

Cam Clutch Manual

MG300-R, MG400-R, MG500-R, MG600-R, MG700-R
MG750-R, MG800-R, MG900-R, MG1000-R

- Thank you for buying Cam Clutch products.
- Be sure the product delivered matches your order. This will prevent you from accidents, injuries or equipment damage caused by installing the wrong unit.. If an incorrect unit is delivered, contact TSUBAKI immediately.
- This manual should remain with the product at all times including when redistributed.
- To ensure safety, this manual should be available to every user.

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1. USAGE AND MAINTENANCE

1-1. Cam Clutch MG-R series is exclusively used as back stopping device installed on a high speed shaft or an intermediate shaft of a reducer. MG-R series Cam Clutch is a unit consisting of MG type Cam Clutch and an oil reservoir of aluminum casting with fin for cooling.

Oil gage is installed for easy oil level control and maintenance.

And a torque arm is bolted to the clutch outer race.

1-2. The clutch outer race should be a stationary member, therefore it should be fixed. And the inner race is a rotating member which revolves at continuous high speed during the machine operation.

1-3. Check the direction of rotation of each race before operating the machine.

1-4. Maintenance

“Lubrication” of the Cam Clutch is required to obtain fine long life service. The MG-R clutch is lubricated with oil.

Add oil at every 300 hours and replace exhausted oil with new one every three months after cleaning inside of the Cam Clutch.

Oil Recommended

Brand	In low speed application (below max two - third .overrun R/M) or temperature ; below 30°C	In high speed application (about max. overrun R/M) temperature ; above 30°C
Shell Oil	Turbo Oil T32 Rimulla D Oil 10W Shell Super ATF	Rimulla D Oil 20W/20,30
Exxon Mobil	DTE Oil Light Multipurpose ATF Delvac Hydraulic 10W ATF220	Delvac 1330
JXTG Nippon Oil &Energy Energy	FBK Turbine 32 Automatic D2 FBK Oil RO32 ATF(II)N	FBK Oil RO68 Delster Flow-30
Idemitsu Kosan	Daphne Turbine Oil 32 Apolloil ATF-DX	Apolloil Dieselmotive S-320, 330

2. Storage for a long term

1) Stored indoor as parts (not installed)

- a) For sealing purpose attach a plate on to the Cam Clutch end using tapped hole.
- b) Change an air breather(P/N12) to a plug.
- c) Pour anti rust oil into the Cam Clutch and spread it inside then drain. Recommended oil is "Rust Veto Medium" by Houghton Co., Ltd is recommended.
- d) Coat outside of the Cam Clutch with grease for rust prevention.
- e) Keep each part indoor and avoid dust, heat, damp and direct sunbeam.
- f) Inspect inside of the Cam Clutch and packing before test-run if the Cam Clutch is kept at a stock yard for a long term(over one year)

2)Storage of a Cam Clutch installed on a machine shaft

- a) Pour oil to the proper level and rotate the shaft to lubricate all parts.
- b) Change an air breather to a plug and wrap the Cam Clutch with vinyl film. Rotating the shaft every two or three months is recommended.
- c) Check inside of the Cam Clutch and packing before test-run, if the Cam Clutch is stored for over one year.

3. Installation & disassembly

1)Installation

- a) Detach an oil reservoir and mount a Cam Clutch on a shaft. Press only an inner race end of the Cam Clutch when mounting. Never apply pressure onto an outer race end.
Use the key in accordance with the JIS B1301-1959(Old JIS)parallel key:second grade.(The MI750 and above include a special dimension hardened key. Make the depth of the shaft keyway according to JIS.)Shaft diameter and key dimensions may not correspond with JIS.

Align the key to slide through the keyway smoothly before installation.

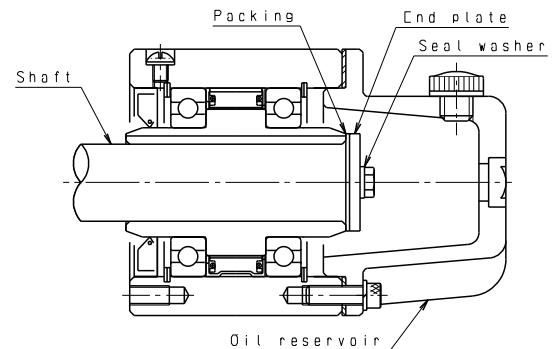
- b) After detaching the oil reservoir, note to prevent dust from entering into the Cam Clutch, as no seal is applied on the oil reservoir end.

- c) Attach an end plate to fix the Cam Clutch on the shaft end and use packing and seal washers to prevent oil leakage from the shaft end.

