

COMMERCIAL VEHICLE CLUTCHES

GCPA PVT. LTD.

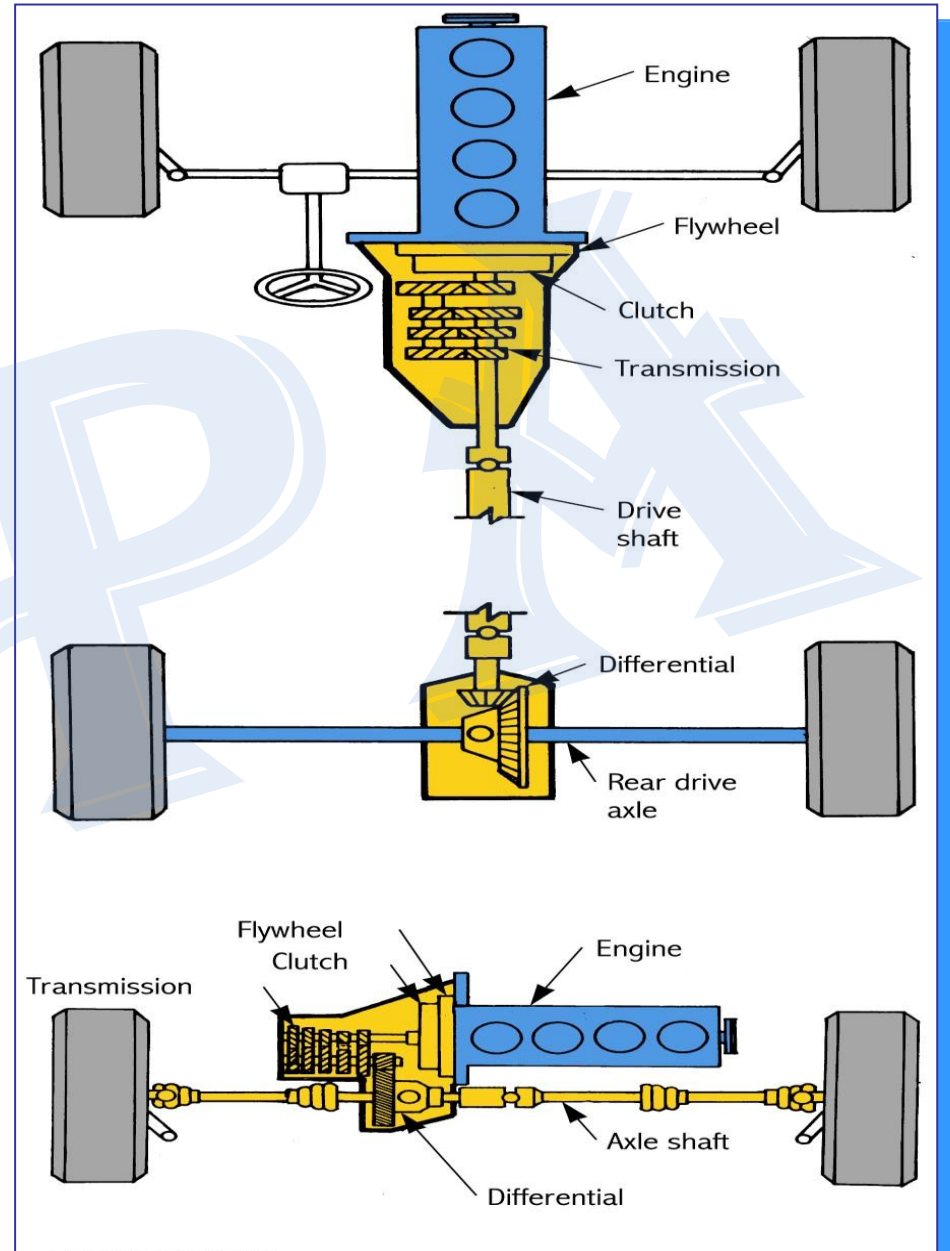


COMMERCIAL VEHICLE CLUTCHES

CLUTCH THEORY

REAR-WHEEL DRIVE VEHICLE

FRONT-WHEEL DRIVE VEHICLE

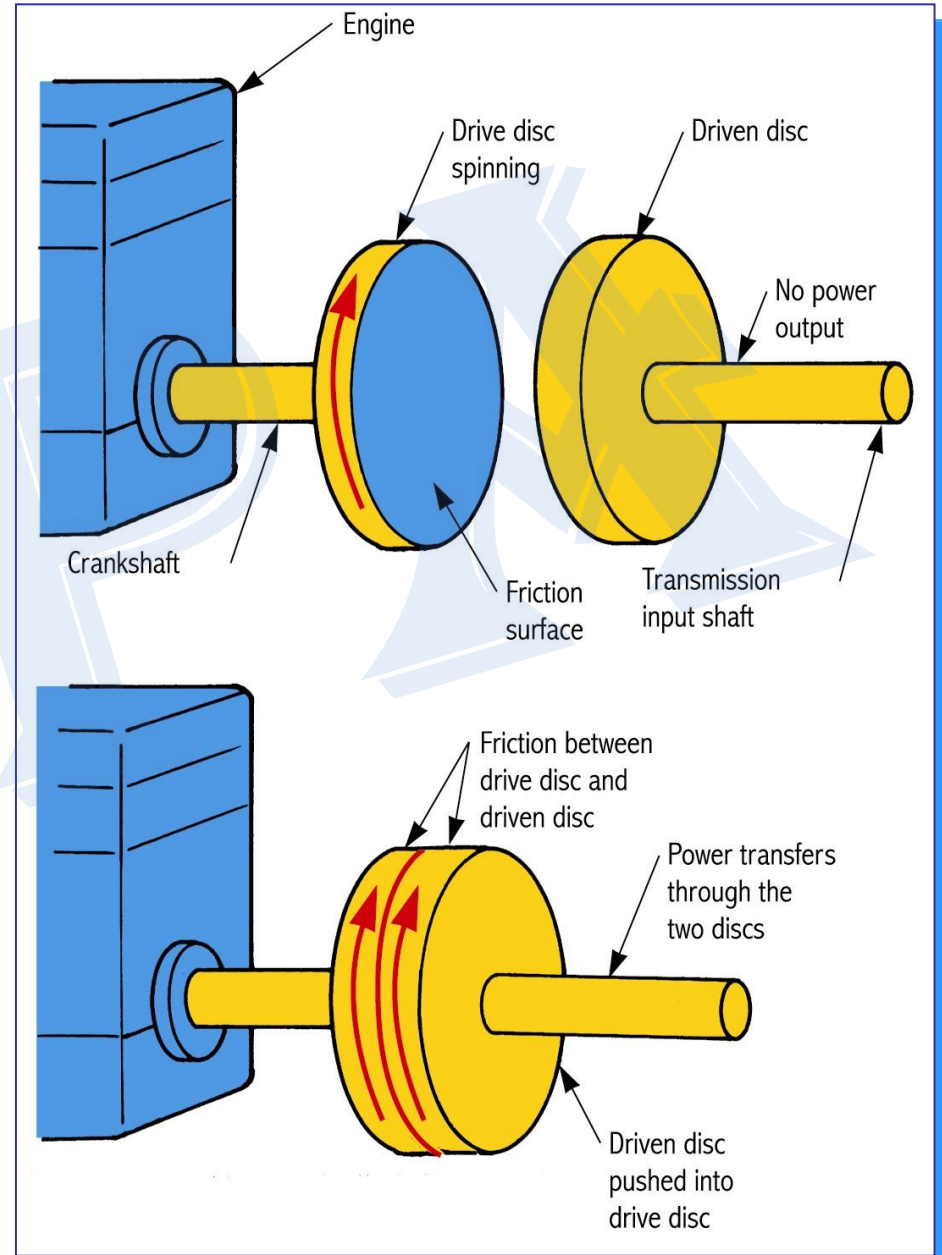


COMMERCIAL VEHICLE CLUTCHES

CLUTCH THEORY

