DIAGNOSTIC CATALOG

HAMMER

Kupplungen

MORE POWERFUL, MORE COMFORTABLE...

HERE TO PROVIDE YOU AN EXCELLENT SERVICE!

Donmez Clutch is a worldwide known brand with its high quality products. Donmez Clutch products are exported to 80 countries worldwide directly from the Manufacturing Base in Izmır - Turkey. Donmez has established a Distribution Center in United Kingdom in 2011 and in Germany in 2016 where has maintained to supply Aftermarket channels around Europe.

After two years by establishment of Germany Branch, in 2018 Donmez established a new office in Saint Petersburg - Russian Federation.

FACTORY & HEAD QUARTER

- Established in 1996
- Located in Izmır/Turkey since 1986
- Land 10.000 m² Closed area 7000 m²
- Large Product Range
- Design & Production
- Domestic & International Sales

ISTANBUL OFFICE

- Established in 1993
- Located in Istanbul
- Domestic Sales&Marketing
- Distribution
- After Sales Activities
- Well Experienced People

HAMMER CLUTCH UK LTD.

- Established in 2011
- Located in Birmingham
- Well Experienced People
- Sales & Marketing
- Distribution & Service Center
- Large Variety of Stocks

HAMMER KUPPLUNGEN GMBH

- Established in 2016
- Located in Düsseldorf
- Well Experienced People
- Sales & Marketing
- Distribution & Service Center
- Office/Warehouse

HAMMER KUPPLUNGEN RUSSIAN FEDERATION

- Established in 2018
- Located in Saint Petersburg-Russian Federation
- Distribution&Service Center
- Well Experienced People
- Sales&Marketing

HAMMER
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ABOUT

Donmez Clutch is a family owned company established in 1986 in İzmir to cover the Clutch requirements of light and heavy commercial vehicles.

As other family owned companies around world, Donmez Clutch is likely to share the same ethos and beliefs on how things should be done. This give Donmez Clutch an extra sense of purpose and pride-and also a competitive edge for its business.
Hammer Kupplungen is a registered brand of Donmez Clutch A.Ş., the leading manufacturer of clutch systems.

Hammer Kupplungen manufacturing facilities are located over the area of 10.000 m^2 in Izmir Ataturk Industrial Zone. The factory is equipped with advanced technology and machinery, currently producing 200.000 pieces Clutch discs, 100.000 pieces clutch cover assemblies, 100.000 pieces release bearings and 10.000 flywheels in a year. Thanks to our dynamic structure and flexible production capability, we can easily adjust our manufacturing capacity and fulfil our customers' demand within short production terms.
Joining 30 years' experience with market trends develops its reinforced products, which has longer lifetime and higher performance. Capability and sufficiency of us to develop and produce our own products according to the international original equipment manufacturers quality standards, is guaranteed by IATF 16949 Quality Certificate.

Our company's one of the targets is to ensure Sustainable Social Development. This environmental friendly intend is certified by ISO 14001

With its flexible production system, we are able to fulfill various customer demands within short term production lead time.

PRODUCTS

We believe that ''100% Customer Satisfaction'' is the key driver of our success behind our quality and competitive products, with its through strong Retail network and After Sales Technical Service.

Our representatives regularly visit our customers and follow the latest market trends and customer demands. Key driver of the customer satisfaction is the way how to handle with the problems and offering permanent solutions to the problems. Our well experienced After Sales Technical Service representatives, with all their valuable experiences, give quick response to the customer problems and provide all the support to our valuable customers.

In independent aftermarket our products are under guarantee for 1 year or 100.000 km agains all claims due to the problems which are caused by the production process.

- ***300 High Skills Employees,***
- ***Flexible Production System,***
- ***30+ Valuable Experience,***
- ***100% Know-How, Wide Range Products,***
- ***Original Equipment Quality,***
- ***Affordable Price***

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ATTENTION!

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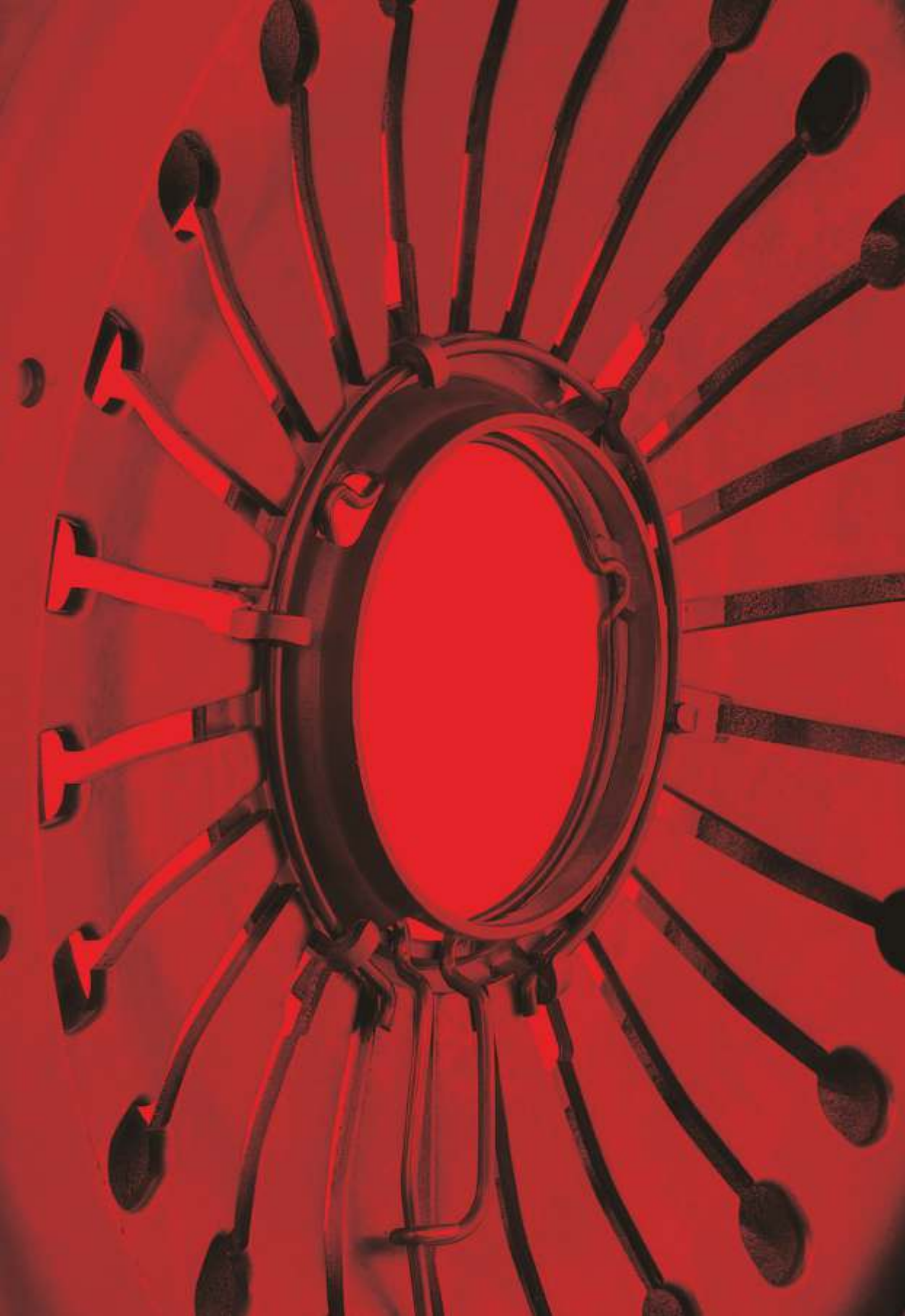


1. TROUBLESHOOTING CLUTCH SYSTEM MALFUNCTION

MALFUNCTION	DIAGNOSIS	REASON
Clutch Fails to Disengage	Strap plates (tangential leaf springs) cannot pull the Clutch pressure plate	-The part may have been dropped and/or damaged during delivery or mounting on the vehicle; - During mounting Clutch bolts should be tightened in sequential order and at correct torque levels; -Correct part should be installed on the vehicle. Please refer to Dönmez catalogue to order the correct part corresponding to your vehicle; - Driving the vehicle at incorrect engine speed rates and incorrect gear levels.
Clutch Fails to Disengage	Wear on pressure plate fulcrum points	-Excessive balancing in the Clutch system; All Dönmez Debriyaj products are controlled on 100% automaticbalance benches and adjusted to max. 10gr imbalance. Please strictly avoid to do any further balancing on Donmez Clutch products. -The Clutch is not seated at a cocentric axis with the flywheel and flywheel pins; -Excessive vibration in the system; ↳ Engine and/or transmission lugs are broken or damaged; ↳ Fuel system and motor compressions work improperly; - User faults; ↳ Habit of operating the vehicle at high gear level(s) and low engine speed.
Clutch Fails to Disengage	High unparallelism on pressure plate	-Clutch plate can be deformed due to excessive heat; -Clutch plate is dispositioned on the flywheel; -Clutch cover may be deformed; -The part can be dropped during deliver yor mounting.

TROUBLESHOOTING CLUTCH SYSTEM MALFUNCTION

MALFUNCTION	DIAGNOSIS	REASON
Clutch Fails to Disengage	Fulcrum Ring is Broken	-Excessive vibration in the system ↳ Engine and/or transmission lugs are broken or damaged; ↳ Fuel system and engine compressions work improperly; -User faults; ↳ Habit of operating the vehicle at high gear levels and low engine speed; - Clutch release bearing course is overextended, diaphragm spring moves to far.
Clutch Fails to Disengage	Clutch diaphragm spring is broken;	-Because of excessive release bearing movement, bearing is running with over contacted to the diaphragm spring at engagement position; -When release bearing bleed grease, excessive heat forms at the fingertip of diaphragm spring. This heat may cause the part to break; -After gear shift, keeping the foot on the Clutch pedal; -Clutch operating in a partially disengaged condition.
Clutch Fails to Disengage	Clutch is not mounted properly on flywheel	-Some Clutch cover assemblies are centred on the outer diameter of the flywheel. This diameter value should be accordant with the rated measurements and it should be ensured that the Clutch cover assembly properly seats in this diameter; -Some Clutch cover assemblies are centred on the flywheel in referance to the pins. Bent or non-conforming pins will have an advarse effect on Clutch action; -When tightening Clutch cover assembly on the flywheel all bolts should be tightened in sequential order and with equal torque values; -It should be ensured that Clutch cover assembly and disc are on the axis of crankshaft and transmission input shaft.

