2.3 - The maximum combined output power is 500 HP.

The maximum continuous torque at the upper output is 1475 lb./ft. and 1600 lb./ft. intermittent.

The direction of rotation is same as engine and the maximum operating speed is 2800 RPM.

The maximum continuous torque at the intermediate output is 590 lb./ft.

The direction of rotation is opposite of engine and the maximum operating speed is 2800 RPM.



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3.3 AVAILABLE RATIOS

3.3.1 - The following chart represents the current available speed ratios:

MAIN UPPER DRIVE	INTERMEDIATE DRIVE
1 : 1	1 : 1.3055
1 : 1.1	1 : 1.0732
1 : 1.275	1 : 1.3421

3.4 TORQUE CAPACITY CHART

3.4.1 - The following chart represents the combined torque capacity of all PTO outputs:

MAX. Torque at Upper Output 1:1 ratio	Maximum Torque <u>Intermediate</u> Output 1.000:1.3055 ratio	MAX. Torque at Upper Output 1:1.1 ratio	Maximum Torque at <u>Intermediate</u> Output 1.000:1.0732 ratio	MAX. Torque at Upper Output 1:1.275 ratio	Maximum Torque <u>Intermediate</u> Output 1.000:1.3421 ratio
1622 lb./ft.	0	1622 lb./ft.	0 lb./ft.	1622 lb./ft.	0 lb./ft.
1526 lb./ft.	74 lb./ft.	1550 lb./ft.	74 lb./ft.	1547 lb./ft.	74 lb./ft.
1430 lb./ft.	147 lb./ft.	1479 lb./ft.	147 lb./ft.	1471 lb./ft.	147 lb./ft.
1334 lb./ft.	221 lb./ft.	1407 lb./ft.	221 lb./ft.	1396 lb./ft.	221 lb./ft.
1237 lb./ft.	295 lb./ft.	1335 lb./ft.	295 lb./ft.	1320 lb./ft.	295 lb./ft.
1141 lb./ft.	369 lb./ft.	1263 lb./ft.	369 lb./ft.	1245 lb./ft.	369 lb./ft.
1045 lb./ft.	442 lb./ft.	1191 lb./ft.	442 lb./ft.	1169 lb./ft.	442 lb./ft.
948 lb./ft.	516 lb./ft.	1119 lb./ft.	516 lb./ft.	1094 lb./ft.	516 lb./ft.
852 lb./ft.	590 lb./ft.	1047 lb./ft.	590 lb./ft.	1018 lb./ft.	590 lb./ft.

4.0 INSTALLATION

4.1 DRIVE SYSTEM DESIGN

4.1.1 - The Transfer Case must be positioned within the vehicle's chassis to conform with proper drive train design.

4.1.2 - To maximize the lubrication of the internal components, we recommend that the Transfer Case is installed straight. Avoid lateral inclination when possible. If your application requires that the unit be positioned at a lateral incline, please consult our Engineering Department.

4.1.3 - The inclination of the Transfer Case front-to-rear must be designed to suit drive line operating angles. Do not exceed 5° rear incline.

4.2 REMOTE OIL RESERVOIR / LEVEL INDICATOR

4.2.1 - We highly recommend the installation of the optional remote oil reservoir / level indicator to facilitate oil level inspection and re-filling when required.



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4.2.2 - This oil reservoir / level indicator can be mounted at the outside of the chassis rails. The operator has the full view of the oil level in the Transfer Case through the large sight eye of the remote reservoir.

4.2.3 - This assembly must be mounted so the sight eye is in direct relation to the oil level point in the Transfer Case.

4.4 DESIGN OF DRIVEN SYSTEM

4.4.1 - If the Transfer Case is used to drive a rotary lobe exhaustor (blower), we recommend the installation of the following:

a) Check valve system at the outlet of the blower.

When the unit is disengaged with vacuum remaining in the system, this valve prevents a potential speed reversal driven by the excess vacuum in the tank and ducting.

and / or

b) Automatic vacuum discharge valve.

When the system is disengaged under vacuum, this valve will help neutralize the system by opening to the atmosphere.

5.0 INITIAL OPERATION

5.1 INITIAL OIL FILL

5.1.1 - All Transfer Cases are shipped without oil. Before the unit is placed in operation, fill with the recommended type of oil - transmission fluid (Dexron III).

The oil used must be perfectly clean and free contamination.

5.1.2 - Mixing oils and/or using other types of oils will drastically affect the operation and performance of the unit and it will void the warranty.

5.1.3 - The approximate capacity of oil is 11 qts., excluding lubrication plumbing and filter.

5.1.4 - Before the initial start up, follow these points:

- Fill the Transfer Case with oil through the fill / breather port.
- The filling operation and verification of the oil level must be done on level ground. The correct oil level is in-line with the center of the sight glass located at the rear-lower portion of the PTO housing.
- If the system is equipped with the optional external oil reservoir / level indicator, the level inspection and filling operations can be performed from this point.



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5.2 INITIAL START-UP

5.2.1 - Engage the Transfer Case and run for ~ 5 minutes at idle speed.

5.2.2 - Shut off engine, allow the oil to set after covering all internal surfaces, and inspect level through the sight eye.

5.2.3 - Add more oil as necessary in order to fill the entire plumbing of the lubrication system.