Clutch is disengaged

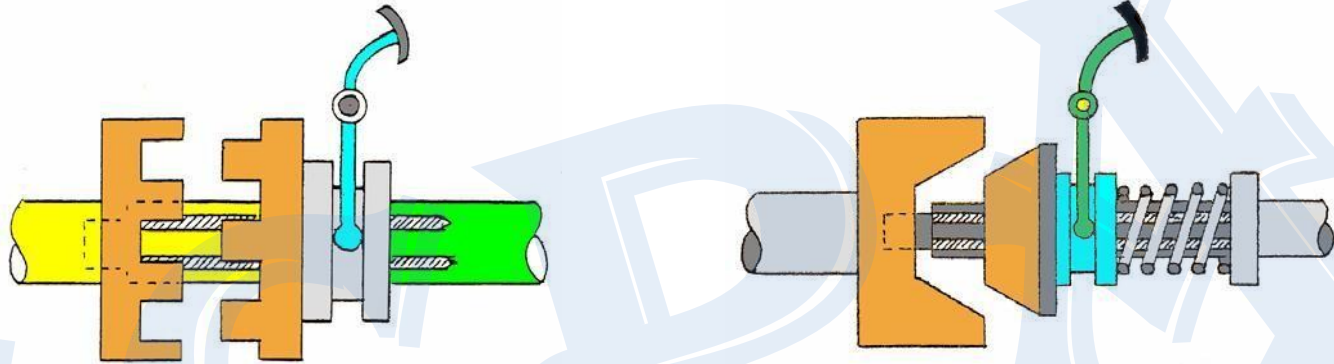
Clutch is engaged



COMMERCIAL VEHICLE CLUTCHES

INTRODUCTION

In order to change gear, the drive between the engine and the gearbox must be temporarily disconnected. The vehicle clutch enables the driver to do this