TROUBLESHOOTING CLUTCH SYSTEM MALFUNCTION

MALFUNCTION	DIAGNOSIS	REASON
Clutch Fails to Disengage	Diaphragm spring's finger heights are not appropriate	-Trying to change the finger heights; -The right product has not been installed on the vehicles; -Not paying attention to the depth of pot type flywheels; -Using dics at inapproriate friction facing thickness under the Clutch cover assembly.
Clutch Fails to Disengage	Clutch disc thickness is not appropriate	-Not appropriate disc has been installed on the vehicle; The Clutch disc has not been inserted at defined right direction; -Right disc thickness has not been achieved at revised products and/or products to which new friction facing has been inserted -The disc is out of nominal thickness(free disc thickness) dimensions; -Flatness of the discs has been excessively disordered.
Clutch Fails to Disengage	Clutch disc thickness is not appropriate	-During installation of the Clutch disc to the vehicle, the transmisison input shaft has touched and/or damaged to the disc spline; -The transmission input shaft or end of it has been excessively worn; -The flywheel pilot bearing has been stucked or has completed its lifetime; ↳Solution; Our recommandation is to replace the bearing at every Clutch replacement; -While installing Clutch disc to the vehicle, centering apparatus have not been used; The transmission input shaft and disc spline dimensions of the vehicle are not appropriate for each other (shrink fit)

TROUBLESHOOTING CLUTCH SYSTEM MALFUNCTION

MALFUNCTION	DIAGNOSIS	REASON
Clutch Fails to Disengage	Clutch disc friction facing quality is not appropriate	-Not appropriate Clutch disc has been installed on the vehicle, ↳Please order ''Power Serial'' products for excavation serial vehicle -There are comfort purpose high quality products in our catalogue especially for bus group vehicles; -In case the friction facing quality in the selected products is not appropriate, resin melting occurs at the friction facings and heat resistance decreases. This may cause to that the Clutch system fails to disengage.
Clutch Fails to Disengage	Clutch disc is not mounted in right direction	-Not appropriate product has been selected fort he vehicle; -Demounting the products from the vehicle without paying attention to their position; -Not paying attention to the warnings in Donmez catalogue; -Not paying attention to the directions or warnings on the Clutch disc. (as seen in the image)
Clutch Fails to Disengage	Clutch Master / Slave Cylinder problem in the vehicle	-Master cylinder has not been transmitting the hydraulic to the system sufficiently; ↳ Master cylinder should be controlled at every Clutch replacement and if possible it should be replaced with a new one -There are losses or stretching at the center pipes of the Clutch; -Inappropriate hydroulic oil has been used and/or a oil that completed its lifetime has been used; -The slave cylinder has not been transmitting sufficient power and movement to the Clutch release fork; ↳The slave cylinder repair tools has been damaged; ↳There are leakages at the slave cylinder system; ↳The slave cylinder Radius arm is not appropriate to the dimensionse. -After the Clutch replacement, the system's air has not been deflated.

TROUBLESHOOTING CLUTCH SYSTEM MALFUNCTION

MALFUNCTION	DIAGNOSIS	REASON
Clutch Fails to Disengage	Clutch fork end and/or balls are worn	-Clutch operating in a partially disengaged condition; -After gear shift, keeping the foot on the Clutch pedal; -The foreign matters that will maket he system operation harder haas entered to the Clutch system; -The Clutch fork must be controlled at every Clutch replacement and if necessary, it should be replaced; -It should be observed that movement of the Clutch release fork is appropriate enough ↳The fork shaft has not been bent or worn; ↳Bushing and bearing housings should not be worn; -The release end balls should be according to the operation conditions.
Clutch Fails to Disengage	Transmission input shaft cover is bent or disordered	-Inappropriate Clutch release bearing has been used; -Inappropriate grease has been used or any grease has not been used; -The Clutch fork has not been operating freely; -The Clutch bearing has been scattered; -Damaged and worn transmission input shaft covers should not be used.
Clutch Fails to Disengage	Flywheel pilot bearing is bent or damaged and/or tight rotation	-It has completed its lifetime; -There are excessive dust and foreign matter in the system; -Operation under excessive heat effect; -The transmission input shaft end has been worn.
Clutch Fails to Disengage	Misuse of Drivers	-Clutch operating in a partially diengaged condition; -After gera shift, keeping the foot on the Clutch pedal; -Using the vehicle at inappropriate harsh conditions; -Driving the vehicle at incorrect engine speed rates and incorrect gear levels.

TROUBLESHOOTING CLUTCH SYSTEM MALFUNCTION

MALFUNCTION	DIAGNOSIS	REASON
Clutch Judder	Using inappropriate Clutch disc and/or cover assembly for the vehicle	Please request the products recommended in Dönmez Debriyaj catalogue.
Clutch Judder	Unparallelism of the Clutch cover assembly fingers	-The fingertip has been ebnt during installation of the Clutch cover assembly to the vehicle; -The fingertip heights are not equal at the lever type cover assemblies; ↳Donmez Clutch lever type clutches are adjusted according to operation conditions of the vehicle; -Foreign matter has entered or stucked between cover assembly fingers; -The Clutch cover has bent and/or damaged during transportation or installation on vehicle.
Clutch Judder	Flatness of the pressure plate is not appropriate	-The pressure plate has been exposed to excessive heat; -The pressure plate has been machined or repaired inappropriately; -It has been used for a longer period than its lifetime.
Clutch Judder	High unparallelism on pressure plate	-The Clutch pressure plate has been distorted due to excessive heat; The Clutch cover assembly has not been placed appropriately on flywheel; -The Clutch cover may be bent; -It may be dropped during delivey or installation.
Clutch Judder	Clutch is not mounted properly on flywheel	-Some Clutch cover assemblies are centered from outer diameter of the flywheel. The diameter should be absolutely at the dimensions shown in the technical data and it should be checked that the Clutch cover is placed to the diameter accurately; -Some Clutch cover assemblies are centered to the flywheel with pins. Bent and inappropriate pins will adversely effect operation of the Clutch cover assembly; -While tightening the Clutch cover assembly to the flywheel, all bolts should be tightened in sequential order and with equal torque values; -The Clutch cover assembly and disc should be at the axis of cranks-haft and transmission input shaft.

TROUBLESHOOTING CLUTCH SYSTEM MALFUNCTION

MALFUNCTION	DIAGNOSIS	REASON
Clutch Judder	Decrease of clamp load on the Clutch cover assembly	-A Clutch disc has inappropriate thickness is used with Clutch cover assembly; -The vehicles using pot type flywheel, the flywheel depth is not appropriate; -Using a Clutch system that has completed its lifetime.
Clutch Judder	Flatness of the Clutch disc is inappropriate	-Due to transportation conditions damaged or bent Clutch sets or disc usage; -During installation of the Clutch system to the vehicle, transmission weight has been carried by the disc spline; -Usage of revised products.
Clutch Judder	Clutch friction facing quality is not appropriate	-Inappropriate Clutch disc has been installed on the vehicle; ↳Please request ''Power Serial'' products for excavation serial vehicles. -There are comfort purpose high quality products in our catalogue especially for bus group vehicles; -In case the friction facing quality in the selected product is not appropriate, resin melting occurs at the friction facings and/or heat resistance decreases. This may cause to that the Clutch system will fail to disengage.
Clutch Judder	Lubrication and/or burn of the Clutch disc	-There should not be any leakages in the system and while making Clutch system replacement, the leakages should be prevented; -The Clutch disc should not be touched with oily hands; ↳Protective equipments such as gloves,etc. Should be used; -Before installation of the Clutch disc, transmission input shaft splines have been excessively lubricated; -Clutch operating in a partially disengaged conditions; -After gear shift, keeping the foot on the Clutch pedal.

TROUBLESHOOTING CLUTCH SYSTEM MALFUNCTION

MALFUNCTION	DIAGNOSIS	REASON
Clutch Judder	Flywheel surface and flatness are disordered	-The Clutch disc that has completed its lifetime has been used; -As vehicle usage errors will cause to excessive heating of the system,the flywheel surface may be distorted; -As Clutch slip in the system will cause to excessive heating of the system, the flywheel surfaces will be distorted and system operating will be judder.
Clutch Judder	Clutch fork is worn	-Clutch operating in a partially disengaged condition; -After gear shift, keeping the foot on the Clutch pedal; ↳Foreign matter that will make operation of the system harder has entered to the system; ↳The Clutch fork has been used for a longer period than its lifetime; ↳The Clutch fork should be controlled at every Clutch replacement and id needed, it should be replaced.
Clutch Judder	Worn and/or misaligned transmission input shaft	-The transmission input shaft that has completed its lifetime; -The leakages in the engine and/or transmission housing; -Vehicle usage errors; -Wearing of the flywheel pilot and/or end bearing.
Clutch Judder	Mounting brackets of engine or transmission are broken and/or disconnected	-The fittings that have completed their lifetime have been used; -There are loosening at the studs and/or bolts that connects the mounting brackets; -Vehicle usage errors.
Clutch Judder	Vibratory operation of the system in general	-The vibrations resulted from the fuel system on the engine; -Engine revision lifetime have been completed and/or about to be completed; -Inappropriate modifications on the vehicle technical data; -Vehicle usage errors.

TROUBLESHOOTING CLUTCH SYSTEM MALFUNCTION

MALFUNCTION	DIAGNOSIS	REASON
Clutch Judder	Misuse of drivers	-Clutch operating in a partially disengaged condition -After gear shift, keeping the foot on the Clutch pedal; -Using the vehicle under inappropriate harsh conditions; -Using of the vehicle in inappropriate gear kevels and inapproriate engine speed.
Clutch Slip	Using inappropriate Clutch cover assembly and/or disc for the vehicle	-The product is not selected according to the vehicle type; ↳The product accuracy of the products corresponding to Donmez Clutch should be confirmed from vehicle chassis number; -In general, same brand products (Clutch cover assembly,disc and bearing) have not been used.
Clutch Slip	Clutch is not mounted properly on flywheel	-When tightening the Clutch cover assembly to the flywheel, the bolts should be tightened in sequential order and cover assembly should be placed at the flywheel appropriately; -There should not be residuals that may prevent equal tightening on the surfaces that Clutch cover assembly will place on the flywheel; -The depth that disc and Clutch cover assembly are placed at pot type flywheels should be in conformity with catalogue values.
Clutch Slip	Diaphragm spring's finger height is not appropriate	-The finger height adjustment should be done appropriately in the lever type Clutch cover assemblies; -The adjustment has been corrupted by damaging to Clutch cover on Clutch cover assemblies with diaphragm spring; -The pressure plate's thickness may have been corrupted by machining; -Using friction facing that its thickness is not appropriate; The depth that disc and Clutch cover assembly is placed in pot type flywheel should be compatible with the catalogue values.

TROUBLESHOOTING CLUTCH SYSTEM MALFUNCTION

MALFUNCTION	DIAGNOSIS	REASON
Clutch Slip	Clutch friction facing quality is not appropriate	-Not appropriate Clutch disc has been installed on the vehicle; ↳Please request special ''Pwer Serial'' products for excavation serial vehicles; -There are comfort purpose high quality products in our catalogue especially for bus group vehicles; -In case the friction facing quality of the selected product is inappropriate, resin melting and/or burning occurs at the friction facing and /or heat resistance decreases. This may cause that the Clutch system will not work properly.
Clutch Slip	Clutch cover assembly and/or disc has been lubricated	-The friction facings are lubricated during installation of the Clutch disc to the vehicle; -The friction facings are touched with greased hands; -The friction facings are lubricated due to the oil leakages from the transmission or engine; -Excessive lubrication application have been done in the system (Excessive grease)
Clutch Slip	Clutch Master/Slave cylinder problem of the vehicle	-The cylinder remains pressed; -The slave cylinder push rod adjustment is disordered; -The master cylinder remains pressed; -The problems in the distributors at pneumatic systems; -The electrical and/or electronic reader system may be pronlematic.
Clutch Slip	Transmission input shaft cover is bent or disordered	-Operation of the Clutch release bearing on the transmission input shaft cover with inappropriate grease; -The Clutch release bearing has not been greased at appropriate amount and/or has not been greased; -Using Clutch release bearing that has completed its lifetime; -The axial misalignments of the engine and transmission.

