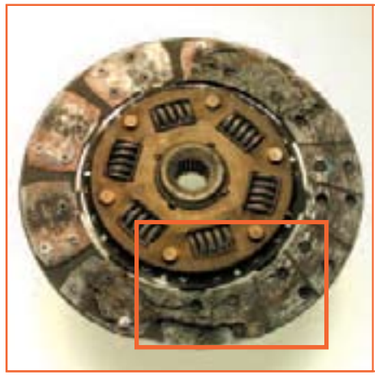
LOSS OF DRIVE



FAULT

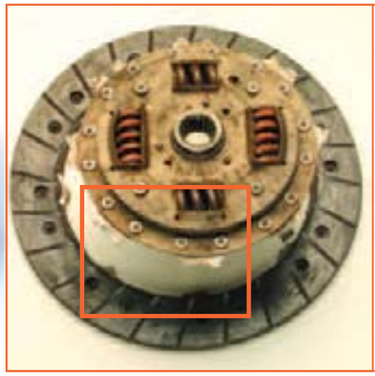
Loss of drive
Facing material broken

CAUSE

Friction material damaged prior to or during fitment
Overheating due to slip
Incorrect clutch fitted for the application. Possible driver abuse

ACTION

Handle with care
Ensure correct clutch is fitted for the application
Rectify cause of slipping. Advise driver about clutch mechanics



FAULT

Loss of drive
Driven plate centre broken

CAUSE

Misalignment between engine and gearbox
Faulty fitment of parts

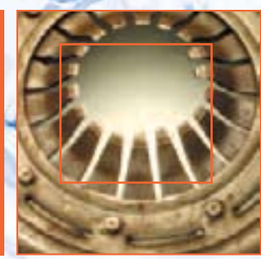
ACTION

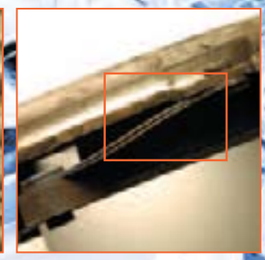
Ensure correct engine/gearbox alignment
Clutch to be fitted in line with manufactures instructions

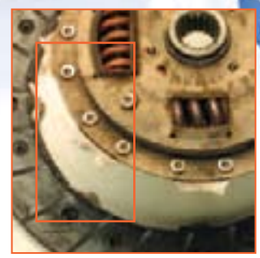
Quinton Hazell Automotive
Hazell Way
Bermuda Road
Nuneaton
CV10 7QQ
England.

www.thomasbct.com.au

CLUTCH FAULT DIAGNOSIS GUIDE







The Advantage You Deserve

CLUTCH FAULT DIAGNOSIS GUIDE

HOW TO USE THIS GUIDE

Problems are categorised by major symptoms e.g. clutch drag, clutch noise, etc. These are identified by photograph with the mode of failure highlighted and described.

Under each section the reason, cause and action is clearly detailed.

100% all new

Every single part of Quinton Hazell's vast range of clutch components is manufactured from 100% all new materials. At our specialist factory stringent quality control is applied at every stage of manufacture, from the receipt of raw materials to the despatch of the finished clutch.

This is your guarantee that there will be no compromise in the performance or reliability of QH clutches.

Investing in the future

Recent investment of over £3 million in production technology and test equipment has made the Quinton Hazell clutch factory one of the most advanced. We even manufacture our own diaphragm springs and computer test each one to ensure that they meet stringent quality standards. And our case hardening furnaces add extra toughness to the wear sensitive surfaces in the cover and driven plate.

Computerised production control

The latest technology has been integrated into all areas from design and development through computerised production control systems to an advanced clutch testing laboratory.

Endurance testing

All aspects of clutch performance are analysed by accelerated wear/fatigue simulation, enabling QH to recreate the effects of many thousands of road miles.

The tests used include: -

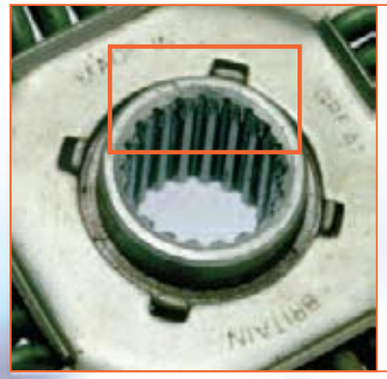
- High speed stress reversals of diaphragm springs and driven plate components.
- Extended, rapid actuation of cover assemblies.
- Centrifugal burst testing of covers and plates at speeds far in excess of maximum engine r.p.m.