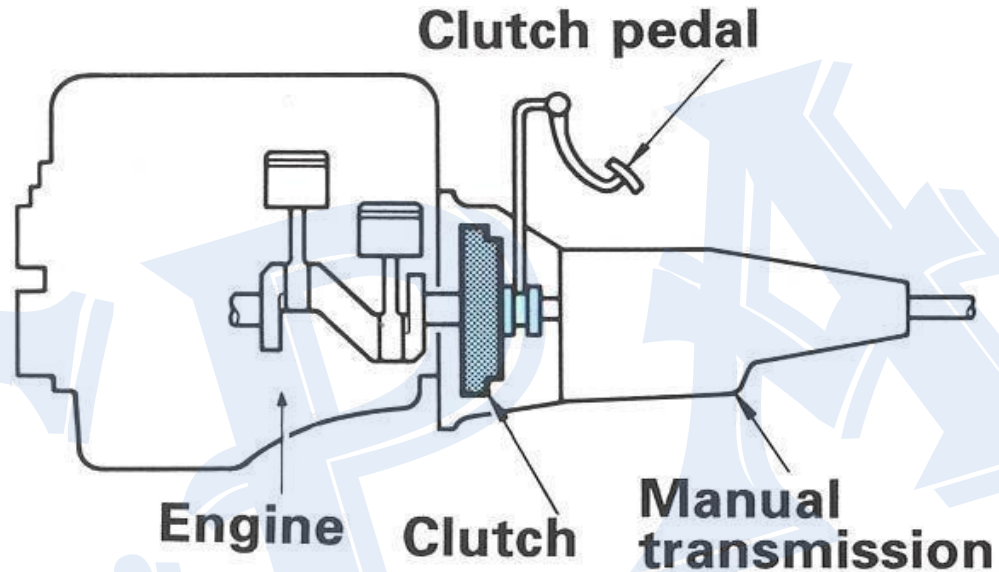


A clutch is a component that is designed to connect together two rotating shafts. Clutches can be classified as one of two types - positive engagement (dog clutch) or gradual engagement (friction clutch). Positive engagement clutches normally use teeth in order to provide a positive connection, whereas gradual engagement clutches use friction

COMMERCIAL VEHICLE CLUTCHES

INTRODUCTION

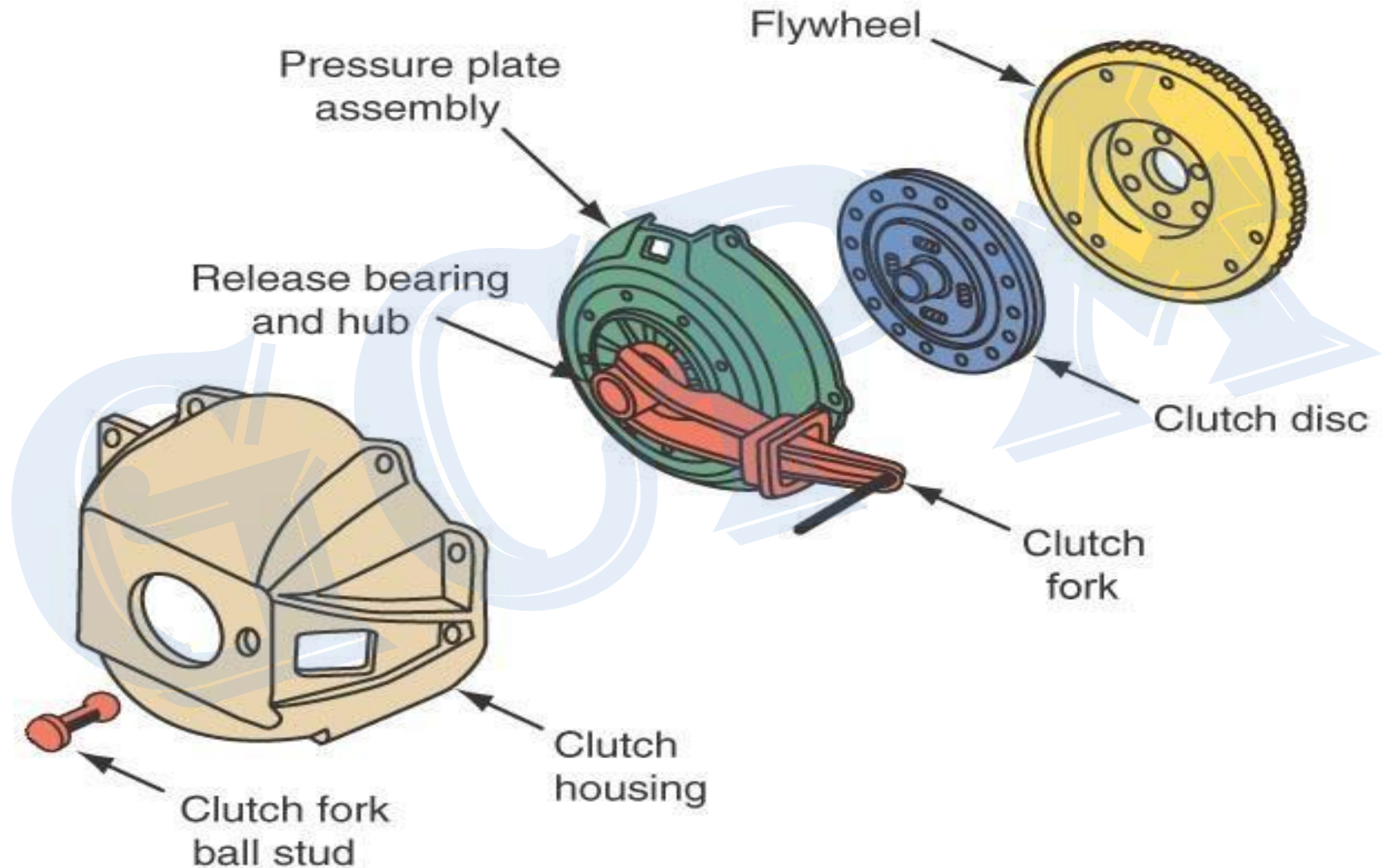
The clutch is situated between the engine and the transmission gearbox. In this example depressing the clutch pedal will engage and disengage the engine from the transmission. The clutch is designed to gradually and smoothly transmit power from the engine to the transmission to enable a vehicle to start off under full control.