TROUBLESHOOTING CLUTCH SYSTEM MALFUNCTION

MALFUNCTION	DIAGNOSIS	REASON
Clutch Slip	Non-standard modifications on the vehicle	-Usage of tag axle in order to increase the bearing capacity; -Change of computer software in order to increase the engine capacity; -Modifications done on the fuel and air system; -Change of the aerodynamic properties.
Clutch Slip	Misuse of drivers	-Clutch operating in a partially disengaged condition; -After gear shift, keeping the foot on the Clutch pedal; -Using the vehicle under inappropriate harsh conditions; -Using the vehicle in incorrect gear levels and incorrect engine speed rates.
Clutch Makes A Noise (Rattling)	Using inappropriate Clutch cover assembly and/or disc for the vehicle	-The product should be selected according to the vehicle type; -Accuracy of Donmez Clutch productss should be checked from the vehicle chassis number; In general, not using pre-damper spline for comfort purposes and spline disc for high power and torque; In general, not using same brand products (cover assembly, disc and bearing)
Clutch Makes A Noise (Rattling)	Operation noise level of the Clutch is not appropriate	-Installing inappropriate Clutch cover assembly to the vehicle; -Usage of excessively rusted products; -The foreign matters that have entered between Clutch cover assembly release fingers; -The Clutch cover assembly release fingers are excessively worn; The Clutch cover assembly release fingers are not parallel; Excessive unparallelism of pressure plate on disengagement situation; -The Clutch cover assembly is misaligned from centering bore and/or centering pins.

TROUBLESHOOTING CLUTCH SYSTEM MALFUNCTION

MALFUNCTION	DIAGNOSIS	REASON
Clutch Makes A Noise (Rattling)	Flatness of the Clutch disc is not appropriate	-Due to transportation conditions Clutch sets and/or discs have become inappropriate(bent or damaged); -During installation of the Clutch system to the vehicle, transmission weight has been carried by the disc spline; Revised products have been used.
Clutch Makes A Noise (Rattling)	Clutch friction facing quality is not appropriate	-Using inappropriate Clutch disc for the vehicle; ↳Especially for the bus group vehicles, comfort purpose high quality friction facings are in our catalogue.
Clutch Makes A Noise (Rattling)	Lubrication and/or burning of the Clutch dics	-There should not be oil leakages in the system; ↳The oil leakages should be prevented while making Clutch replacement; -The Clutch disc should not be touched with oily hands; ↳Protective materials such as gloves should be used. -Before installation of the Clutch disc, transmission input shaft splines should not been excessively lubricated; -Clutch operating in a partially disengaged condition; After gear shift, keeping the foot on the Clutch pedal.
Clutch Makes A Noise (Rattling)	Clutch Disc assembly has been damaged	-The hub ring(pre-damper) in the Clutch disc has lost its property; -Fraction and/or crack in the Clutch disc retaining plate; The Clutch disc torsion spring(s) has removed from its socket.
Clutch Makes A Noise (Rattling)	Mounting brackets of engine or transmission are broken and/or disconnected	-The fittings that completed their lifetimes; -Loosening at studs and/or bolts that connects the mounting brackets; Vehicle usage errors.

TROUBLESHOOTING CLUTCH SYSTEM MALFUNCTION

MALFUNCTION	DIAGNOSIS	REASON
Clutch Makes A Noise (Rattling)	Vibratory operation of the system in general	-The vibrations resulted from the fuel system on the engine; -Replacement life of the engine has been completed and/or about to be completed; -Inappropriate modifications on the technical data of the vehicle; -Vehicle usage errors.
Clutch Makes A Noise (Rattling)	Misuse of drivers	-Not paying attention to the Clutch releasing or operating point; -Useing vehicle at incorrect gear levels and incorrect engine speed rates.
Clutch Pedal is Heavy in Operation	Using inapproriate Clutch cover assembly and/or disc for the vehicle	-Product selection should be done according to vehicle type and chassis; -Accuracy of Donmez Clutch products should be checked from the vehicle chassis number; -Not using same brand products(Cover assembly, disc and bearing) in general.
Clutch Pedal is Heavy in Operation	Diaphragm spring fingertips are worn	-Using inappropriate product on the vehicle; -Finger height is not appropriate; -Bearing pedal gaps are out of tolerances; -Compulsions at rotary motions of Clutch bearing(cracked or damaged) -Vehicle usage errors.
Clutch Pedal is Heavy in Operation	Clutch is not mounted properly on flywheel	-While tightening the Clutch cover assembly to the flywheel, all bolts are to be tightened in sequential order and with equal torque values; -At the surfaces that cover assembly is placed at the flywheel, there should not be residuals that will prevent equal tightening; -The depth that disc and cover assembly are placed at pot type flywheel should be in conformity with the values in the catalogue.

TROUBLESHOOTING CLUTCH SYSTEM MALFUNCTION

MALFUNCTION	DIAGNOSIS	REASON
Clutch Pedal is Heavy in Operation	Clutch release bearing type is not appropriate	-Release bearing assembly is not selected according to Clutch cover assembly; -Inappropriate repairs or modifications.
Clutch Pedal is Heavy in Operation	Existence of a foreign matter in the system	-Inappropriate clearance at the bottom of the covers; -The cover assembly and disc residuals have not been cleaned from the cover when new Clutch is installed; -Appropriate lubrication and oil leakage; -Vehicle usage errors.
Clutch Pedal is Heavy in Operation	Clutch disc has not been installed on the vehicle accurately	-Master cylinder of Clutch is not appropriate; -Air and/oil lines have lost their properties; -Slave cylinder not generate enough release force or movement; The transmission input shaft cover may be worn or bent; The Clutch fork is worn; -The Clutch fork has not been operating freely in its place.
Clutch Pedal is Heavy in Operation	Failures on other components in release system	The installation should be carried out by reviewing the directions on the disc or information in their catalogues.

Donmez Clutch, which has 100 % of domestic capital strength, transfers the reason of occurrence of some difficulties to our valuable customers in the defect catalog. It develops all of its products in Research and Development (R & D) department that it established within. Donmez Clutch moves forward by getting stronger day by day in automotive market with environmentally-conscious understanding.

Product and Defect Identification Guide is gathered under 5 possible main complaint titles about clutch system.

1. Clutch Fails to Disengage
2. Clutch Judder
3. Clutch Slip
4. Rattling (Clutch Makes a Noise)
5. Clutch Pedal is Heavy in Operation

This guide is created to be helpful to you. In the entrance part, there are important mounting information. If you follow the advices before mounting, our product will outlast and it will be more comfortable.

The products of Donmez Clutch are delivered to you by making 100 % quality controls and as ready to be installed to vehicles in latest technology production facilities.

Thank you for preferring us.

1.1 The Advices for New Clutch Mounting

The appropriate product considering the vehicle should be chosen.
The system should be cleaned and the dust in the system that occurs during the cleaning process should not be breathed.

Replacing clutch cover assembly, clutch disc or release bearing may not be sufficient for solving the problem on the vehicle that its clutch kit will be changed. Therefore, it must be controlled that the other parts working properly. (master/slave cylinders, transmission mounting brackets, fork etc.)

The surfaces of pressure plate and flywheel connecting with friction facings should be clean and should be purified from oil,

If the flywheel will not be changed, be sure of the flatness of surface is appropriate.

Because the products of Dönmez are manufactured according to the working conditions of vehicle, any operation should not be made definitely. (Balancing, changing the finger heights etc.)

While tightening the flywheel in the place of it, it should be tightened in appropriate position and the bolts must be tightened in sequential order and with right torque values.

Friction facings should be kept out of oil definitely. Be sure that clutch disc and bearing are at the same line.

Clutch cover assembly bolts should be tighten in sequential order, be sure about appropriate positions of clutch cover assembly to the bearing. During the mounting process, be sure about transmission weight has not been carried by the disc spline.

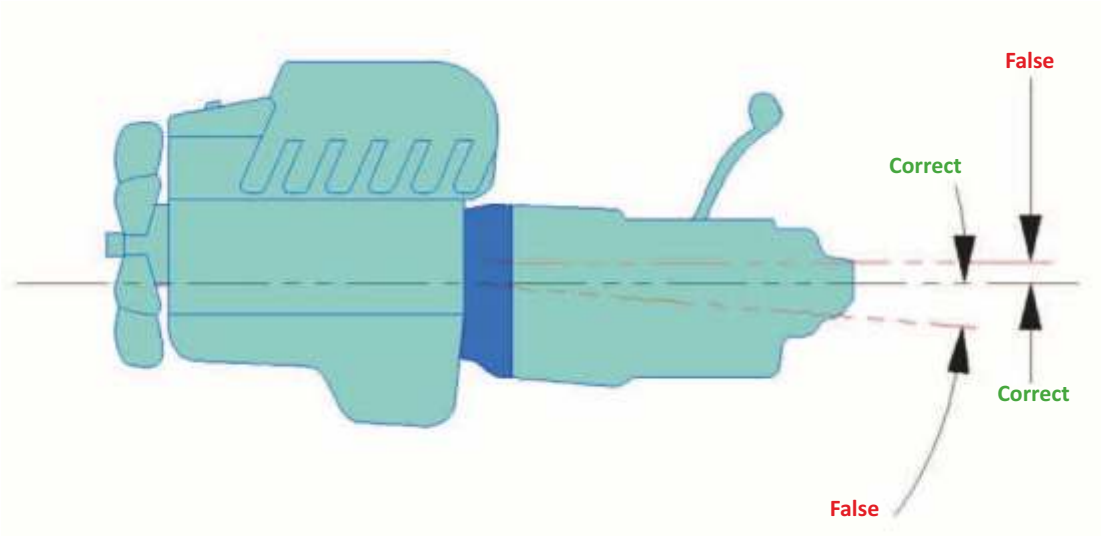
When the cover of clutch is tighten to its place, it should be controlled that the release fingers are at the same level (the difference between them max 1 mm with caliper gage), and at 90 degrees according to the working axis (+,-5°)

The mounting operation should be completed by making all connections.

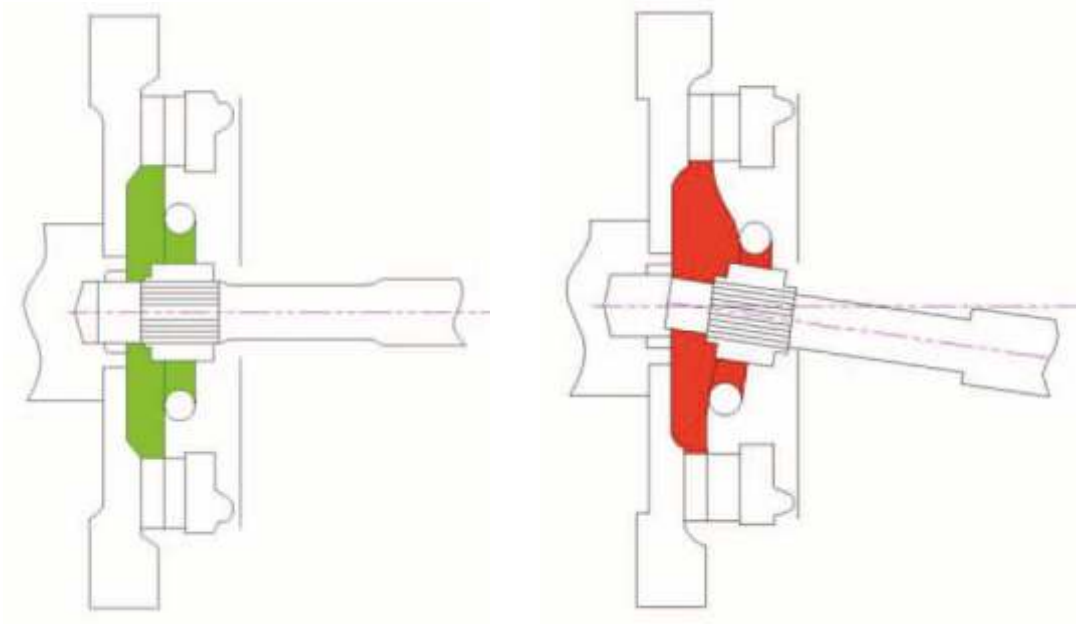
Close the covers of housing after mounting operation.

