

Workshop service manual

n° 3378405M4

CONTENTS





01 - Introduction - Specifications

CONTENTS


MASSEY FERGUSON
6400

1A10- Using the manual

CONTENTS

A . General

The purpose of this manual is to assist Dealers and Agents in the efficient installation, maintenance and repair of AGCO equipment. Carrying out the procedures as detailed, together with the use of special tools where appropriate, will enable the operations to be completed within the time stated in the Repair Time Schedule.

B . Structure of the manual

Page numbering

The present manual is divided into chapters and sections, and each page is numbered with the following information:

Example: **10A12.1**

10 = Chapter

A12 = Section

1 = Page number within the section

The issue number is indicated at the bottom of the page.

Contents

For quick reference, each chapter starts with a table of contents, listing the various sections included in that chapter.

Meaning of references

(..) : identification of parts and components

Amendments

Amended pages will be issued carrying the same page number as the former pages: only the version number will change.

Former pages should be destroyed.

C . Service tools

Where the use of a service tool is necessary to carry out an operation, the tool reference is mentioned following the relevant instruction.

Drawings for locally made tools are given at the end of the relevant sections.

D . Repairs and replacements

When parts have to be replaced, it is essential that only genuine AGCO parts are used.

The following points are of particular importance when carrying out repairs and fitting replacement parts and accessories.

Tractor safety features may be impaired if non-genuine parts are fitted.

Legislation in certain countries prohibits the fitting of parts that do not comply with the tractor manufacturer's specifications. Torque wrench setting figures given in the Workshop Service Manual must be strictly adhered to. Locking devices must be fitted where specified. If the efficiency of a locking device is impaired during removal, it must be replaced.

The tractor warranty may be invalidated if non-genuine AGCO parts are fitted. All AGCO spare parts have the full backing of the manufacturer's warranty. AGCO Dealers and Agents are required to supply only genuine service parts.

1B10- SPECIFICATIONS - General specifications

CONTENTS

A . Model 6445

Dynashift

Engine	
ISO power hp (kW) at 2200 rpm	90 (67)
Trademark	PERKINS
Type	1104C-44T
Number of cylinders / Cylinder capacity	4 / 4.4 Turbo
Injection pump	Lucas DP 210
Fan	Viscostatic
Intercooler	-
Alternator	80 A
Gearbox	
Gearbox model	GBA20 (4x4)
Clutch / Reverse shuttle	PowerShuttle
Type	Dynashift
Autodrive	optional
Creeper unit 4/1	optional
Creeper unit 14/1	optional
Rear axle	
Axle model	GPA20
Final drive units	HD
Wheel shaft Ø	76 mm
Straight shaft	-
Flanged shaft	standard
Brake discs per trumpet housing	1
Handbrake discs	3
Differential lock	Coupler
Linkage	
Stabilisers	telescopic
Perforated bar	optional
3-point linkage	cat. 2, hook or ball type (*)
Clevis	pin-adjusting or quick-adjusting scale
Automatic clevis	pin-adjusting or quick-adjusting scale
Semi-mounted trailer hitch	eye bolt or automatic hook (*)
Swinging drawbar	standard
Roller swinging drawbar	optional
Power take-off	
Type	interchangeable / shiftable shaft
540/1000/eco	optional (*)
540/750/1000	-
750/1000	optional (*)
Number of clutch discs	4
Power take-off brake	hydraulic
Proportional PTO	optional
Automated power take-off	optional
Front power take-off	optional
Front axle	
Model	AG 85
Type	fixed or suspended (optional)
Rotational direction	clockwise
Number of clutch discs	4
Swinging fender (4WD)	optional
2WD	optional
Front linkage (optional)	2.5 T
Hydraulics	
57 l/min Open Centre	optional
100 l/min TFLS	optional
110 l/min Closed Centre	optional
150 l/min Closed Centre	-
Orbitrol steering unit	125cc
Brake master cylinder	standard
Assisted braking	optional
Trailer brake	optional (*)
Auxiliary spool valves (maximum number)	4 electrohydraulic (2 SMS) or 4 mechanical
Couplers	decompression
Electronics	
Transmission control	AUTOTRONIC 3
Instrument panel	DCC2
Linkage calculator	EHRC
Draft sensors	2
Sensor capacity	4 T (standard) or 6 T (optional)
Datatronic	optional
Dual control (front and rear)	optional
TIC with / without draft sensor	optional
Fieldstar	optional
Cab	
Suspension	optional
Rear view mirrors	manual (standard) or electrical (optional)
Air conditioning	manual (standard) or automatic (optional)
Standard bonnet	fixed
Optional bonnet	tilting
Standard roof	standard
High-visibility roof	optional
Steep nose bonnet	optional
Platform	-
Reference (*): according to country	