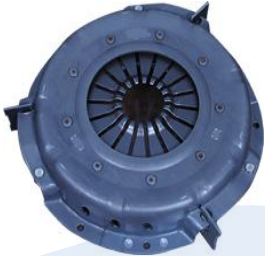



Note: The ability of a clutch to transmit torque (clutch capacity) is normally between 1.2 and 1.4 times the maximum torque of the engine. Commercial vehicles usually have a capacity between 1.5 and 2.5. If the clutch is too light, slipping will take place and lead to premature failure. Too large a clutch will tend to cause the engine to stall and is inefficient

COMMERCIAL VEHICLE CLUTCHES





CLUTCH COMPONENTS







COMMERCIAL VEHICLE CLUTCHES

GCPA	APPLICATION	PICTURE	PART INFORMATION
G-T280-DCA-TC G-T280-DCA-NA	TATA 709 REGULAR(OLD)		DIAPHRAGM TYPE
G-T280-TC			SPLINE: 28X35X10 (ID X OD X no. of teeth).
G-T310-C	TATA		4 LEVER COVER ASSEMBLY
G-T310-DCA G-T310DCA-H/L			DIAPHRAGM TYPE





COMMERCIAL VEHICLE CLUTCHES

GCPA	APPLICATION	PICTURE	PART INFORMATION
G-T310-M-SS	TATA		SPLINE: 28X35X10 (ID X OD X no. of teeth)
G-T310-AF-SS			
G-AL310-AF	LEYLAND		SPLINE: 31X38X10 (ID X OD X no. of teeth)
310 PTL	SWARAJ HYDRA CRANE		SPLINE: 20X25X8 (ID X OD X no. of teeth)





COMMERCIAL VEHICLE CLUTCHES

GCPA	APPLICATION	PICTURE	PART INFORMATION
G-T310-PP	TATA		PRESSURE PLATE
G-T310-LK			LEVER KIT
G-T310-SK			SPRING KIT
G-T330-CCA-4L	TATA LEYLAND		4 LEVER COVER ASSEMBLY


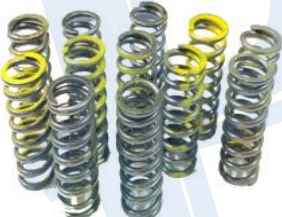


COMMERCIAL VEHICLE CLUTCHES

GCPA	APPLICATION	PICTURE	PART INFORMATION
G-AL330-DCA	EICHER LEYLAND		CASTING COVER - DIAPHRAGM TYPE COVER ASSEMBLY
G-T330-C-3L	TATA		3 LEVER SHEEL COVER ASSEMBLY
G-T330-BD G-AL330-BD	TATA LEYLAND		SPLINE: 28X35X10 OR 31X38X10 (ID X OD X no. of teeth)
G-T330-AF G-AL330-AF			SPLINE: 28X35X10 OR 31X38X10 (ID X OD X no. of teeth)





COMMERCIAL VEHICLE CLUTCHES

GCPA	APPLICATION	PICTURE	PART INFORMATION
G-T330-LK-4L	TATA LEYLAND		LEVER KIT
G-T330-SK-4L			SPRING KIT
G-T330-PP-4L			PRESSURE PLATE
G-T330-CCA-3L	TATA EICHER		3 LEVER WITH RELEASE PLATE TYPE ASSEMBLY





COMMERCIAL VEHICLE CLUTCHES

GCPA	APPLICATION	PICTURE	PART INFORMATION
G-T330-LK-3L	TATA EICHER	 A collection of various metal components for a clutch lever, including levers, pins, washers, and nuts, arranged on a white background.	LEVER KIT
G-T330-SK-3L		 A set of several metal coil springs, some with yellow and silver finishes, arranged in a group.	SPRING KIT
G-T330-PP-3L		 A circular metal pressure plate with a central hole and several mounting points around the perimeter.	PRESSURE PLATE
G-T352-CCA-PT	TATA	 A circular metal cover assembly with a central hub and several mounting points around the perimeter.	PUSH TYPE COVER ASSEMBLY


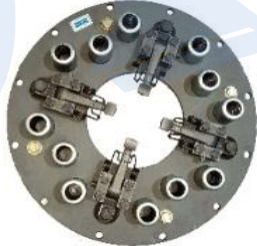

COMMERCIAL VEHICLE CLUTCHES

GCPA	APPLICATION	PICTURE	PART INFORMATION
G-T353-CCA	TATA EICHER		PULL TYPE COVER ASSEMBLY
G-T352-BD G-T353-BD	TATA EICHER LEYLAND		SPLINE: 31X38X10 OR 36X45X10 (ID X OD X No. of spline)
G-T352-F510	TATA		SPLINE: 36X45X10 (ID X OD X no. of teeth)
G-T352-LK	TATA EICHER		LEVER KIT