The mounting operation should be ended by making pedal adjustments of the system and air bleeding transactions.

In electromechanical systems, new identification should be made with appropriate device.



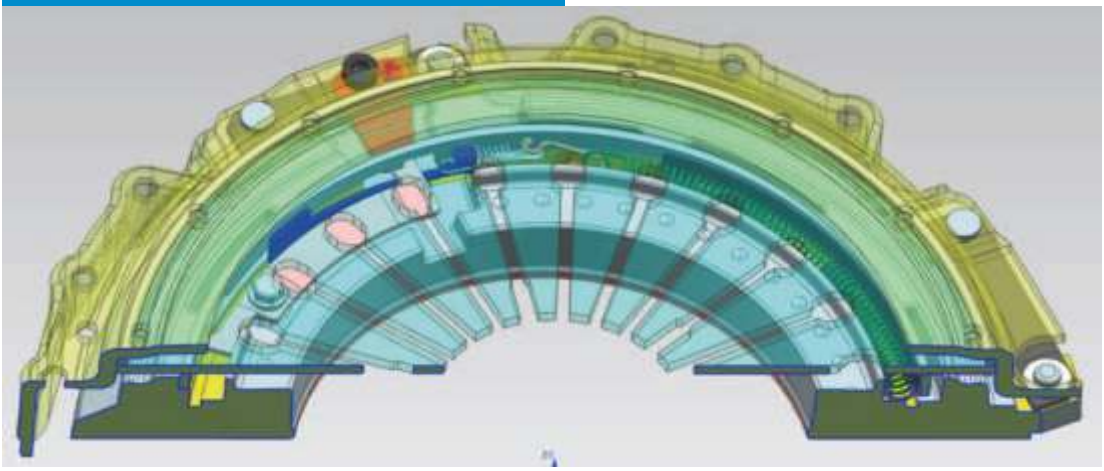
All parts of clutch system should be at the same line as picture above.



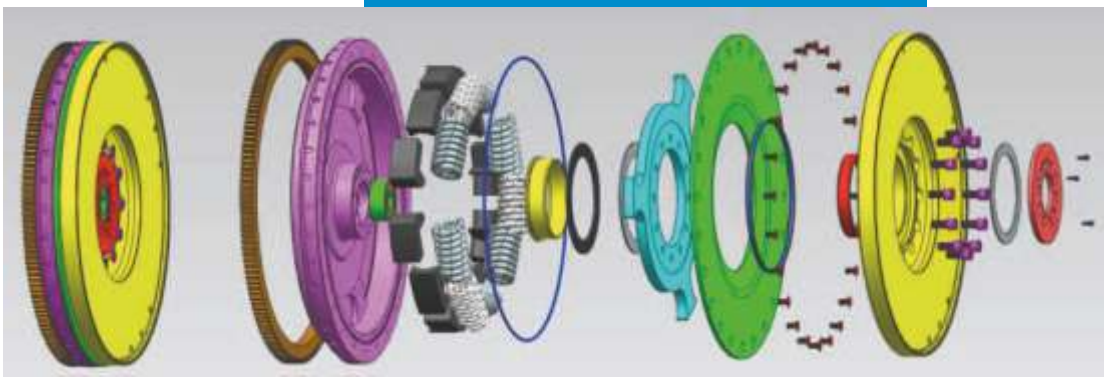
Correct False

The working place and wrong positioning of clutch disc is indicated schematically in the picture above.

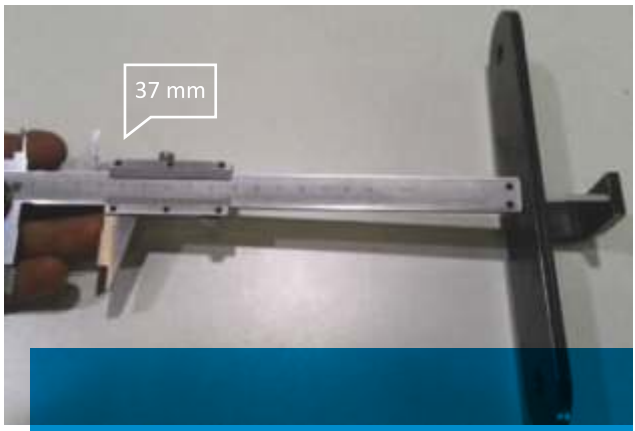
Self-adjusting (x-tend) clutch sets produced for Mercedes Travego and Actros (Euro 6) vehicles provide a longer lifetime in comparison to normal clutches and ensure consistent clutch pedal force through the lifetime, providing ease of use. As seen in the image these products work synchronized with the adjustment mechanism and therefore the whole set must be changed in case of replacement.



In case the clutch must be removed from the vehicle for any reason, the bolt indicated with the arrow should be loosened 2 tours before untightening bolts, and after the clutch is tightened in place this bolt should be re-tightened with 35-43 Nm torque.
Do not completely unscrew the stop bolt!



The image illustrates the exploded view of a Dual Mass Flywheel.



Today the number of semi-automatic vehicles are in demand. Heavy commercial group also uses this type of vehicles. Especially in Axor and Actros vehicles in Mercedes group the clutch fork distance should be adjusted to 37 mm using the adjustment apparatus below after any clutch replacement. Clutch judder or clutch fail to disengage problems may occur if this adjustment have done inappropriately

2. CLUTCH FAILS TO DISENGAGE

The reason for the Clutch Fails to Disengage can be identified as a decrease of amount of release. Clutches produced by Dönmez Debriyaj are checked 100% before delivery.

The clutch test device and sample measurements for Mercedes Actros twin set can be seen in the images and the table.

The clutch fails to disengage if the parameter showing the clutch release value (column pressure plate lift) on the measurement table becomes decreased due to reasons detailed below.

(The image on the clutch test device is only for demonstration purposes.)

MEASURE DATE	MEASURE HOUR	PRODUCT NUMBER	MEASURE NUMBER	OPERATING FORCE (daN)	RELEASE FORCE (daN)	PRESSURE PLATE LIFT (mm)	SECONDARY PRESSURE PLATE LIFT (mm)	PRESSURE PLATE PARELLELISM (mm)	SECONDARY PRESSURE PLATE PARELLELISM (mm)	FINGER HEIGHT (mm)	RUNOUT	RESULT
				[2250-0]	[0-700]	[1.80-0.00]	[3.60-0.00]	[0.00-0.25]	[0.00-0.25]	[96.00-100.00]	[0.00-0.80]	
12.01.2016	05:24:55	121 501 Actros Twin plate clutch kit	1	2593	676	2.05	3.86	0.12	0.2	98.53	0.17	OK
12.01.2016	05:27:01	121 501 Actros Twin plate clutch kit	2	2672	699	2.03	3.93	0.02	0.14	98.1	0.17	OK
12.01.2016	05:29:04	121 501 Actros Twin plate clutch kit	3	2658	685	2.08	3.88	0.05	0.18	98.07	0.19	OK
12.01.2016	05:31:16	121 501 Actros Twin plate clutch kit	4	2651	694	2.21	3.9	0.1	0.15	97.96	0.19	OK
12.01.2016	05:46:11	121 501 Actros Twin plate clutch kit	5	2677	695	2.07	3.95	0.1	0.18	97.87	0.16	OK
12.01.2016	05:48:20	121 501 Actros Twin plate clutch kit	6	2667	690	2.04	3.89	0.1	0.2	98.17	0.17	OK
12.01.2016	05:58:23	121 501 Actros Twin plate clutch kit	7	2674	689	2.25	3.85	0.05	0.15	98.3	0.17	OK

2.1 Strap plates (tangential leaf springs) cannot pull the clutch pressure plate

Strap plates are another important factor in clutch release. When clutch release bearing brings the diaphragm spring into the release position the clutch plate should be moved away from the disc with suitable release values.
As seen in the image, there are deformations in the form of strap plates.

Causes;

a. The part may have been dropped and/or damaged during delivery or mounting on the vehicle;
b. During mounting clutch bolts should be tightened in sequential order and at correct torque levels;
c. Correct part should be installed on the vehicle. Please refer to Dönmez catalogue to order the correct part corresponding to your vehicle;
d. Driving the vehicle at incorrect engine speed rates and incorrect gear levels;

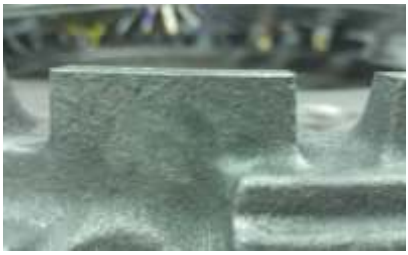
The causes listed above are excluded from Dönmez Debriyaj warranty coverage;

2.2 Wear on pressure plate fulcrum points

This issue cannot be easily identified without measurement on clutch test device.

As seen in the image, pressure plate fulcrum points work as a lever with the diaphragm spring. Therefore these points should not be worn during operation.

Causes;

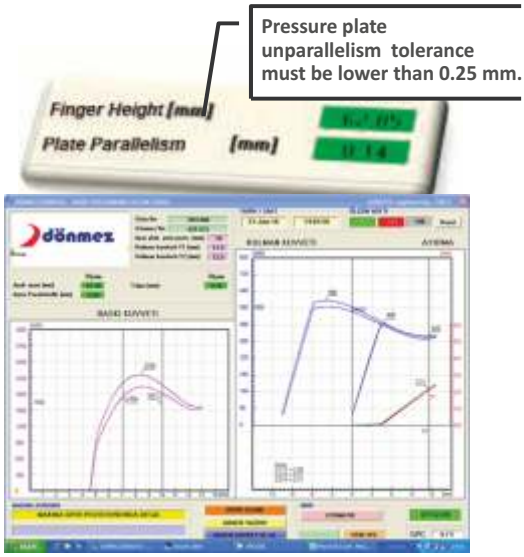


a. Excessive balancing in the clutch system;
   All Donmez Clutch products are controlled on 100% automatic balance benches and adjusted to max. 10 gr imbalance. Please strictly avoid to do any further balancing on Donmez Clutch products.
b. The clutch is not seated at a co-centric axis with the flywheel and/flywheel pins;
c. Excessive vibration in the system;
   i.Engine and/or transmission lugs are broken or damaged;
   ii.Fuel system and motor compressions work improperly;
d. User faults;
   iii.Habit of operating the vehicle at high gear level (s) and low engine speed.

2.3 High unparallelism on pressure plate

The clutch plate should move perpendicularly from friction surface during all releasing cycles

This important technical aspect is checked 100% with the test devices in our company before delivery.



Causes;

a. Clutch plate can be deformed due to excessive heat;
b. Clutch plate is dispositioned on the flywheel;
c. Clutch cover may be deformed
d. The part can be dropped during delivery or mounting.

2.4 Fulcrum Ring is Broken

1 or 2 pieces of fulcrum ring is used according to clutch type to allow movement of the clutch diaphragm spring.

For the clutch to be able to release this ring must not be broken or worn.

A broken fulcrum ring can be seen in the image.

Causes;

a. Excessive vibration in the system
   i.Engine and/or transmission lugs are broken or damaged;
   ii.Fuel system and engine compressions work improperly
b. User faults
   i.Habit of operating the vehicle at high gear levels and low engine speed.
c. Clutch release bearing course is overextended, diaphragm spring moves to far.

2.5 Clutch diaphragm spring is broken;

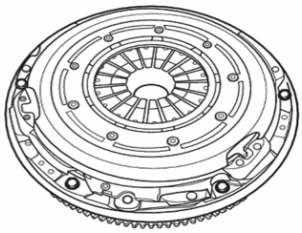
In case the clutch diaphragm spring is broken as the image the clutch fails to disengage . Typically produced from high quality steel, this part does not break based on design and production reasons.