6.0 LUBRICATION

6.1 OIL CAPACITY

6.1.1 - The approximate capacity of oil is 11 qts.

7.0 MAINTENANCE AND INSPECTION

IMPORTANT: Before performing any maintenance and inspection of the Transfer Case and drive system components, you must shut off the vehicle, remove the keys from ignition and secure them, engage parking brake and chuck wheels, and be sure that ground and surrounding areas are clear, ready and safe.

7.1 OIL LEVEL INSPECTION

7.1.1 - The oil level can be visually checked through the sight glass located at the rear-lower portion of the Transfer Case housing or through the sight glass of the optional remote oil reservoir / level indicator mounted at the outside of the chassis rails.

7.1.2 - The oil level must be inspected weekly and/or and before and after a long travel / severe work condition.

7.1.3 - The inspection must be done with the truck shut off and on level ground. For best results, the oil must be cold when inspecting its level.

7.1.4 - If the oil level is below the center point of the sight glass, re-fill immediately to correct level.

7.2 OIL CHANGE

7.2.1 - When replacing the oil in the transfer case, be sure to drain the old oil completely.

7.2.2 - Use only the recommended type of oil. Mixing oils will drastically affect the lubrication and life of components.

7.2.3 - The oil must be replaced after the first 100 hours of operation.



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7.2.4 - Oil changes must be done when the oil is still hot. The oil can be drained by removing the drain plug. To accelerate the draining process, it is recommended to also remove the fill plug. Always clean the magnetic drain plug before reinstalling it.

7.2.5 - Subsequent oil changes are recommended at intervals of 500 hours and/or 12 months, whichever comes first.

Warning:

Use protective equipment when handling hot oil. **AVOID INJURIES!**

Disposal of old oil must be done following your local, state, and federal regulations.

DO NOT POLLUTE THE ENVIRONMENT!

7.3 MAINTENANCE INTERVALS

<u>DAILY</u>
Inspect air system for leaks. Be sure that there is at least 110 PSI to operate shifter controls.
During the first week of operation, the oil level must be checked on a daily basis.

<u>WEEKLY</u>
Inspect oil level.
Check the PTO surrounding areas for interference and clearance of structure and plumbing

<u>MONTHLY</u>
Inspect all mounting hardware and re-torque as necessary to proper specifications.
Inspect oil seals and check for any sign of oil throughout the body of the PTO.
Lubricate "U" joints at all drive shafts.

<u>YEARLY</u>
Change oil (every 12 months or 500 hours of operation, whichever comes first).
Inspect entire transfer case housing and seals for leaks.
Check all drive shafts and joints for wear.



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8.0 WARRANTY

OMSI Transmissions, Inc., hereinafter called **OTI**, warrants its products from defects and faulty workmanship for a period of 12 (twelve) months from the date of acceptance by the purchaser. Date of acceptance shall be defined as the time that the products are received by the purchaser. Acceptance of the products shall imply agreement to the terms and conditions of this warranty.

In order for the warranty to take effect, it shall be evident and proven to **OTI** that its products were subject to normal use and adequate maintenance. **OTI** reserves the right to request the unit/s and/or component/s to be returned, freight pre-paid, for analysis before proceeding with any Warranty Claim. The purchaser shall be responsible for payment of the replaced components until the evaluation and analysis are completed by **OTI** and it is determined that warranty applies.

This warranty will not cover failures caused by operating the product in excess of its design and specifications, abuse, insufficient and/or lack of maintenance, alterations and modifications to the product as supplied by **OTI**.

Any components replaced during the period of the warranty will be warranted only during the period of the initial warranty, and no extensions shall be made, unless in writing by **OTI** in addition to the provision of the terms of the original warranty.

This warranty does not provide allowances for freight, travel time and labor. **OTI's** liability under this warranty is limited to the repair and/or replacement, at its discretion, of its products. **OTI** shall not be held liable for losses, damages, and other charges incurred by the user as a result of product failure. Any components replaced by **OTI** will be shipped F.O.B. Twinsburg, Ohio.

OTI reserves the right to make design changes and modifications to its products specifications without inferring that previous designs and specifications were not fit for the applications intended for at the time. **OTI** shall not be obligated to perform retrofits and/or modifications to products manufactured prior to the incorporation of the new design and specifications.

This shall be the only warranty in effect, and no one shall be authorized to supersede or modify the terms and provisions within, except in writing by **OTI**. There are no other warranties applicable, expressed or implied, including warranties of fitness or merchantability for a particular purpose or use.

OMSI Transmissions, Inc.
9319-A Ravenna Road
Twinsburg, Ohio 44087
U.S.A.

Effective: March 3, 2000



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Operation and Maintenance Manual***

9.0 SERVICE

We at OMSI Transmissions, Inc. are committed to service and customer support. You'll have our assurance that in the event of a problem situation, you will be able to count on our intervention to help determine the reason while providing with the necessary and prompt means to correct the condition and get you and / or your customer back in business.

We strongly believe that our quality products have to be matched with a quality service support.

OMSI TRANSMISSIONS, INC.