COMMERCIAL VEHICLE CLUTCHES

GCPA	APPLICATION	PICTURE	PART INFORMATION
G-T352-BA G-T353-BA	TATA EICHER		BEARING
G-T352-SK			SPRING KIT
G-T352-PP			PRESSURE PLATE
G-T352-PP-PT			PRESSURE PLATE





COMMERCIAL VEHICLE CLUTCHES

GCPA	APPLICATION	PICTURE	PART INFORMATION
G-T352-RL	TATA EICHER		RELEASE PLATE
G-T352-LK-PT			LEVER KIT
G-AL352-CCA	LEYLAND		4 LEVER SHEET COVER ASSEMBLY
G-AL352-AF			SPLINE: 31X38X10 (ID X OD X no. of teeth)





COMMERCIAL VEHICLE CLUTCHES

GCPA	APPLICATION	PICTURE	PART INFORMATION
G-AL352-BD	LEYLAND		<p>SPLINE: 31X38X10 (ID X OD X no. of teeth)</p>
G-AL352-SK			<p>SPRING KIT</p>
G-AL352-LK			<p>LEVER KIT</p>
G-AL380-CCA			<p>4 LEVER SHEET COVER ASSEMBLY</p>





COMMERCIAL VEHICLE CLUTCHES

GCPA	APPLICATION	PICTURE	PART INFORMATION
G-AL381-BD	LEYLAND		SPLINE: 36X45X10 (ID X OD X no. of teeth)
G-AL383-BD			
G-AL380-BD			SPLINE: 31X38X10 (ID X OD X no. of teeth)
G-AL380-HC			


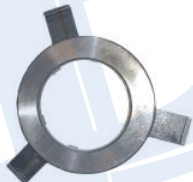


COMMERCIAL VEHICLE CLUTCHES

GCPA	APPLICATION	PICTURE	PART INFORMATION
G-AL380-LK	LEYLAND		LEVER KIT
G-AL380-SK			SPRING KIT
G-T380-CCA	TATA LEYLAND AMW EICHER		3 LEVER TYPE ASSEMBLY
G-AM381-DCA	AMW		DIAPHRAGM COVER ASSEMBLY





COMMERCIAL VEHICLE CLUTCHES

GCPA	APPLICATION	PICTURE	PART INFORMATION
G-T380-HC-CD G-T380-F510 G-T380-F400	TATA EICHER		SPLINE: 36X45X10 (ID X OD X no. of teeth)
G-T380-BD G-AM381-BD	TATA LEYLAND EICHER		
G-T380-LK	AMW TATA LEYLAND EICHER		LEVER KIT
G-T380-PPB	AMW TATA LEYLAND EICHER		PRESSURE PLATE WITH BEARING


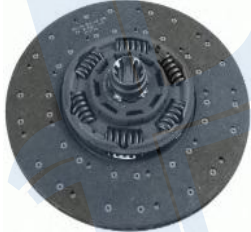


COMMERCIAL VEHICLE CLUTCHES

GCPA	APPLICATION	PICTURE	PART INFORMATION
G-T380-SK	AMW TATA LEYLAND EICHER		SPRING KIT
G-T380-RL			RELEASE PLATE
G-AL380-PP	LEYLAND		PRESSURE PLATE
G-AL380-....			FACE PLATE





COMMERCIAL VEHICLE CLUTCHES

GCPA	APPLICATION	PICTURE	PART INFORMATION
G-M-NV395-DCA	NAVISTAR		DIAPHRAGM COVER ASSEMBLY
G-M-NV395-CD			SPLINE: 36X45X10 (ID X OD X no. of teeth)
G-BENZ395-DCA	BENZ		DIAPHRAGM COVER ASSEMBLY
G-BENZ395-395CD			SPLINE: 36X40X18 (ID X OD X no. of teeth)

COMMERCIAL VEHICLE CLUTCHES

GCPA	APPLICATION	PICTURE	PART INFORMATION
G-P4300-DCA	PRIMA		DIAPHRAGM COVER ASSEMBLY
G-P4301-CD			SPLINE: 50.8X41.8X10 (ID X OD X no. of teeth)
G-BB4302-DCA	BENZ		DIAPHRAGM COVER ASSEMBLY
G-BB4303-CD			SPLINE: 50.8X45X18 (ID X OD X no. of teeth)