Causes;

a. Because of excessive release bearing movement, bearing is running with over contacted to the diaphragm spring at engagement position.
b. When release bearing bleed grease, excessive heat forms at the fingertip of diaphragm spring. This heat may cause the part to break;
c. After gear shift, keeping the foot on the clutch pedal,
d. Clutch operating in a partially disengaged condition

2.6 Clutch is not mounted properly on flywheel

Due to clutch cover assembly act on the flywheel, it must be seated properly and straight. If the seat is disrupted system balance will be lost and significant problems can be caused in the vehicle.

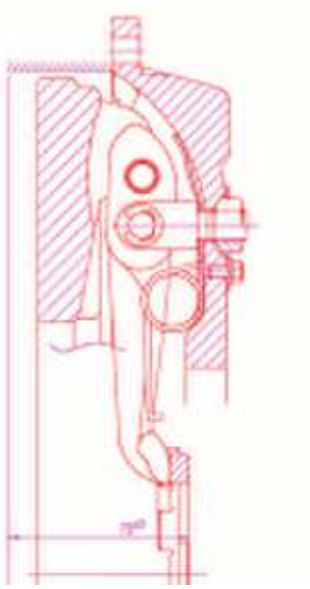


Causes;

a. Some clutch cover assemblies are centred on the outer diameter of the flywheel. This diameter value should be accordant with the rated measurements and it should be ensured that the clutch cover assembly properly seats in this diameter.
b. Some clutch cover assemblies are centred on the flywheel in reference to the pins. Bent or non-conforming pins will have an adverse effect on clutch action.
c. When tightening clutch cover assembly on the flywheel all bolts should be tightened in sequential order and with equal torque values.
d. It should be ensured that clutch cover assembly and disc are on the axis of crankshaft and transmission input shaft.

2.7 Diaphram spring's finger heights are not appropriate

The finger heights on the clutch cover assemblies are adjusted in our company in accordance with the clutch cover assembly type and your clutch cover assembly that you prefer has already been adjusted in accordance with operation conditions of the system.

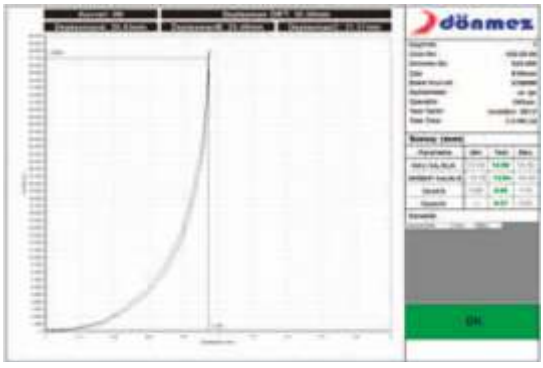


Causes;

a. Trying to change the finger heights,
b. The right product has not been installed on the vehicles, Not paying attention to the depth of pot type flywheels,
c. Using disc at inappropriate friction facing thickness under
d. the clutch cover assembly.

2.8 Clutch Disc thickness is not appropriate

The clutch system operates with clutch cover assembly and disc. Therefore, thickness of the clutch disc that using with clutch cover assembly directly effects operation performance of the system.



Causes;

a. Not appropriate disc has been installed on the vehicle, 1 mm (max.)
b. The clutch disc has not been inserted at defined right direction,
c. Right disc thickness has not been achieved at revised products and/or old products to which new friction facing has been inserted,
d. The disc is out of nominal thickness (free disc thickness) dimensions,
e. Flatness of the discs has been excessively disordered.

2.9 Disc spline (hub) dimensions are not accurate

The clutch disc should freely move on the transmission input shaft of the vehicle. Otherwise, the clutch disc will not work properly even if the clutch cover plate has completed the releasing procedure.

Causes;

a. During installation of the clutch disc to the vehicle, the transmission input shaft has touched and/or damaged to the disc spline,

b. The transmission input shaft or end of it has been excessively worn,

c. The flywheel pilot bearing has been stucked or has completed its lifetime,
Solution;
Our recommendation is to replace the bearing at every clutch replacement.

d. While installing clutch disc to the vehicle, centering apparatus have not been used,

e. The transmission input shaft and disc spline dimensions of the vehicle are not appropriate for each other (shrink fit).

2.10 Clutch Disc friction facing quality is not appropriate

The clutch disc lifetime, comfort and performance is directly proportional with the friction facing quality. The friction facing quality should be selected according to the vehicle, road conditions, vehicle equipments and the job to be done. Please order the product corresponding to your vehicle in Dönmez Debriyaj catalogue.

Causes;

a. Not appropriate clutch disc has been installed on the vehicle,
Please order ''Power Serial'' products for excavation serial vehicles.

b. There are comfort purpose high quality products in our catalogue especially for bus group vehicles.

c. In case the friction facing quality in the selected product is not appropriate, resin melting occurs at the friction facings and heat resistance decreases. This may cause to that the clutch system fails to disengage.

2.11 Clutch Disc is not mounted in right direction

In case of mounting the disc in wrong direction, this will cause to fails to disengage

Causes;

a. Not appropriate product has been selected for the vehicle,
b. Demounting the products from the vehicle without paying attention to their position,
c. Not paying attention to the warnings in the Dönmez catalogue,
d. Not paying attention to the directions or warnings on the clutch disc. (as seen in the image)

2.12 Clutch Master/Slave Cylinder problem in the vehicle

Master/Slave cylinders of the clutch are the power transmission tools that are used for moving the clutch slave system with the help of hydraulic or pneumatic. These are critical parts for lifetime and performance of the clutch system. It is required to be controlled at every clutch replacement. It is one of the main causes of fail to disengage resulted from the vehicle.

Although the clutch pedal is pressed, the clutch pedal may not transmit enough movement for clutch kit to disengage.

Causes;

a. Master cylinder has not been transmitting the hydraulic to the system sufficiently, Master cylinder should be controlled at every clutch replacement and if possible it should be replaced with a new one.
b. There are losses or stretching at the center pipes of the clutch,
c. Inappropriate hydraulic oil has been used and/or a oil that completed its lifetime has been used,
d. The slave cylinder has not been transmitting sufficient power and movement to the clutch release fork,
The slave cylinder repair tools has been damaged,
There are leakages at the slave cylinder system,
The slave cylinder radius arm is not appropriate to the dimensions
After the clutch replacement, the system's air has not been deflated.

2.13 Clutch fork end and/or balls are worn

The clutch fork or balls are the parts that transmit the release force and movement to the clutch release bearing.

The axial misalignment and wearing at the clutch fork will cause to force/movement loss. Therefore, the clutch release bearing may not apply enough and equal force to the release fingers.

Causes;

a. Clutch operating in a partially disengaged condition,
b. After gear shift, keeping the foot on the clutch pedal,
c. The foreign matters that will make the system operation harder has entered to the clutch system,
d. The clutch fork that has been used for a longer period than its lifetime,
e. The clutch fork must be controlled at every clutch replacement and if necessary, it should be replaced,
f. It should be observed that movement of the clutch release fork is appropriate enough The fork shaft has not been bent or worn Bushing and bearing housings should not be worn,
The release end balls should be according to the operation conditions.

2.14 Transmission input shaft cover is bent or disordered

It is the part that make guidance to movement of the clutch bearing. It should be on the same axis with the transmission input shaft.

Causes;

a. Inappropriate clutch release bearing has been used,
b. Inappropriate grease has been used or any grease has not been used,
c. The clutch fork has not been operating freely,
d. The clutch bearing has been scattered,
e. Damaged and worn transmission input shaft covers should not be used.

2.15 Flywheel pilot bearing is bent or damaged and/or tight rotation

The bearing located at the flywheel center allow for operation of the system at its axis by housing the transmission input shaft. It is one of the important parts that are required to be replaced at every clutch system replacement.

Causes;

a. It has completed its lifetime,
b. There are excessive dust and foreign matter in the system,
c. Operation under excessive heat effect,
d. The transmission input shaft end has been worn.

2.16 Misuse of drivers

Causes;

a. Clutch operating in a partially disengaged condition,
b. After gear shift, keeping the foot on the clutch pedal,
c. Using the vehicle at inappropriate harsh conditions,
d. Driving the vehicle at incorrect engine speed rates and incorrect gear levels;

3. CLUTCH JUDDER

It is defined as vibratory and uncomfortable movement transmission during operation of the clutch system.

In order to achive that technical property is at desired levels, the clutch discs and cover assemblies produced in Dönmez are taken under warranty by making 100% control with the devices in our company.


3-A

3-B

It is known that the clutch judder problem in the clutch system is generally resulted from the clutch discs. Before inserting the clutch discs into the vehicles, the technical problems that cause to complaint of judder are as follows:

- The freemovement (seen in 3-A image free rotational motion without runout) should be maximum 1 mm.
- The disc assembly flexibility (seen in 3-B image disc flexure device) is measured with our test device.

By making 100% controls with these test machines, we deliver new Dönmez Debriyaj products to our valuable customers.

3.1 Using inappropriate clutch disc and/or cover assembly for the vehicle

Using inappropriate products may cause to clutch judder problem in the system.

Please request the products recommended in Dönmez Debriyaj catalogue.

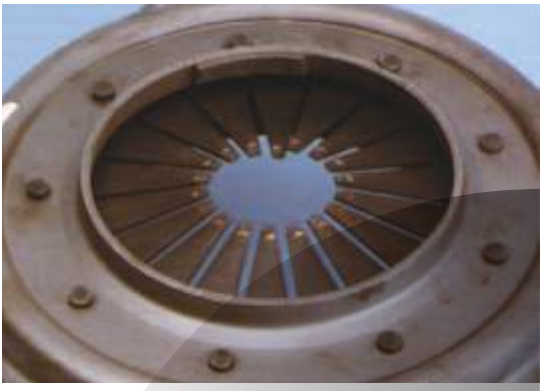
DORUK

OLD CODE	CODE	O.EM. NO	SACHS	VALEO	DIAMETER	DESCRIPTION					
	070 061	16F36-22005-AA			395	OTOKAR DORUK Euro4	CLUTCH DISC	Fixed Hub	Open	6 Damper Springs	1 1/2" - 10
020 833	070 070	16F36-22006-AA			395	OTOKAR DORUK Euro4	CLUTCH COVER ASSEMBLY	Sheet Metal Cover	Diaphragm Spring	Push Type	
	070 332	16F36-22021-HB			395	OTOKAR DORUK Euro4	RELEASE BEARING	Release Beanng Assembly	Push Type		

3.2 Unparallelism of the clutch cover assembly fingers

The clutch cover assembly fingers should be at equal height.

As the clutch bearing will not press the unparallel fingertips equally, complaint of clutch judder will occur in the system.



Causes;

a. The fingertip has been bent during installation of the clutch cover assembly to the vehicle,
b. The fingertip heights are not equal at the lever type cover assemblies,
   Dönmez Debriyaj lever type clutches are adjusted according to operation conditions of the vehicle.
c. Foreign matter has entered or stucked between cover assembly fingers,
d. The clutch cover has bent and/or damaged during transportation or installation on vehicle

3.3 Flatness of the pressure plate is not appropriate

The flatness of pressure plate is produced on various values of concavity. The reason of concavity is to start torque transmitting firstly from outer diameter of clutch disc for operation of system without judder on engagement situation.