Dyna -6

Engine	
ISO power hp (kW) at 2200 rpm	90 (67)
Trademark	PERKINS
Type	1104C-44T
Number of cylinders / Cylinder capacity	4 / 4.4 Turbo
Injection pump	Lucas DP 210
Fan	Viscostatic
Intercooler	-
Alternator	80 A
Gearbox	
Gearbox model	GBA25 (6x4)
Clutch / Reverse shuttle	PowerShuttle
Type	Dyna -6
Autodrive	optional
Creeper unit 4/1	optional
Creeper unit 14/1	optional
Rear axle	
Axle model	GPA20
Final drive units	HD
Wheel shaft Ø	76 mm
Straight shaft	-
Flanged shaft	standard
Brake discs per trumpet housing	1
Handbrake discs	3
Differential lock	Coupler
Linkage	
Stabilisers	telescopic
Perforated bar	optional
3-point linkage	cat. 2, hook or ball type (*)
Clevis	pin-adjusting or quick-adjusting scale
Automatic clevis	pin-adjusting or quick-adjusting scale
Semi-mounted trailer hitch	eye bolt or automatic hook (*)
Swinging drawbar	standard
Roller swinging drawbar	optional
Power take-off	
Type	interchangeable / shiftable shaft
540/1000/eco	optional (*)
540/750/1000	-
750/1000	optional (*)
Number of clutch discs	4
Power take-off brake	hydraulic
Proportional PTO	optional
Automated power take-off	optional
Front power take-off	optional

Front axle	
Model	AG 85
Type	fixed or suspended (optional)
Rotational direction	clockwise
Number of clutch discs	4
Swinging fender (4WD)	optional
2WD	optional
Front linkage (optional)	2.5 T
Hydraulics	
57 l/min Open Centre	optional
100 l/min TFLS	optional
110 l/min Closed Centre	optional
150 l/min Closed Centre	-
Orbitrol steering unit	125cc
Brake master cylinder	standard
Assisted braking	optional
Trailer brake	optional (*)
Auxiliary spool valves (maximum number)	4 electrohydraulic (2 SMS) or 4 mechanical
Couplers	decompression
Electronics	
Transmission control	two AUTOTRONIC 5s
Instrument panel	DCC2
Linkage calculator	AUTO 5
Draft sensors	2
Sensor capacity	4 T (standard) or 6 T (optional)
Datatronic	optional
Dual control (front and rear)	optional
TIC with / without draft sensor	optional
Fieldstar	optional
Cab	
Suspension	optional
Rear view mirrors	manual (standard) or electrical (optional)
Air conditioning	manual (standard) or automatic (optional)
Standard bonnet	fixed
Optional bonnet	tilting
Standard roof	standard
High-visibility roof	optional
Steep nose bonnet	optional
Platform	-
Reference (*): according to country	

B . Model 6455

Dynashift

Engine	
ISO power hp (kW) at 2200 rpm	100 (74)
Trademark	PERKINS
Type	1104C-44T
Number of cylinders / Cylinder capacity	4 / 4.4 Turbo
Injection pump	Lucas DP 210
Fan	Viscostatic
Intercooler	-
Alternator	80 A
Gearbox	
Gearbox model	GBA20 (4x4)
Clutch / Reverse shuttle	PowerShuttle
Type	Dynashift
Autodrive	optional
Creeper unit 4/1	optional
Creeper unit 14/1	optional
Rear axle	
Axle model	GPA20
Final drive units	HD
Wheel shaft Ø	76 mm
Straight shaft	-
Flanged shaft	standard
Brake discs per trumpet housing	1
Handbrake discs	3
Differential lock	Coupler
Linkage	
Stabilisers	telescopic
Perforated bar	optional
3-point linkage	cat. 2, hook or ball type (*)
Clevis	pin-adjusting or quick-adjusting scale
Automatic clevis	pin-adjusting or quick-adjusting scale
Hitch eye bolt	eye bolt or automatic hook (*)
Swinging drawbar	standard
Roller swinging drawbar	optional
Power take-off	
Type	interchangeable / shiftable shaft
540/1000/eco	optional (*)
540/750/1000	-
750/1000	optional (*)
Number of clutch discs	4
Power take-off brake	hydraulic
Proportional PTO	optional
Automated power take-off	optional
Front power take-off	optional
Front axle	
Model	AG 85
Type	fixed or suspended (optional)
Rotational direction	clockwise
Number of clutch discs	5
Swinging fender (4WD)	optional
2WD	optional
Front linkage (optional)	2.5 T
Hydraulics	
57 l/min Open Centre	optional
100 l/min TFLS	optional
110 l/min Closed Centre	optional
150 l/min Closed Centre	-
Orbitrol steering unit	125cc
Brake master cylinder	standard
Assisted braking	optional
Trailer brake	optional (*)
Auxiliary spool valves (maximum number)	4 electrohydraulic (2 SMS) or 4 mechanical
Couplers	decompression
Electronics	
Transmission control	AUTOTRONIC 3
Instrument panel	DCC2
Linkage calculator	EHRC
Draft sensors	2
Sensor capacity	4 T (standard) or 6 T (optional)
Datatronic	optional
Dual control (front and rear)	optional
TIC with / without draft sensor	optional
Fieldstar	optional
Cab	
Suspension	optional
Rear view mirrors	manual (standard) or electrical (optional)
Air conditioning	manual (standard) or automatic (optional)
Standard bonnet	fixed
Optional bonnet	tilting
Standard roof	standard
High-visibility roof	optional
Steep nose bonnet	optional
Platform	-
Reference (*): according to country	