COMMERCIAL VEHICLE CLUTCHES

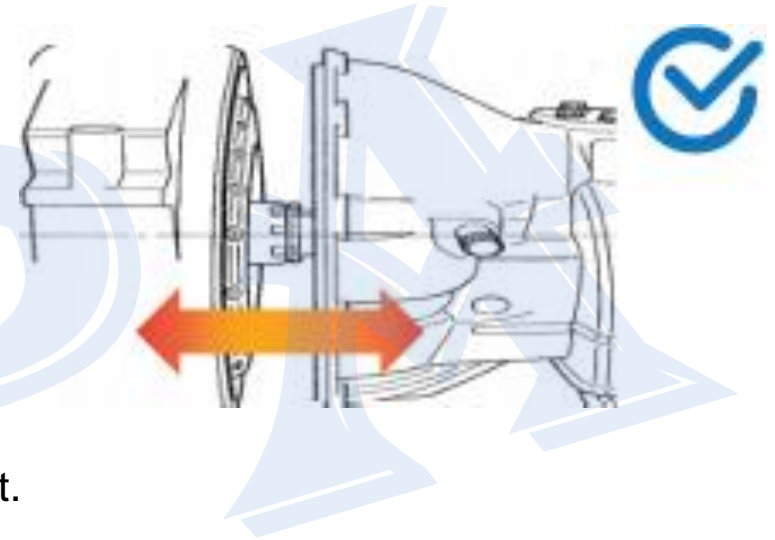
GCPA	APPLICATION	PICTURE	PART INFORMATION
G-395-FWA-146	BENZ		NO. OF TEETH 146
G-352-FWA-146 G-352-FWA-146S	TATA TATA SENSOR		WITHOUT SENSOR AND SENSOR NO. OF TEETH 146
G-395-FWA-145	NAVISTAR		NO. OF TEETH 145
G-330-FWA-125 G-330-FWA-125S	TATA TATA SENSOR		WITHOUT SENSOR AND SENSOR NO. OF TEETH 125

COMMERCIAL VEHICLE CLUTCHES

CLUTCH FITMENT

Clutch Removal

- A- Mark drive shafts to match up on reassembly.
- B- Fully support transmission making sure that it is securely fastened to transmission stand. Do not allow gearbox to hang on the input shaft.
- C- Remove gearbox directly backward but not diagonally.
- D- Install new release bearing and pilot bearing/ bushing whenever installing a new clutch.
- E- Replace clutches as KIT.
- F- Surface of Pressure plate & Flywheel should be even, or flat.



COMMERCIAL VEHICLE CLUTCHES

CLUTCH FITMENT

EXCESSIVE WEAR OF A FACING

■Causes

- Excessive use of an engine brake
- Missing disc replacement time
- Excessive use of a half clutch

■Maintenance & caution

- Replace a clutch on a kit basis (disc, cover, bearing)



■Causes

- Sudden change of a gear while driving(Ex : 5th→3rd/2nd)
- Quick start and sudden braking
- Excessive use of an engine brake

■Maintenance & caution

- Replace a clutch disc
- Repair transmission
- Refrain from quick start and sudden braking



COMMERCIAL VEHICLE CLUTCHES

CLUTCH FITMENT

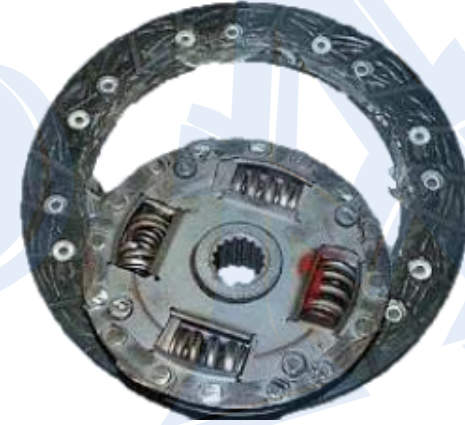
DAMAGED PLATE(GEAR SHIFT)

■Causes

- Sudden change of a gear while driving (Ex : 5th→3rd/2nd)
- Poor arrangement of an engine gear box
- Damaged pilot bearing
- Driving overloaded
- Excessive use of an engine brake

■Maintenance & caution

- Replace a clutch
- Rearrange the engine gear box



CONTAMINATED CLUTCH DISC (SLIP)

■Causes

- Excessive application of grease on the teeth of a disc
- Oil leak of an engine or a gear box

■Maintenance & caution

- Replace a clutch disc
- Check and remove contaminants
- Apply a proper amount of grease on the teeth of a disc



COMMERCIAL VEHICLE CLUTCHES

CLUTCH FITMENT

DAMAGED EDGE OF A SUB PLATE (GEAR SHIFT)

■Causes

- Sudden change of a gear while driving (Ex : 5th→3rd/2nd)
- Excessive use of an engine brake
- Excessive pedal manipulation
- Reverse assembly of a clutch disc

■Maintenance & caution

- Replace a clutch cover / a flywheel
- Readjust the clutch working system
(pedal height, self-control system, clutch combination etc.)
- Right installation of a clutch disc



COMMERCIAL VEHICLE CLUTCHES

CLUTCH FITMENT

DAMAGED TEETH/SPLINE OF A CLUTCH DISC (GEAR SHIFT)

■Causes

- Sudden change of a gear while driving (Ex : 5th→3rd/2nd)
- Excessive shaking of an engine crank shaft (flywheel)
- Wear due to deterioration of a main shaft
- Excessive use of an engine brake
- Damaged teeth by a main shaft
- Poor sliding due to stabbing
- Poor transverse vibration due to stabbing

■Maintenance & caution

- Use a home position zig when installing a disc
- Maintain home position when installing a transmission
- Check the level of wear of the main shaft