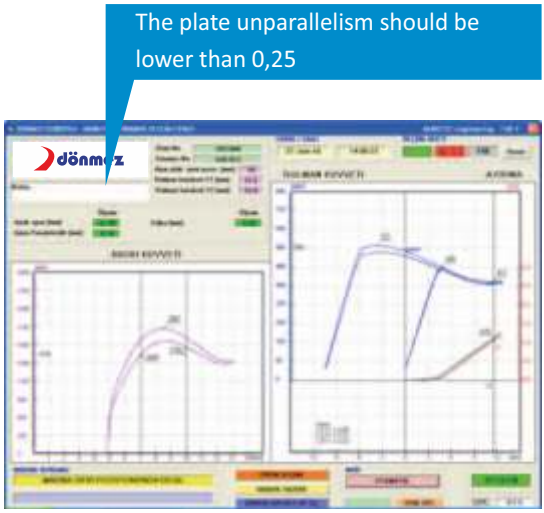
Causes;

a. The pressure plate has been exposed to excessive heat,
b. The pressure plate has been machined or repaired inappropriately,
c. It has been used for a longer period than its lifetime.

3.4 High unparallelism on pressure plate

During clutch disengagement or engagement, the pressure plate should move up from friction surface perpendicularly at every condition.

With the test devices available in our company, this significant technical property is 100% controlled before delivery.



Causes;

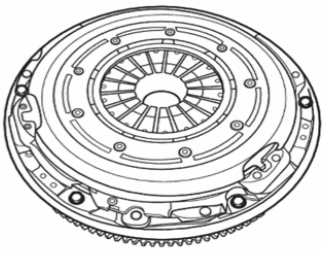
a. The clutch pressure plate has been distorted due to excessive heat,
b. The clutch cover assembly has not been placed appropriately on flywheel,
c. The clutch cover may be bent.
d. It may be dropped during delivery or installation.

3.5 Clutch is not mounted properly on flywheel

As the clutch cover assemblies operate on the flywheel, it should be placed appropriately. If not, this may cause to big problems.

Causes;

a. Some clutch cover assemblies are centered from outer diameter of the flywheel. This diameter should be absolutely at the dimensions shown in the technical data and it should be checked that the clutch cover is placed to the diameter accurately,
b. Some clutch cover assemblies are centered to the flywheel with pins. Bent and inappropriate pins will adversely effect operation of the clutch cover assembly,
c. While tightening the clutch cover assembly to the flywheel, all bolts should be tightened in sequential order and with equal torque values.
d. The clutch cover assembly and disc should be at the axis of crankshaft and transmission input shaft.



3.6 Decrease of clamp load on the clutch cover assembly

The clutch cover assembly presses the clutch disc to the flywheel with a defined axial force. Therefore, the rotational movement coming from the engine is transmitted to the gearbox by clutch disc. This force is named as clutch cover clamp load.

Causes;

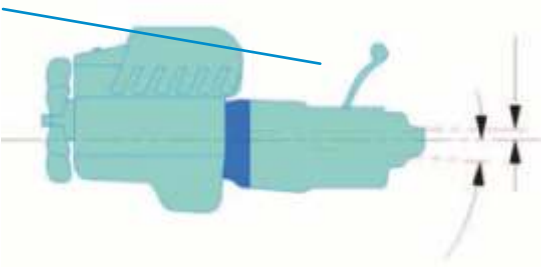
a. A clutch disc has inappropriate thickness is used with clutch cover assembly,
b. The vehicles using pot type flywheel, the flywheel depth is not appropriate,
c. Using a clutch system that has completed its lifetime.

3.7 Flatness of the clutch disc is inappropriate

The friction surfaces of the clutch disc (friction facings) should achieve the flatness under every condition. Our products are sent to our customers after they are 100% controlled.

Causes;

a. Due to transportation conditions damaged or bent clutch sets or discs usage,
b. During installation of the clutch system to the vehicle, transmission weight has been carried by the disc spline,
c. Usage of revised products.



3.8 Clutch friction facing quality is not appropriate

The clutch disc lifetime, comfort and performance are directly proportional with the friction facing quality. The friction facing quality should be selected according to the vehicle, road conditions, vehicle equipments and the job to be done. Please request the product corresponding to your vehicle in Dönmez Debriyaj catalogue.

Causes;

a. Inppropriate clutch disc has been installed on the vehicle, Please request ''Power Serial'' products for excavation serial vehicles.

b. There are comfort purpose high quality products in our catalogue especially for bus group vehicles.

c. In case the friction facing quality in the selected product is not appropriate, resin melting occurs at the friction facings and/or heat resistance decreases. This may cause to that the clutch system will fail to disengage.

3.9 Lubrication and/or burn of the clutch disc

The excessive heat at the clutch system will damage the friction material (friction facing) used on the disc. Excessive heat should not be formed in the system. Likewise, the friction facing surfaces should be dry and not contaminated with grease or any other oil. Before the clutch disc is mounted in its place, transmission input shaft splines should not be excessively lubricated.

Causes;

a. There should not be any leakages in the system and while making clutch system replacement, the leakages should be prevented,

b. The clutch disc should not be touched with oily hands.
Protective equipments such as gloves, etc. should be used,

c. Before installation of the clutch disc, transmission input shaft splines have been excessively lubricated,

d. Clutch operating in a partially disengaged condition,

e. After gear shift, keeping the foot on the clutch pedal,

3.10 Flywheel surface and flatness are disordered

As the clutch system is fixed on the flywheel, reference point of the system is flywheel surface. Therefore, especially flywheel surface and its flatness should not be disordered for smooth operation of the clutch assembly. All flywheels that the production of Donmez Clutch have original equipment product dimensions and produced for accurate and smooth operation of the system.

Causes;

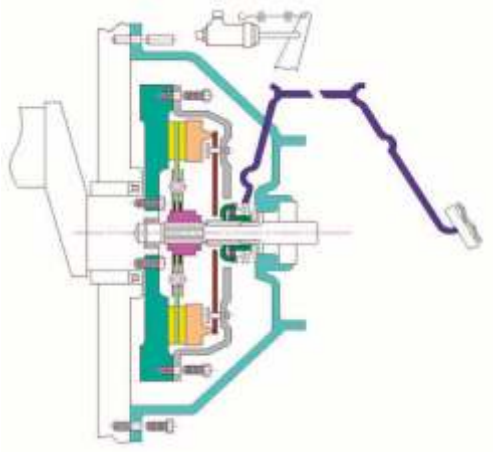
a. The clutch disc that has completed its lifetime has been used,
b. As vehicle usage errors will cause to excessive heating of the system, the flywheel surface may be distorted,
c. As clutch slip in the system will cause to excessive heating of the system, the flywheel surfaces will be distorted and system operating will be judder.

3.11 Clutch fork is worn

For smooth operation of clutch system, the clutch release bearing should push and/or pull the clutch cover assembly release fingers at equal level. In order to this action is to be accurate and complete, there should not be wearing and misalignments at clutch release fork, end, shaft, knob and repair tools. Otherwise, the complaint of juddering may occur in the system.

Causes;

a. Clutch operating in a partially disengaged condition,
b. After gear shift, keeping the foot on the clutch pedal,
c. Foreign matter that will make operation of the system harder has entered to the system,
d. The clutch fork has been used for a longer period than its lifetime,
e. The clutch fork should be controlled at every clutch replacement and if needed, it should be replaced



3.12 Worn and/or misaligned transmission input shaft

The transmission input shaft centers the clutch disc in the system. Therefore, there should not be wearing at its gears and ends. Also as seen in the picture, the transmission input shaft and crank shaft should be on the same axis.

Causes;

a. The transmission input shaft that has completed its lifetime,
b. The leakages in the engine and/or transmission housing,
c. Vehicle usage errors,
d. Wearing of the flywheel pilot and/or end bearing.

3.13 Mounting brackets of Engine or transmission are broken and/or disconnected

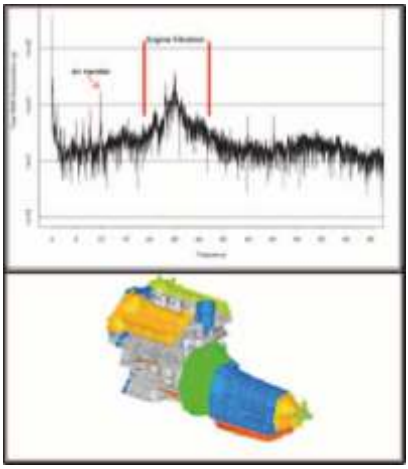
The clutch judder problem may be experienced in the system due to that the engine and transmission connections (mounting brackets) have been damaged. These connections should be controlled in every clutch replacement.

Causes;

a. The fittings that have completed their lifetime have been used,
b. There are loosening at the studs and/or bolts that connects the mounting brackets
c. Vehicle usage errors,

3.14 Vibratory operation of the system in general

If the vibratory operation resulted from engine and powertrain continues after new clutch replacement, this situation may be called as judder.



Causes;

a. The vibrations resulted from the fuel system on the engine,
b. Engine revision lifetime have been completed and/or about to be completed,
c. Inappropriate modifications on the vehicle technical data,
d. Vehicle usage errors

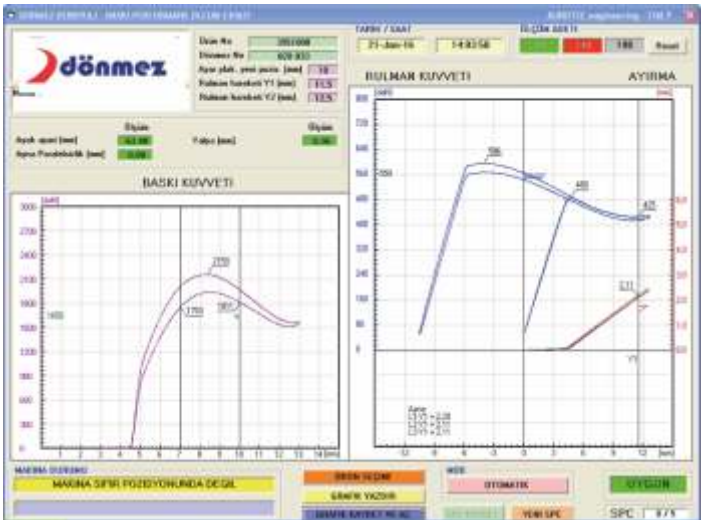
3.15 Vibratory operation of the system in general

Lifetime and performance of new Donmez Clutch products may be adversely affected from usage of wrong habits. The complaint of judder may occur after this situation continues a specific period.

Causes;

a. Clutch operating in a partially disengaged condition,
b. After gear shift, keeping the foot on the clutch pedal,
c. Using the vehicle under inappropriate harsh conditions,
d. Use of the vehicle in inappropriate gear levels and inappropriate engine speed

Duty of the clutch is to transmit the rotary motion from the engine to the transmission box without any loss. It is called as slipping that there is not an increase at the vehicle acceleration although engine speed has been increase when there are losses. In order to that there is no slipping complaint in our products, our clutch cover assemblies and discs are subjected to 100% control with measurement devices in our company. Especially the compression force (clamp load) of the clutch cover assembly for compressing the clutch disc to the flywheel is the most important factor slipping complaint. Therefore, we take this force under warranty with below performance test.



4.1 Using inappropriate clutch cover assembly and/or disc for the vehicle

Using inappropriate products for your vehicle may cause to the complaint of slipping.
Please request the products that are recommended in Dönmez Debriyaj catalogue.