Helping solve the problems

With the clutch fault diagnosis guide, QH Technology can go further in helping you to diagnose problems. This brochure will enable you to identify the causes of clutch failure associated with possible incorrect fitting and misuse, as well as recommending corrective action.

Contents

CLUTCH DRAG



FAULT
Damaged Spline
Difficulty in changing gear

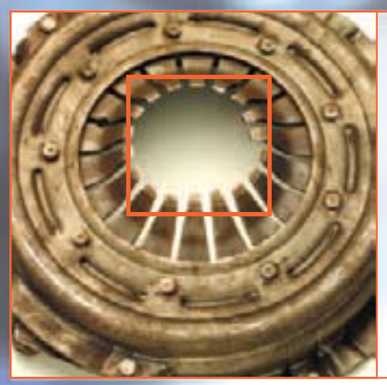
CAUSE
Incorrect alignment of gearbox input shaft

ACTION
Use alignment tool
Lubricate sparingly

FAULT
Driven plate distortion
Clutch drag

CAUSE
Gearbox allowed to "hang" during fitment allowing excess axial runout

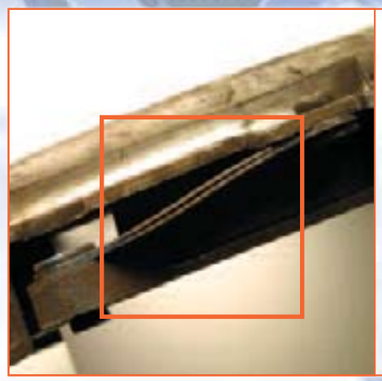
ACTION
Ensure gearbox is offered in line with the input shaft to reduce lateral movement



FAULT
Clutch drag

CAUSE
Diaphragm spring fingers broken. Release bearing rattling against diaphragm spring fingers. Gearbox/engine misalignment. Insufficient release bearing load

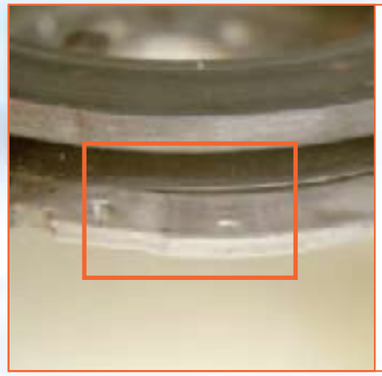
ACTION
Avoid damage to diaphragm spring fingers when replacing gearbox. Check release bearing mechanism is free. Ensure clutch is mounted correctly on flywheel and location dowels in position



FAULT
Cover assembly drive strap distorted

CAUSE
Cover assembly dropped prior to fitment
"Bump" start engine in first or reverse gear

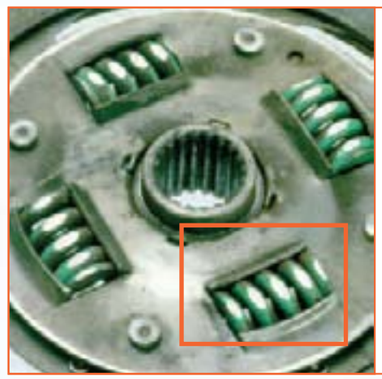
ACTION
Ensure correct handling of the cover assembly
Avoid "bump" starting of engine



FAULT
Clutch drag
Cover pressing distorted

CAUSE
Cover assembly has not been fitted onto the flywheel dowels correctly

ACTION
Check configuration of dowel holes and their relationship to the bolt holes prior to fitment of the cover assembly

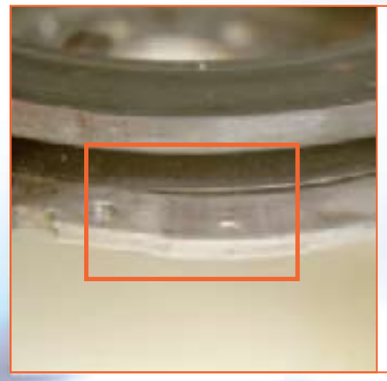


FAULT
Clutch drag

CAUSE
Driven plate fitted wrong way round

ACTION
Ensure correct configuration of the driven plate prior to fitment

CLUTCH JUDDER



FAULT
Clutch judder
Cover pressing distorted

CAUSE
Cover assembly has not been fitted onto the flywheel dowels correctly

ACTION
Check configuration of dowel holes and their relationship to the bolt holes prior to fitment of the cover assembly