COMMERCIAL VEHICLE CLUTCHES

CLUTCH FITMENT

DEFORMED CLUTCH DISC

- Causes
 - Careless transport and handling
 - Poor assembly when installing
- Maintenance & caution
 - Replace a clutch disc
 - Caution required for handling and storing
 - Don't load under weight



DAMAGED DISC DUE TO OVER TORQUE (GEAR SHIFT)

- Causes
 - Sudden change of a gear while driving (Ex : 5th→3rd/2nd)
 - Excessive use of an engine brake
 - Quick start and sudden braking
 - Excessive clutch pedal manipulation
 - Use of an incorrect item
- Maintenance & caution
 - Replace a clutch disc



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CLUTCH FITMENT

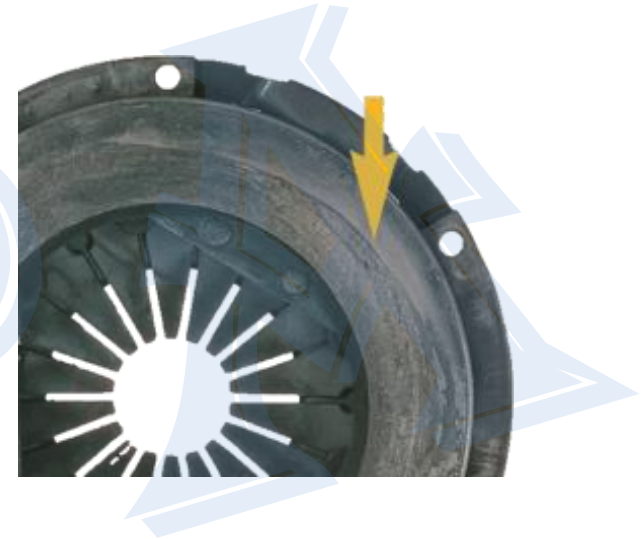
SLIP OF A CLUTCH

■Causes

- Sudden gear shift when the engine is high-revolving
- Contamination of the friction surface by grease
- Excessive use of a half clutch
- Use of an incorrect item

■Maintenance & caution

- Replace a clutch
- Refrain from using a half clutch
- Refrain from quick start and sudden braking



DAMAGED PRESSURE PLATE (GEAR SHIFT)

■Causes

- Occurrence of slip due to the excessive use of a half clutch
- Sudden gear shift when the engine is high-revolving
- Contamination of the friction surface by grease
- Quick start and sudden braking· Excessive use of an engine torque· Driving overloaded

■Maintenance & caution

- Replace clutch cover ·Follow the maintenance guideline



COMMERCIAL VEHICLE CLUTCHES

CLUTCH FITMENT

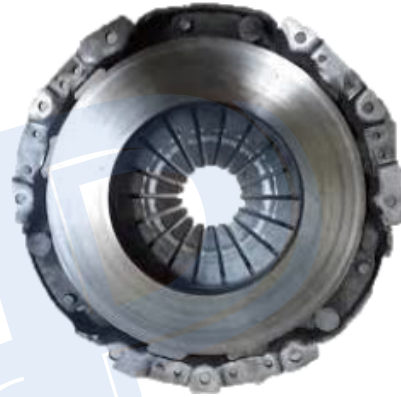
INTERFERENCE DUE TO AN OVERSIZED PEDAL STROKE (GEAR SHIFT)

■Causes

- Oversized clutch pedal stroke
- Poor cylinder working
- Poor pedal working

■Maintenance & caution

- Replace a clutch
- Inspect the clutch working system



DAMAGED CLUTCH COVER (GEAR SHIFT)

■Causes

- Careless handling of a cover assembly(drop)

■Maintenance & caution

- Replace a clutch cover



COMMERCIAL VEHICLE CLUTCHES

CLUTCH FITMENT

DAMAGED CLUTCH STRAP (GEAR SHIFT)

■Causes

- Sudden change of a gear while driving
(Ex : 5th→3rd/2nd)
- Dropping product due to careless handling
- Poor product loading
- Excessive use of an engine brake

■Maintenance & caution

- Replace clutch cover
- Refrain a sudden gear shift



DAMAGED RELEASE BEARING

■Causes

- Poorly arranged clutch cover
- Wear of a release bearing seal

■Maintenance & caution

- Replace a release bearing



COMMERCIAL VEHICLE CLUTCHES

CLUTCH FITMENT

EXCESSIVE PEDAL PRESSURE

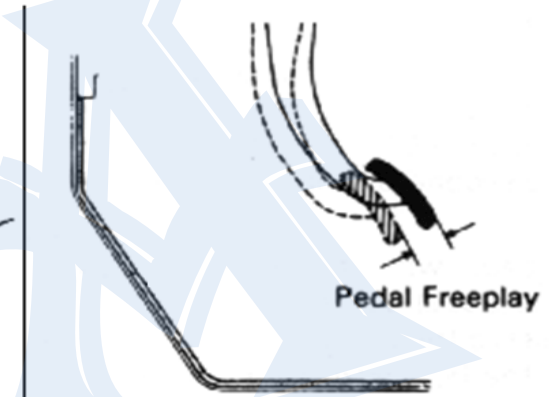
■ Causes

- Poorly adjusted release bearing guide tube
 - Wear and deformation of a bearing guide tube
- #### ■ Maintenance & caution
- Clean the contact of a bearing tube with high-temperature grease
 - Replace a guide tube