Causes;

a. The product is not selected according to the vehicle type.
   i. The product accuracy of the products corresponding to Dönmez Debriyaj should be confirmed from vehicle chassis number,

b. In general, same brand products (clutch cover assembly, disc and bearing) have not been used

4.2 Clutch is not mounted properly on flywheel

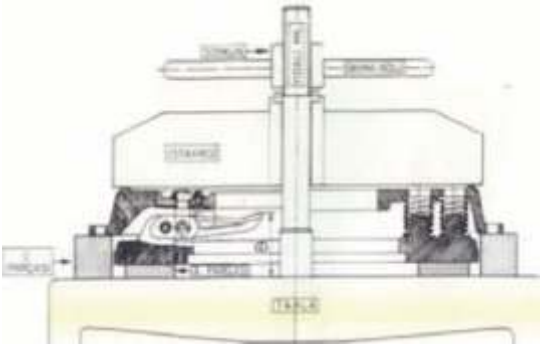
Along with that clutch cover assemblies vary according to the designs, some clutch cover assemblies are centered to the flywheel from outer diameter and some of them are centered with pin. Therefore, it should be controlled that they should be installed on the flywheel from centering and/or reference points at right position.

Causes;

a. When tightening the clutch cover assembly to the flywheel, the bolts should be tightened in sequential order and the cover assembly should be placed at the flywheel appropriately,
b. There should not be residuals that may prevent equal tightening on the surfaces that clutch cover assembly will place on the flywheel,
c. The depth that disc and clutch cover assembly are placed at pot type flywheels should be in conformity with catalogue values.

4.3 Diaphragm spring's finger height is not appropriate

If the clutch cover assembly release fingers are not at their places, the clutch cover assembly either may not release or slip. Therefore, the fingertips should operate as pressing the bearing in the diaphragm spring clutch cover assemblies and the fingertips should operate as pressing the bearing in the lever type clutch cover assemblies.



Causes;

a. The finger height adjustment should be done appropriately in the lever type clutch cover assemblies,
b. The adjustment has been corrupted by damaging to cluch cover on clutch cover assemblies with diaphragm spring.
c. The pressure plate's thickness may have been corrupted by machining.
d. Using friction facing that its thickness is not appropriate
e. The depth that disc and clutch cover assembly is placed in pot type flywheel should be compatible with the catalogue values

4.4 Clutch friction facing quality is not appropriate

The clutch disc lifetime, comfort and performance is directly proportional to the friction facing quality. The friction facing quality should be selected according to road conditions, vehicle and job. Please request the product corresponding to Dönmez Debriyaj catalogue.

Causes;

a. Not appropriate clutch disc has been installed on the vehicle,
   i. Please request special ''Power Serial'' products for excavation serial vehicles,

b. There are comfort purpose high quality products in our catalogue especially for bus group vehicles.

c. In case the friction facing quality of the selected product is inappropriate, resin melting and/or burning occurs at the friction facings and/or heat resistance decreases. This may cause that the clutch system will not work properly.

4.5 Clutch friction facing quality is not appropriate

The grease is an undesired material for the clutch system. Especially the friction facings should be kept away from the grease. Any lubricated clutch linings or clutch cover assemblies will cause to slipping complaint.

Causes;

a. The friction facings are lubricated during installation of the clutch disc to the vehicle,

b. The friction facings are touched with greased hands,

c. The friction facings are lubricated due to the oil leakages from the transmission or engine,

d. Excessive lubrication application have been done in the system (Excessive grease).

4.6 Clutch Master/Slave cylinder problem of the vehicle

Master/slave cylinder of the clutch are the power transmission tools that are used for moving the clutch slave system with the help of hydraulic or pneumatic. These are critical parts for lifetime and performance of the clutch system. It is required to be controlled at every clutch replacement. It is one of the main causes of the slipping problem resulted from the vehicle.

In the normal operation, the clutch release bearing should apply 10 N force to clutch cover release fingers in case the clutch pedal is free. Otherwise, slipping problem may occur.

Causes;

a. The cylinder remains pressed,
b. The slave cylinder push rod adjustment is disordered,
c. The master cylinder remains pressed,
d. The problems in the distributors at pneumatic systems,
e. The electrical and/or electronic reader system may be problematic.

4.7 Transmission input shaft cover is bent or disordered

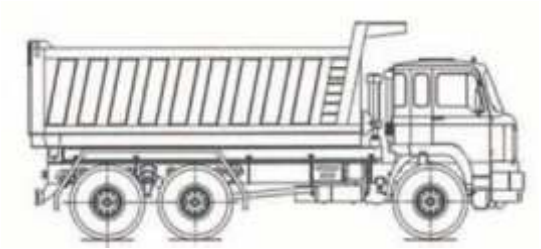
It is the part that makes guidance to motion of clutch release bearing. It should be on the same axis with the transmission input shaft definitely. Bent, worn transmission input shaft covers prevent reverse travel of the release bearing on the cover. Therefore, clutch operates in a partially disengaged condition. Slipping problem may occur.

Causes;

a. Operation of the clutch release bearing on the
b. transmission input shaft cover with inappropriate grease,
The clutch release bearing has not been greased at appropriate amount and/or has not been greased,
c. Using clutch release bearing that has completed its lifetime,
d. The axial misalignments of the engine and transmission.

4.8 Non-standard modifications on the vehicle

The producers of heavy commercial vehicles group recommend superstructure and configurations according to the vehicle operation conditions.



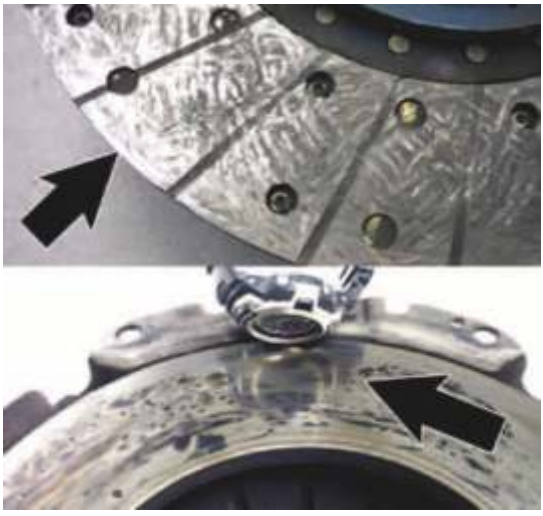
Various applications of superstructure and configurations can be seen in the market.

Causes;

a. Usage of tag axle in order to increase the bearing capacity,
b. Change of computer software in order to increase the engine capacity,
c. Modifications done on the fuel and air system,
d. Change of the aerodynamic properties.

4.9 Misuse of drivers

Lifetime and performance of new Donmez Clutch products may be adversely affected from misuse of drivers. The complaint of clutch slip may occur if this situation continues after a specific period. As seen in the image, the products may burn if they are exposed to excessive heat.



Causes;

a. Clutch operating in a partially disengaged condition,
b. After gear shift, keeping the foot on the clutch pedal,
c. Using the vehicle under inappropriate harsh conditions
d. Using the vehicle in incorrect gear levels and incorrect engine speed rates,

5. CLUTCH MAKES A NOISE (RATTLING)

In general, the clutch makes a noise during its operation. This is resulted from internal dynamics of clutch cover, disc and bearing assemblies. Especially quality of clutch bearing balls is one of the main causes of noise formation.

The noise levels of the clutch bearings that we produce as Donmez Clutch are taken under control as 90 db.

5.1 Using inappropriate clutch cover assembly and/or disc for the vehicle

Using inappropriate products for your vehicle may cause to increase of system operation noise level.

Please request the products that are recommended in Donmez Clutch catalogue.

Causes;

a. The product should be selected according to the vehicle type.
b. Accuracy of Donmez Clutch products should be checked from the vehicle chassis number.
c. In general, not using pre-damper spline for comfort purposes and spline disc for high power and torque.
d. In general, not using same brand products (Cover assembly, Disc and Bearing)

XF 105 - CF 85 (EURO 5)

OLD CODE	CODE	O.EM. NO	SACHS	VALEO	DIAMETER	DESCRIPTION					
	200 767	1685707	1878 003 767		430	XF 105 - CF 85 (EURO 5)	CLUTCH DISC	Pre-damper	Open	6 Damper Springs	2" - 10
200 484	100 032	1665428	3482 000 484		430	XF 105 - CF 85 (EURO 5)	CLUTCH COVER ASSEMBLY		Diaphragm Spring	Pull Type	
	000 034	1780332	3151 000 034		430	XF 105 - CF 85 (EURO 5)	RELEASE BEARING	Release bearing assembly	Pull		
	000 493	1686642	3151 000 493	830071	430	XF 105 - CF 85 (EURO 5) Yarı Automatic	RELEASE BEARING	Release bearing assembly	Pull		
700 368	700 467	1816435R	3400 700 467		430	XF 105 - CF 85 (EURO 5) Yarı Automatic	SET	Release Bearing	(200 767 - 100 032 - 000 493)		
	700 361	1814035	3400 700 361		430	XF 105 - CF 85 (EURO 5)	SET	Release Bearing	(200 767 - 100 032 - 000 034)		

5.2 Operation noise level of the clutch is not appropriate

The noise levels of the clutch bearings that we produce as Donmez Clutch are taken under control as 90 db. Our products are delivered to our valuable customers after their sound controls are done.

Causes;

a. Installing inappropriate clutch cover assembly to the vehicle,
b. Usage of excessively rusted products,
c. The foreign matters that have entered between clutch cover assembly release fingers,
d. The clutch cover assembly release fingers are excessively worn,
e. The clutch cover assembly release fingers are not parallel,
f. Excessive unparallelism of pressure plate on disengagement situation,
g. The clutch cover assembly is misaligned from centering bore and/or centering pins

The listed items above will cause to vibratory operation of clutch pedal.

5.3 Flatness of the clutch disc is not appropriate

The friction surfaces of the clutch disc (friction facings) should achieve the flatness under every condition and its free movement without runout should be under 1 mm.
Our products are sent to our customers after they are 100% controlled.

Causes;

a. Due to transportation conditions clutch sets and/or discs have become inappropriate (bent or damaged..),
b. During installation of the clutch system to the vehicle, transmission weight has been carried by the disc spline,
c. Revised products have been used.

5.4 Clutch friction facing quality is not appropriate

The clutch disc lifetime, comfort and performance is directly proportional to the friction facing quality. The friction facing quality should be selected in accordance with vehicle type, road conditions, vehicle equipments and job. Please request the product corresponding to your vehicle in Donmez Clutch catalogue.

Causes;

a. Using inappropriate clutch disc for the vehicle
b. Especially for the bus group vehicles, comfort purpose high quality friction facings are in our catalogue.

5.5 Lubrication and/or burning of the clutch disc

The clutch discs in the clutch system that are greased/oiled and burned will cause to slipping operation of the system. Slipping operation will cause to high noise and vibration in the system in time.

Therefore, oil/grease and excessive heat must be avoided from the system.

Causes;

a. There should not be oil leakages in the system, The oil leakages should be prevented while making clutch replacement.
b. The clutch disc should not be touched with oily hands,
Protective materials such as gloves should be used.
c. Before installation of the clutch disc, transmission input shaft splines should not been excessively lubricated,
d. Clutch operating in a partially disengaged condition,
e. After gear shift, keeping the foot on the clutch pedal

5.6 Clutch Disc Assembly has been damaged

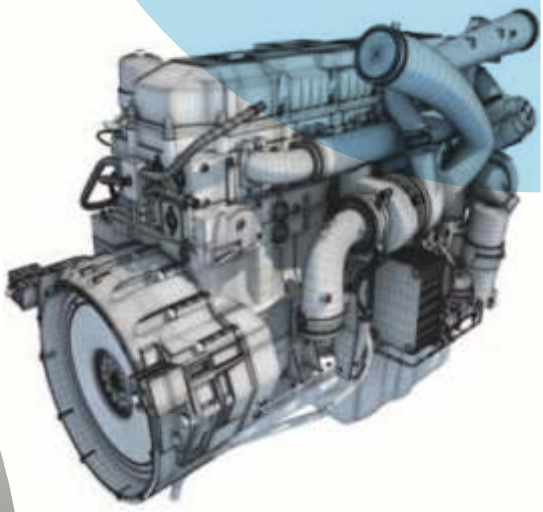
At the system which noise complaint is experienced, the clutch disc assembly may have been damaged due to any reason. New clutch replacement will not resolve the problem if the causing situation is not fixed.