**We can put your transmission project in high gear . . .
...and we'll do our best to keep you running.SM**

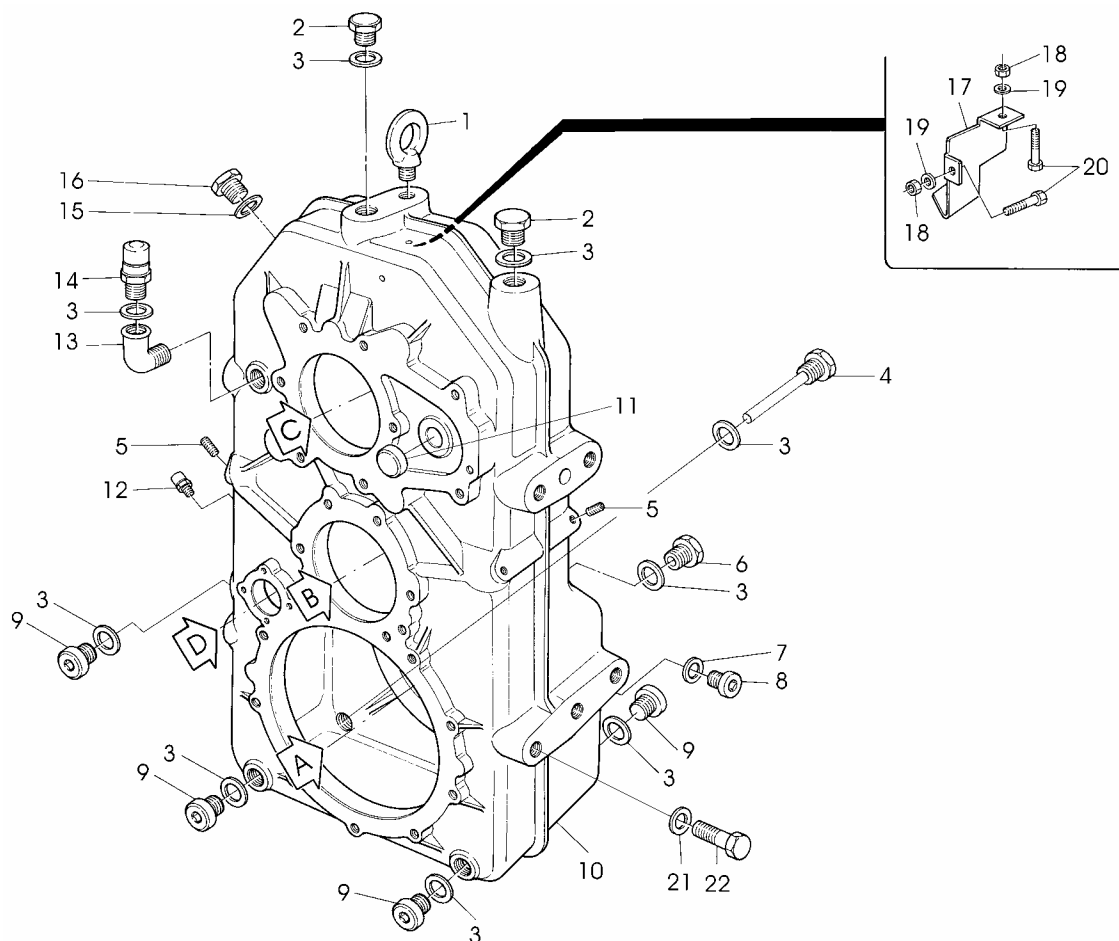
INTRODUCTION

THE INSTRUCTIONS, DESIGNS, TABLES, SPECIFICATIONS, AND GENERAL CONTENTS OF THIS MANUAL ARE OF TECHNICAL NATURE AND RESERVED. ALL THE INFORMATION WITHIN SHALL NOT BE REPRODUCED COMPLETELY, PARTIALLY, NOR IT SHALL BE COMMUNICATED TO THIRD PARTIES WITHOUT THE WRITTEN AUTHORIZATION OF OMSI TRASMISSIONI S.P.A., SOLE PROPRIETARY OF ALL RIGHTS, INCLUSIVE THE RESERVATION OF PERFORMING CHANGES AS IT CONSIDERS NECESSARY WITHOUT PREVIOUS NOTIFICATION.

HOW TO ORDER SPARE PARTS:

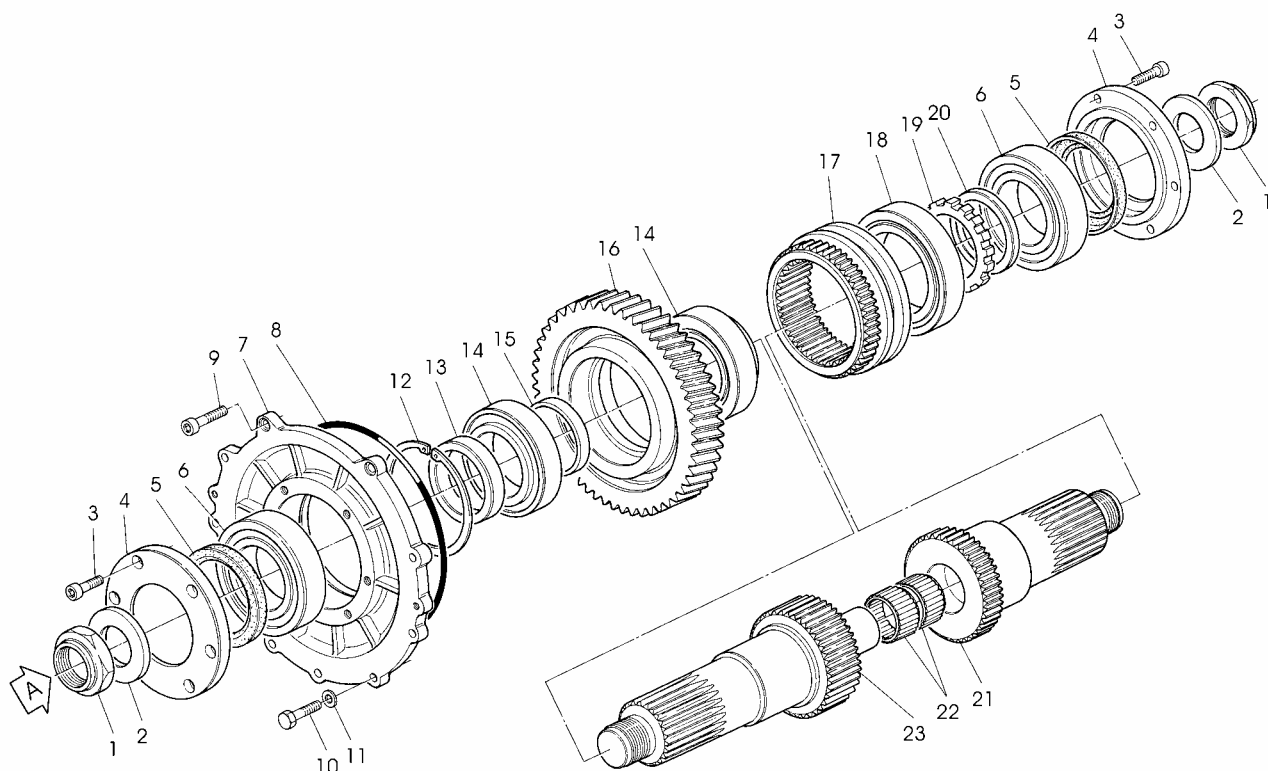
WHEN ORDERING SPARE PARTS, PLEASE PROVIDE THE FOLLOWING INFORMATION:

1. MODEL OF PTO
2. SERIAL NUMBER
3. TABLE NUMBER FROM MANUAL (REFERENCE)
4. PART NUMBER
5. REQUIRED QUANTITY
6. REQUIRED DELIVERY
7. SHIP-TO ADDRESS



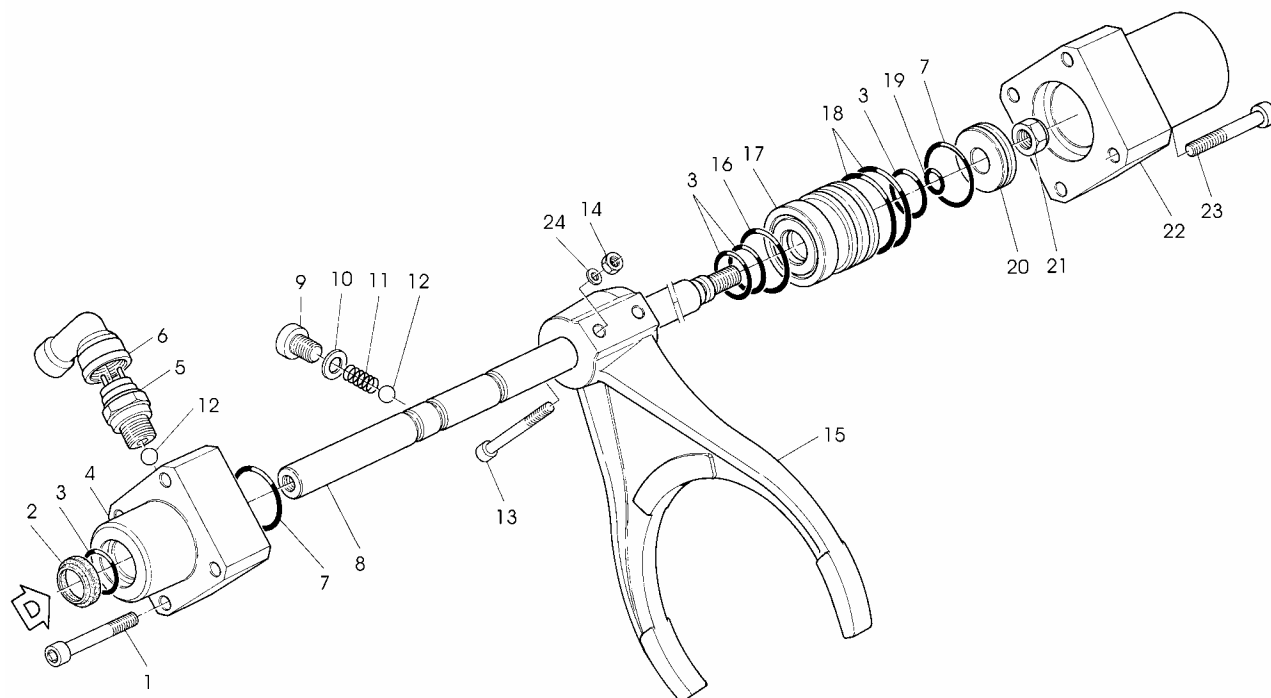
Pos.	Part No.	Description	Qty.	Pos.	Part No.	Description	Qty.
1	40410045	Eye, lifting	1	19	40220018	Washer, conical	2
2	40160005	Plug	2	20	40210056	Screw, M6x20	2
3	40220070	Washer, copper	9	21	40220051	Washer, lock	10
4	40160081	Plug, magnetic	1	22	40210533	Screw, M18x45	10
5	40190010	Screw, set	4	23			
6	40160122	Plug, drain	1	24			
7	40220067	Washer, copper	1	25			
8	40160053	Plug	1	26			
9	40160072	Plug	4	27			
10	20010314	Housing	1	28			
11	40030270	Plug, freeze	1	29			
12	40180001	Plug	1	30			
13	40170117	Elbow, street	1	31			
14	40180014	Plug, breather	1	32			
15	40220103	Washer, copper	1	33			
16	20060037	Plug	1	34			
17	20360085	Conveyer, oil	1	35			
18	40200055	Nut, locking	2	36			