FAULT
Clutch judder
Worn or glazed flywheel

CAUSE
Damaged surface on flywheel
Previous clutch worn past rivet depth

ACTION
Check surface finish of flywheel for flatness 'machine' or replace as required

FAULT
Clutch judder
Oil/grease contamination

CAUSE
Excessive grease applied to the input shaft spline
Oil leak from engine or gearbox
Friction material contaminated with grease or oil prior to fitment

ACTION
Only use grease supplied by QH
Rectify any oil leaks
Ensure friction material is clean prior to fitment

FAULT
Clutch judder
Sticking release mechanism
Damaged release bearing bore

CAUSE
Sticking clutch cable
Worn or seized clutch release mechanism

ACTION
Ensure clutch cable is smooth in operation
Ensure all release bearing mechanism parts are not worn or seized - replace with new parts where necessary

FAULT
Clutch judder
Misaligned release bearing

CAUSE
Bent release bearing fork or missing clips
Insufficient release bearing pre-load

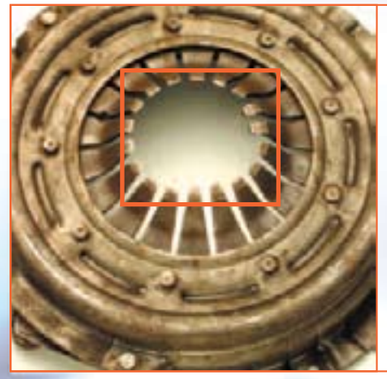
ACTION
Check for wear on all release bearing mechanism including cables, fork locations, release shaft bushes
Ensure correct clutch settings

FAULT
Sticking release mechanism

CAUSE
Warn release bearing guide
Sticking clutch cable
Release bearing fitted incorrectly

ACTION
Check for smooth operation of all moving parts of the release mechanism and replace with new where necessary

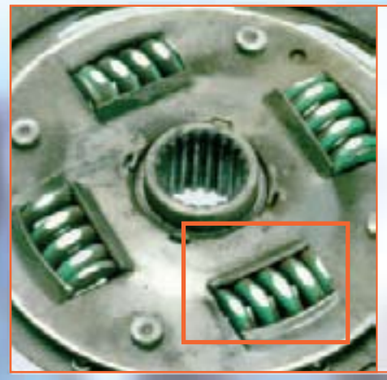
CLUTCH NOISE



FAULT
Noisy clutch

CAUSE
Diaphragm spring fingers broken. Release bearing rattling against diaphragm spring fingers. Gearbox/engine misalignment. Insufficient release bearing load

ACTION
Avoid damage to diaphragm spring fingers when replacing gearbox. Check release bearing mechanism is free. Ensure clutch is mounted correctly on flywheel and location dowels in position



FAULT
Clutch noise on disengagement

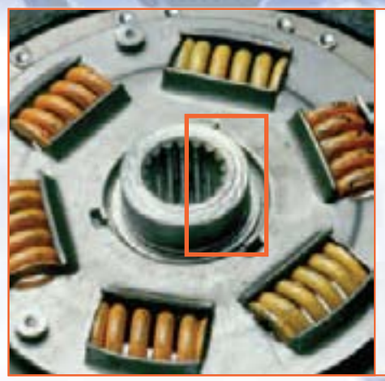
CAUSE
Driven plate fitted wrong way round

ACTION
Ensure correct configuration of the driven plate prior to fitment

FAULT
Broken springs
Clutch noise

CAUSE
Incorrect alignment of engine and gearbox
Incorrect design of clutch assembly fitted Worn input shaft
Excessive backlash in drivetrain

ACTION
Check wear on input shaft Ensure correct clutch assembly is fitted for the application Ensure engine and gearbox are fitted in line
Check wear in final drive, propshaft uj's and C.V. joints



FAULT
Clutch noise when disengaging

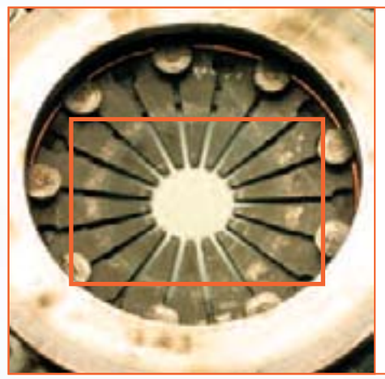
CAUSE
Diaphragm spring is contacting driven plate
Release bearing travel is excessive

ACTION
Ensure correct clutch adjustment

FAULT
Clutch noise

CAUSE
Release bearing fitted backwards

ACTION
Ensure release bearing is fitted right way round with correct travel and release load