Causes;

a. The hub ring (pre-damper) in the clutch disc has lost its property,
b. Fraction and/or crack in the clutch disc retaining plate,
c. The clutch disc torsion spring(s) has removed from its socket

5.7 Mounting Brackets of Engine or transmission are broken and/or disconnected

The complaint of noise resulted from judder problem in the system may be experienced due to that engine and transmission mounting brackets are damaged. These mounting brackets should be controlled in every clutch replacement.

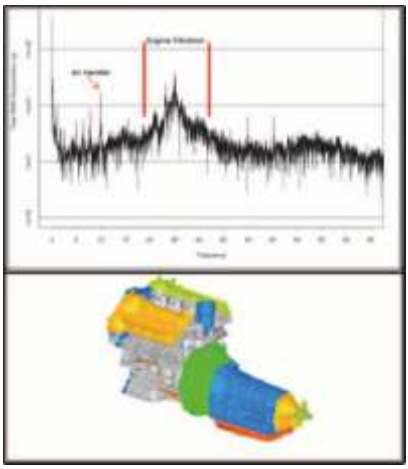


Causes;

a. The fittings that completed their lifetimes,
b. Loosening at studs and/or bolts that connects the mounting brackets,
c. Vehicle usage errors

5.8 Vibratory operation of the system in general

If the vibratory operation resulted from engine and powertrains still continues after the new clutch replacement, this situation may be called as judder. The complaint of noise may be experienced due to that complaint of judder continues.



Causes;

a. The vibrations resulted from the fuel system on the engine,
b. Replacement life of the engine has been completed and/or about to be completed,
c. Inappropriate modifications on the technical data of the vehicle,
d. Vehicle usage errors.

5.9 Misuse of Drivers

Lifetime and performance of Donmez Clutch products that you prefer may be adversely effected from using habits. After this situation continues for a specific period, complaint of slipping will occur in the vehicle. When the slipping complaint continues, complaint of high sound will occur.

Causes;

a. Not paying attention to the clutch releasing or operating point,
b. Useing vehicle at incorrect gear levels and incorrect engine speed rates.

6. CLUTCH PEDAL IS HEAVY IN OPERATION

The clutch pedal of the vehicles is operated by the users' applying approximately 12-13 kg force. If the pedal is needed to be pressed with a force above than this value, the complaint of hardness will occur.

All these are defined as comfort deficiency at the clutch. This performance parameter has been taken under control with test tools in our company.

The image at the right side, test device output showing accuracy of this property is seen. It is known that majority of the uncomfortable operation of the clutch pedal is resulted from the abnormalities on the clutch cover assembly. Therefore, every product is 100% controlled before delivered to you.

6.1 Using inappropriate clutch cover assembly and/or disc for the vehicle

Using inappropriate products for your vehicle will adversely effect the pedal comfort. Therefore, you should make appropriate clutch selection according to your vehicle.

Please request the products that are recommended in Donmez Clutch catalogue.

Causes;

a. Product selection should be done according to vehicle type and chassis.
b. Accuracy of Donmez Clutch products should be checked from the vehicle chassis number.
c. Not using same brand products (Cover assembly, Disc and Bearing) in general.

6.2 Diaphragm spring fingertips are worn

Another cause of uncomfortable pedal operation is that contact point of the clutch bearing and cover assembly has been worn. It will cause uncomfortable operation if the wearing is excessive.

Causes;

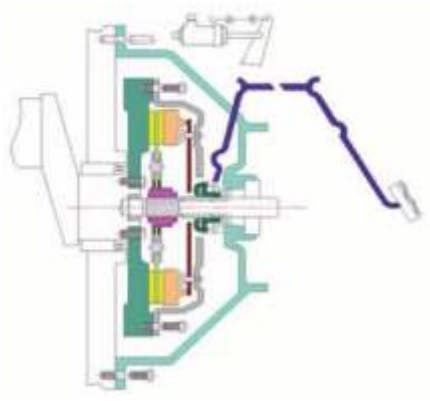
a. Using inappropriate product on the vehicle,
b. Finger height is not appropriate,
c. Bearing pedal gaps are out of tolerances, Compulsions at rotary motions of clutch bearing (cracked or damaged),
d. Vehicle usage errors.

6.3 Clutch is not mounted properly on flywheel

Some cover assemblies are centered to the flywheel from the outer diameter and some others are centered to the flywheel with a pin. Therefore while cover assemblies are installing to the flywheel, centering and/or whether it is inserted at the right position from reference points to the flywheel should be checked.

Causes;

a. While tightening the clutch cover assembly to the flywheel, all bolts are to be tightened in sequential order and with equal torque values,
b. At the surfaces that cover assembly is placed at the flywheel, there should not be residuals that will prevent equal tightening,
c. The depth that disc and cover assembly are placed at pot type flywheel should be in conformity with the values in the catalogue.



6.4 Clutch release bearing type is not appropriate

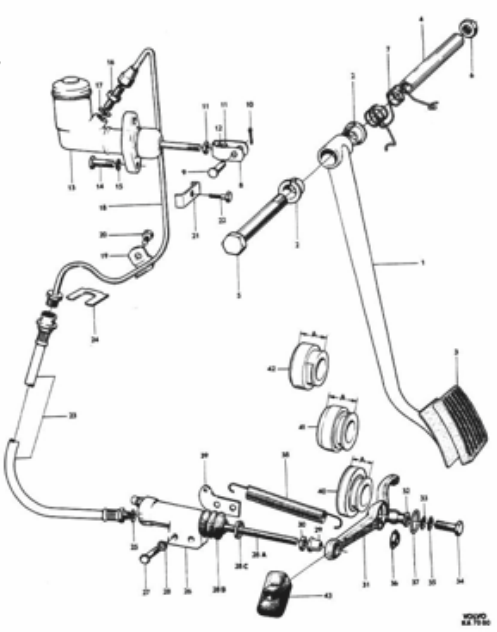
Another cause of uncomfortable operation is that using the bearing assembly not according to the cover assembly. If the diaphragm spring's fingertip is flat, release bearing's surface should be ribbed and if the diaphragm spring's fingertip is radius, the surface of release bearing should be flat.

Causes;

a. Release bearing assembly is not selected according to clutch cover assembly,
b. Inappropriate repairs or modifications

6.5 Existence of a foreign matter in the system

The clutch is a system that operates in the transmission and engine covers and it should not be exposed to dust, oil and foreign matter. The foreign matters that enter into the system will cause to uncomfortable operation as they will make operation of release fingers harder.



Causes;

a. Inappropriate clearance at the bottom of the covers,
b. The cover assembly and disc residuals have not been cleaned from the cover when new clutch is installed,
c. Appropriate lubrication and oil leakage
d. Vehicle usage errors.

6.6 Clutch disc has not been installed on the vehicle accurately

The clutch disc should be installed on the vehicle in the right way and/or in dual clutches, it should be installed on the right side. It will cause pedal comfort deficiency if position of clutch disc is not accurate. In general, ribbed part of the disc face towards into the cover assembly. But this situation has lost its validity for the new model vehicles. Therefore, the installation should be carried out by reviewing the directions on the disc or information in their catalogues.

6.7 Failures on other components in release system

The inconveniences at all parts from clutch pedal to release bearing may adversely effect the pedal comfort.
When clutch replacement is done, convenience of all system should be checked.

Causes;

a. Master cylinder of clutch is not appropriate,
b. Air and/oil lines have lost their properties,
c. Slave cylinder not generate enough release force or movement,
d. The transmission input shaft cover may be worn or bent,
e. The clutch fork is worn,
f. The clutch fork has not been operating freely in its place.


Certificate of Registration


Certificate of Registration


Certificate of Registration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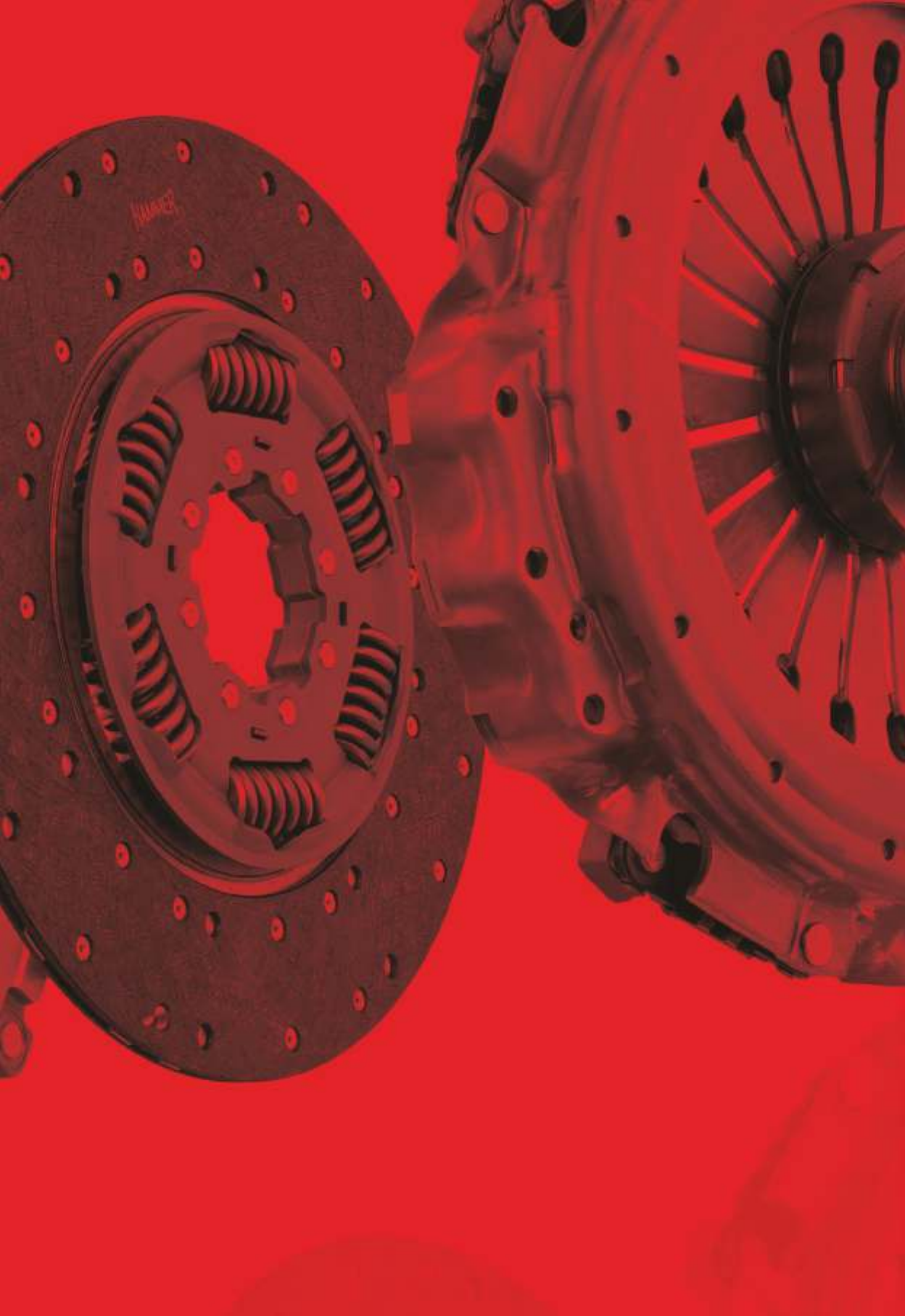

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