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Pos.	Part No.	Description	Qty.	Pos.	Part No.	Description	Qty.
1	20470126	Nut, locking	2	19	20120581	Ring, sensor	1
2	20120518	Washer, spacer	2	20	20290359	Ring, spacer	1
3	40210019	Screw, M10x25	12	21	20150443	Shaft, output drive	1
4	20300444	Cover, support	2	22	40020029	Needle cage	2
5	40030002	Seal, oil	2	23	20150552	Shaft, input drive	1
6	40010005	Bearing, roller	2	24	10520482	Kit, shaft/input gear	
7	20040169	Flange, support	1	25			
8	40050313	O'ring	1	26			
9	40210032	Screw, M10x30	2	27			
10	40210007	Screw, M10x35	7	28			
11	40220005	Washer, lock	7	29			
12	40060004	Ring, elastic	1	30			
13	20290397	Bushing, spacer	1	31			
14	40010313	Bearing, roller	2	32			
15	20120561	Ring, internal	1	33			
16	20160798	Gear	1	34			
17	20170077	Ring gear, engagement	1	35			
18	40010109	Bearing, roller	1	36			

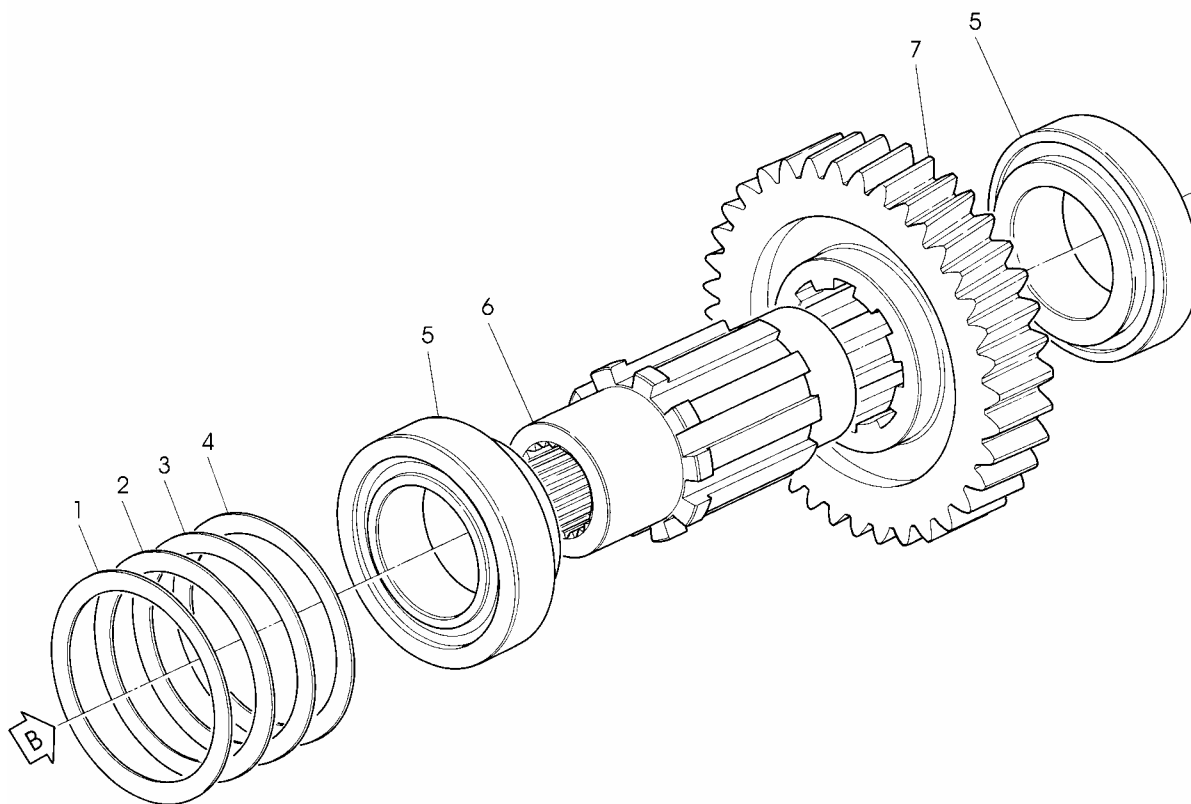
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Pos.	Part No.	Description	Qty.
1	40210075	Screw, M8x50	4
2	40070019	Seal, wiper	1
3	40050172	O'ring	4
4	20370024	Cap, support	1
5	40350003	Switch	1
6	40710026	Protection	1
7	40050150	O'ring	2
8	20240129	Shaft, shift control	1
9	20470129	Screw, M12x21,5	1
10	40220006	Washer, copper	1
11	40080002	Spring	1
12	40150001	Ball, 3/8"	2
13	20470128	Screw, M8x47	2
14	40200018	Nut, locking	2
15	20210090	Fork, engagement	1
16	40050301	O'ring	1
17	20120582	Guide, shifter shaft	1
18	40050219	O'ring	2