- d) Put packing between the outer race end an oil reservoir. And set one of plugs of the Cam Clutch at down right and a vent plug of the oil reservoir at up right position.

- e) Make clearance on torque arm end as illustrated.

The Cam Clutch will be damaged if the end of the torque arm is fixed rigidly. Fix the torque arm end only in the direction of shaft rotation to prevent damage.



2) Disassemble and Assembly

- a) After draining lubricant from the Cam Clutch, disassemble an oil reservoir, a torque arm and an end plate then detach a Cam Clutch from a shaft.
- b) Detach a snap ring on oil reservoir end. And hit inner race end of the Cam Clutch slightly, bearings and a cam cage will be detached together with an inner race.
- c) Make sure contact surface of inner and outer races, a cam cage and bearings are in good condition.
- d) When assembling the Cam Clutch clean each part by flushing oil and prevent dust from entering into the Cam Clutch. After checking the direction of Cam Clutch engagement, insert the inner race with a cam cage and bearings into the outer race while rotating the inner race in free-wheel direction. After inserting them attach a snap ring to the outer race.

Safety

	WARNING	Death or serious injury may result from misusing the product without following the instructions.
	CAUTION	Minor or moderate injury, as well as damage to the product may result from misusing the product without following the instructions.

Notice that although categorized under “CAUTION”, subjects discussed may lead to serious results depending on the situation.

 WARNING	
● Make sure turning forces are not applied to Cam Clutch or turning shaft of the equipment when conducting inspection or maintenance. Pay special attention to the back stopping application to prevent accidents. ● Frequent starting and stopping will apply excessive force on the mounting. Verify mounting strength. ● Inaccurate installation and mounting, various load conditions, wear and tear of parts, and life expectancy can all affect the performance of a Cam Clutch. Inspect and maintain periodically and install a safety device on your equipment. ● Comply with Ordinance on Labor Safety and Hygiene 2-1-1 general standards.	
 CAUTION	
● To ensure safety and optimal performance, carefully read this instruction manual in its entirety. ● Confirm rotational direction prior to installing.	

Warranty

TSUBAKIMOTO CHAIN CO.: hereinafter referred to as "Seller"
Customer: hereinafter referred to as "Buyer"
Goods sold or supplied by Seller to Buyer: hereinafter referred to as "Goods"

1. **Warranty period without charge**
18 months effective the date of shipment or 12 months effective the first use of Goods, including installation of Goods to Buyer's equipment or machines - whichever comes first.
2. **Warranty coverage**
Should any damage or problem with the Goods arise within the warranty period, given that the Goods were operated and maintained under instructions provided in the manual, Seller would repair and replace at no charge once the Goods are returned to Seller. The following are excluded from the warranty.
 - 1) Any costs related to removing Goods from the Buyer's equipment or machines to repair or replace parts.
 - 2) Costs to transport Buyer's equipment or machines to the Buyer's repair shop.
 - 3) Costs to reimburse any profit loss due to any repair or damage and consequential losses caused by the Buyer.
3. **Warranty with charge**
Seller will charge any investigation and repair of Goods caused by:
 - 1) Improper installation by failing to follow the instruction manual.
 - 2) Insufficient maintenance or improper operation by the Buyer.
 - 3) Incorrect installation of Goods to other equipment or machines.
 - 4) Any modifications or alterations of Goods by the Buyer.
 - 5) Any repair by engineers other than the Seller or those designated by the Seller.
 - 6) Operation in an inappropriate environment not specified in the manual.
 - 7) Force Majeure or forces beyond the Seller's control such as natural disasters and injustice done by a third party.
 - 8) Secondary damage or problem incurred by the Buyer's equipment or machines.
 - 9) Defected parts supplied, or specified by the Buyer.
 - 10) Incorrect wiring or parameter setting by the Buyer
 - 11) The end of life cycle of the Goods under normal usage.
 - 12) Loss or damage not liable to the Seller.
4. **Dispatch Service**
Service to dispatch a Seller's engineer to investigate, adjust or trial test Seller's Goods is at the Buyer's expense.
5. **Disclaimer**
 - 1) In our constant efforts to improve, TSUBAKIMOTO CHAIN CO. may change the contents of this document without notice.
 - 2) Considerable effort has been made to ensure that the contents of this document are free from errors. However, TSUBAKIMOTO CHAIN CO. makes no warranties with respect to the accuracy of information described herein. In the meantime, we would appreciate comments or reports on any inaccuracies or omissions found in this document to help us make timely amendments as necessary. Your cooperation is greatly appreciated.



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