Pedal Reserve Distance



Pedal Freeplay



IRREGULAR WEAR OF CONTACT OF A CLUTCH FORK

■ Causes

- Wear and deformation of the counterpart
- clutch fork arrangement Poor
- Release bearing being stuck
- Irregular wear of the pivot of a clutch fork
- One-sided wear of a clutch fork

■ Maintenance & caution

- Replace a clutch fork
- Replace a release bearing guide tube
- Replace a clutch fork



COMMERCIAL VEHICLE CLUTCHES

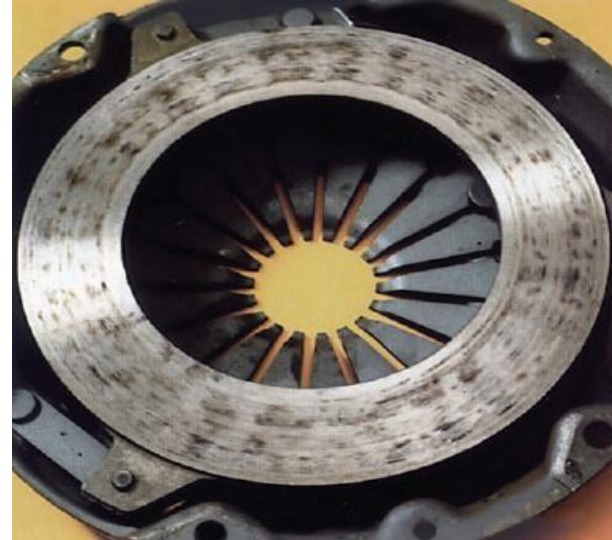
CLUTCH FITMENT

CLUTCH CHATTER

Definition: Shaking or shuddering when clutch is engaged.

Before Disassembly

- Check engine mounts.
- Check for leaks from rear main seal, transmission input shaft seal, and clutch slave cylinder



COMMERCIAL VEHICLE CLUTCHES

CLUTCH FITMENT

CLUTCH NOISE

■Causes

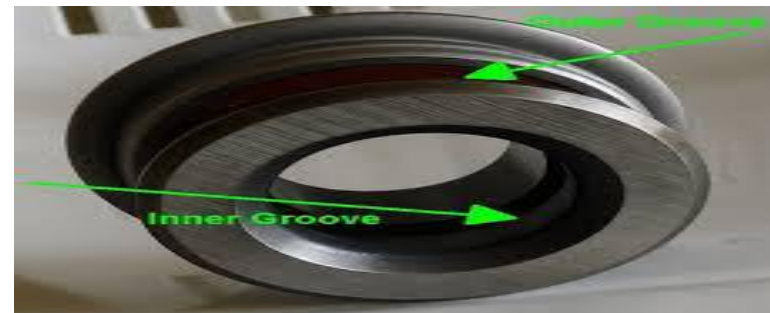
- I- Faulty release bearing
- II- Release bearing retainer clip or spring damage
- III-External Influence

■Maintenance & caution

- I- Replace bearing
- II- This allows the bearing to move with in its carrier
- III-Wear or damage with in the tractors drive line or transmission causing noise and vibrations. Loose cab mountings causing cab to contact chassis.

PREPARE THE CLUTCH FOR ASSEMBLY

- I- Apply a small quantity of grease in the hub splines at approximately 5 mm of the hub extremity
- II- Apply a small quantity of grease in the release bearing (internal diameter and contact area with the fork axe), in the guide tube and in the fulcrum fork.
- III- Position the driven plate in the flywheel thanks to the centering tool.



COMMERCIAL VEHICLE CLUTCHES

CLUTCH FITMENT

- IV-Fasten the cover assembly centering it with the pins and hand tightening 3 screws at 120° and checking that the driven plate remains stable and well centered with the centering tool.
- V- Check that the gearbox is in full contact with the engine block and that the centering pins are well fitted
- VI- Fixe the gearbox to the engine block tightening the all the bolts with the appropriate torque



AFTER THE ASSEMBLY

- I. Check that the clutch is well disengaging and reengaging allowing a smooth shifting of each gear box ratio (including reverse)
- II. Check that there is not abnormal noise when engaging and disengaging operation
- III- Adjust the pedal stop if required.
- IV- Check that there is not abnormal clutch sliding in driving conditions.
- V- Clutch must be “run in” to ensure a long life. Avoid excessive clutch slip at all times but especially during the first 45 hrs. of working time after fitting.

COMMERCIAL VEHICLE CLUTCHES

NOTE

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NOTE

GROUP A

COMMERCIAL VEHICLE CLUTCHES

FOR ITEMS INQUIRY

Please contact our Sales Office for any clutches or clutch parts not listed

Aftermarket:-

Mr. Pawan

Contact No. +91 7073470910

OEM/OES

Ms. Divya

Contact No. +91 9289035577


COMMERCIAL VEHICLE CLUTCHES

THANK YOU

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