Pos.	Part No.	Description	Qty.
19	40050173	O'ring	1
20	20230013	Piston, cylinder	1
21	40200012	Nut, locking	1
22	20050092	Housing, cylinder	1
23	40210376	Screw, M8x45	4
24	40220023	Washer, conical	2
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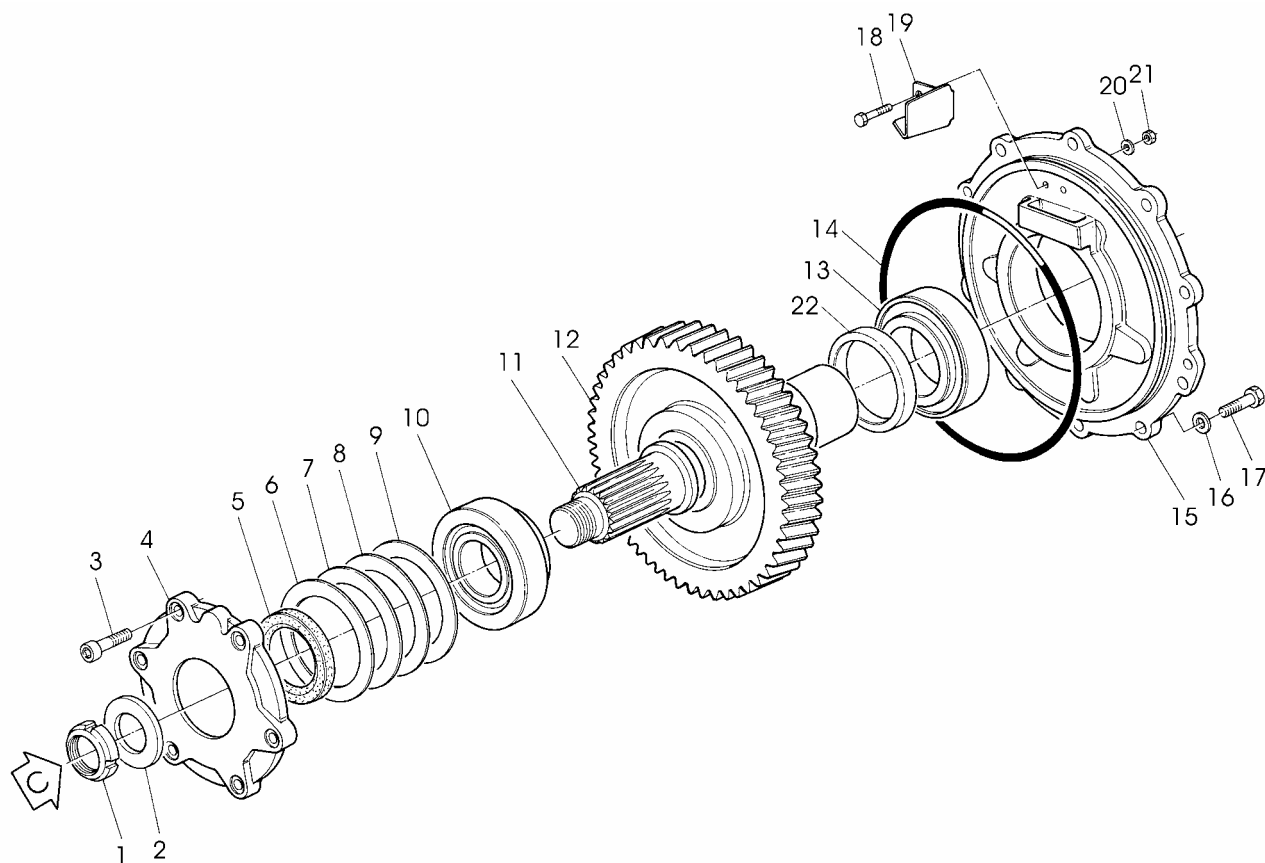
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Pos.	Part No.	Description	Qty.
1	40260072	Shim, 0.1 mm	1
2	40260010	Shim, 0.2 mm	1
3	40260023	Shim, 0.3 mm	1
4	40260024	Shim, 0.5 mm	1
5	40010267	Bearing, roller	2
6	20150444	Shaft, intermediate drive	1
7	20160759	Gear	1
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Pos.	Part No.	Description	Qty.
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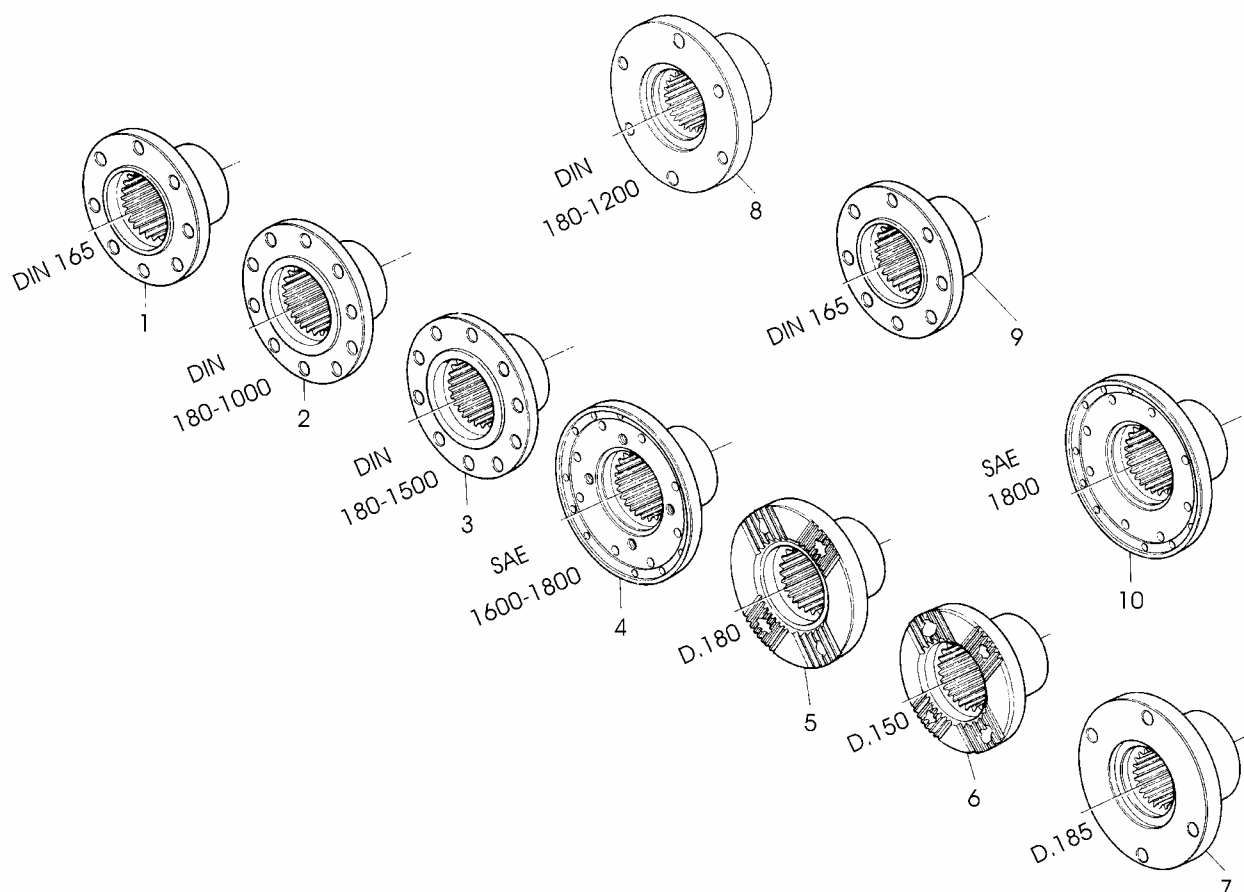
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Pos.	Part No.	Description	Qty.
1	40300026	Nut, locking	1
2	20120559	Ring, spacer	1
3	40210019	Screw, M10x25	6
4	20300439	Cover, support	1
5	40030273	Seal, oil	1
6	40260072	Shim, 0.1 mm	1
7	40260010	Shim, 0.2 mm	1
8	40260023	Shim, 0.3 mm	1
9	40260024	Shim, 0.5 mm	1
10	40010017	Bearing, roller	1
11	20150445	Shaft, output drive	1
12	20160760	Gear	1
13	40010267	Bearing, roller	1
14	40050262	O'ring	1
15	20040171	Flange, support	1
16	40220005	Washer, lock	9
17	40210007	Screw, M10x35	9
18	40210056	Screw, M6x20	2