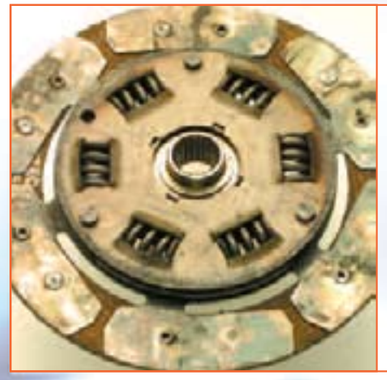


FAULT
Underside of diaphragm spring radially marked in one or more places

CAUSE
Release bearing travel is excessive causing the diaphragm spring to touch the driven plate

ACTION
Ensure clutch release travel is correct

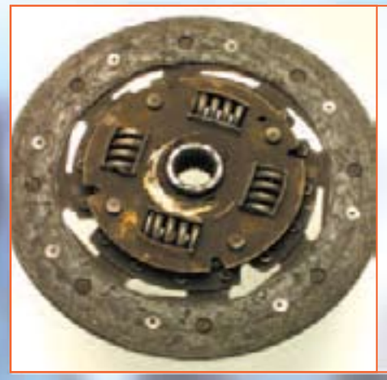
CLUTCH SLIP



FAULT
Clutch slip
Oil/grease contamination

CAUSE
Excessive grease applied to the input shaft spline
Oil leak from engine or gearbox
Friction material contaminated with grease or oil prior to fitment

ACTION
Only use grease supplied by QH
Rectify any oil leaks
Ensure friction material is clean prior to fitment



FAULT
Clutch slip
Friction material excessively worn
Uneven wear of friction material

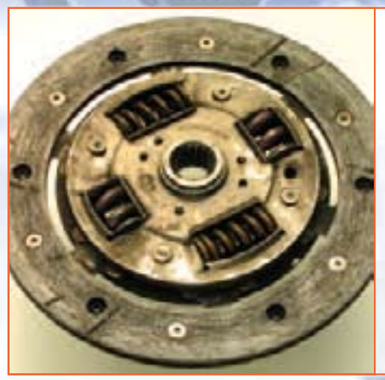
CAUSE
Sticking release mechanism or cable. Normal wear of life of clutch.
Possible driver misuse - leaving foot on pedal while driving
Possible driver abuse

ACTION
Ensure release mechanism is free
Replace clutch as per end of life
Advise driver about clutch mechanics

FAULT
Clutch slip
Facing material broken

CAUSE
Friction material damaged prior to or during fitment
Overheating due to slip
Incorrect clutch fitted for the application. Possible driver abuse

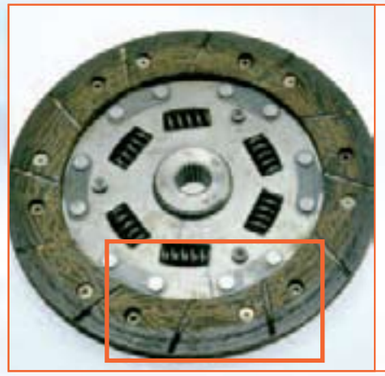
ACTION
Handle with care
Ensure correct clutch is fitted for the application
Rectify cause of slipping. Advise driver about clutch mechanics



FAULT
Clutch slip
Overheated friction material

CAUSE
Incorrect clamp load on clutch cover assembly
Possible driver misuse by leaving foot on clutch pedal while driving
Sticking release bearing mechanism including cable

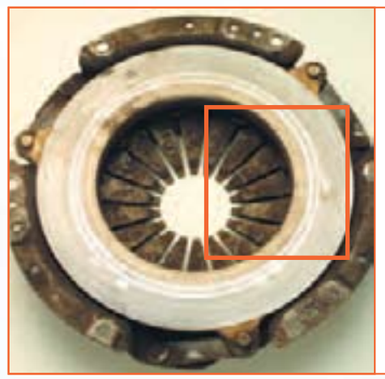
ACTION
Ensure correct assembly is fitted to suit the application
Advise driver about clutch mechanics
Ensure release bearing mechanism is free - replace any worn parts



FAULT
Uneven wear across friction face

CAUSE
Worn flywheel

ACTION
Check flywheel for wear and flatness renew if necessary



FAULT
Clutch slip
Evidence of overheating on pressure plate surface

CAUSE
Sticking clutch cable
Sticking release mechanism
Possible driver misuse

ACTION
Check clutch cable slides freely under load
Check clutch release mechanism
Advise driver about clutch mechanics