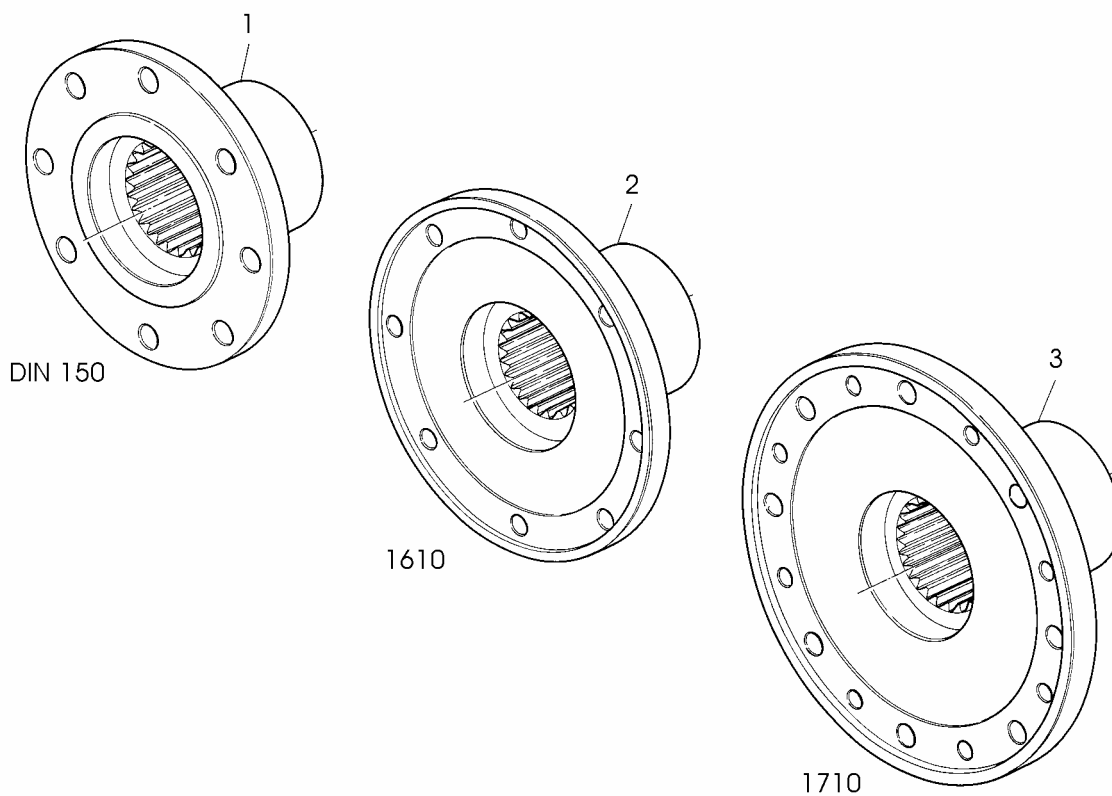
Pos.	Part No.	Description	Qty.
19	20360086	Conveyer, oil	1
20	40220018	Washer, conical	2
21	40200055	Nut, bearing	2
22	20290410	Ring, spacer	1
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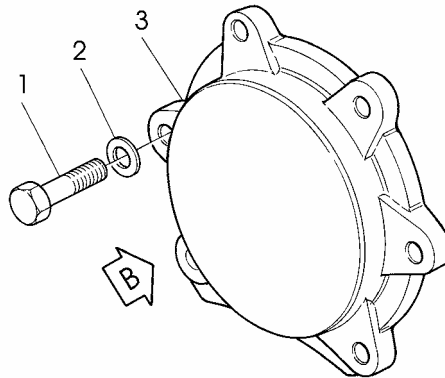
Pos.	Part No.	Description	Qty.	Pos.	Part No.	Description	Qty.
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8	-----	-	-	26			
9	-----	-	-	27			
10	20180391	SAE-1600/1800 drive flange	2	28			
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18				36			

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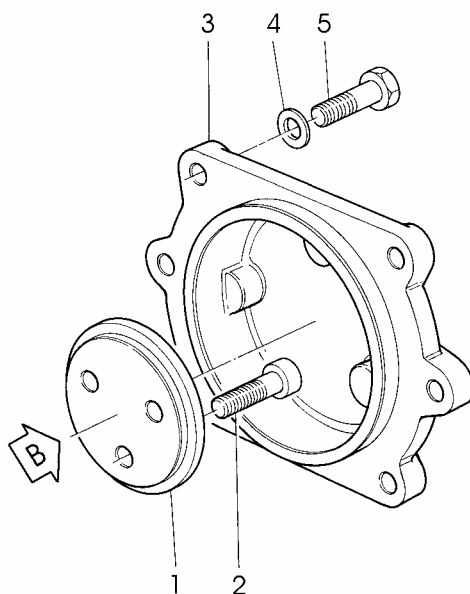
Pos.	Part No.	Description	Qty.
1	-----	-	-
2	20180332	SAE-1610 drive flange	1
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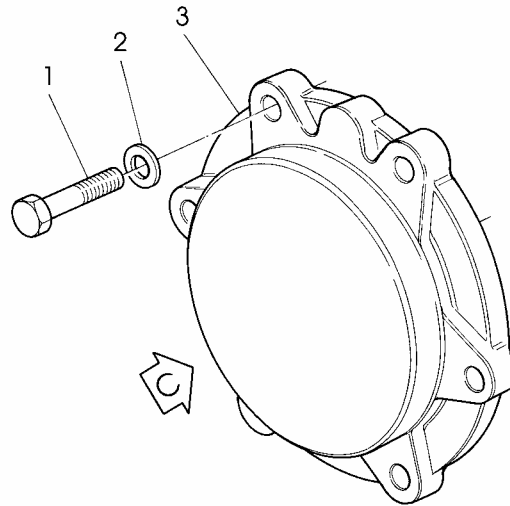


Pos.	Part No.	Description	Qty.
1	40210007	Screw, M10x35	6
2	40220005	Washer, lock	6
3	20300441	Cover	1
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Pos.	Part No.	Description	Qty.	Pos.	Part No.	Description	Qty.
1	20190092	Washer, locking	1	19			
2	40210157	Screw, M10x30	3	20			
3	20300438	Cover	1	21			
4	40220005	Washer, elastic	6	22			
5	40210007	Screw, M10x35	6	23			
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Pos.	Part No.	Description	Qty.
1	40210007	Screw , M10x35	6
2	40220005	Washer, lock	6
3	20300440	Cover	1
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