SPECIFICATIONS - General specifications

Dyna -6

Engine	
ISO power hp (kW) at 2200 rpm	100 (74)
Trademark	PERKINS
Type	1104C-44T
Number of cylinders / Cylinder capacity	4 / 4.4 Turbo
Injection pump	Lucas DP 210
Fan	Viscostatic
Intercooler	-
Alternator	80 A
Gearbox	
Gearbox model	GBA25 (6x4)
Clutch / Reverse shuttle	PowerShuttle
Type	Dyna -6
Autodrive	optional
Creeper unit 4/1	optional
Creeper unit 14/1	optional
Rear axle	
Axle model	GPA20
Final drive units	HD
Wheel shaft Ø	76 mm
Straight shaft	-
Flanged shaft	standard
Brake discs per trumpet housing	1
Handbrake discs	3
Differential lock	Coupler
Linkage	
Stabilisers	telescopic
Perforated bar	optional
3-point linkage	cat. 2, hook or ball type (*)
Clevis	pin-adjusting or quick-adjusting scale
Automatic clevis	pin-adjusting or quick-adjusting scale
Hitch eye bolt	eye bolt or automatic hook (*)
Swinging drawbar	standard
Roller swinging drawbar	optional
Power take-off	
Type	interchangeable / shiftable shaft
540/1000/eco	optional (*)
540/750/1000	-
750/1000	optional (*)
Number of clutch discs	4
Power take-off brake	hydraulic
Proportional PTO	optional
Automated power take-off	optional
Front power take-off	optional

Front axle	
Model	AG 85
Type	fixed or suspended (optional)
Rotational direction	clockwise
Number of clutch discs	5
Swinging fender (4WD)	optional
2WD	optional
Front linkage (optional)	2.5 T
Hydraulics	
57 l/min Open Centre	optional
100 l/min TFLS	optional
110 l/min Closed Centre	optional
150 l/min Closed Centre	-
Orbitrol steering unit	125cc
Brake master cylinder	standard
Assisted braking	optional
Trailer brake	optional (*)
Auxiliary spool valves (maximum number)	4 electrohydraulic (2 SMS) or 4 mechanical
Couplers	decompression
Electronics	
Transmission control	two AUTOTRONIC 5s
Instrument panel	DCC2
Linkage calculator	AUTOTRONIC 5
Draft sensors	2
Sensor capacity	4 T (standard) or 6 T (optional)
Datatronic	optional
Dual control (front and rear)	optional
TIC with / without draft sensor	optional
Fieldstar	optional
Cab	
Suspension	optional
Rear view mirrors	manual (standard) or electrical (optional)
Air conditioning	manual (standard) or automatic (optional)
Standard bonnet	fixed
Optional bonnet	tilting
Standard roof	standard
High-visibility roof	optional
Steep nose bonnet	optional
Platform	-
Reference (*): according to country	

C . Model 6460

Dynashift

Engine	
ISO power hp (kW) at 2200 rpm	115 (84)
Trademark	PERKINS EEM
Type	1104C-E44TA
Number of cylinders / Cylinder capacity	4 / 4.4 Turbo
Injection pump	Bosch VP30
Fan	Viscostatic
Intercooler	Air / air
Alternator	80 A
Gearbox	
Gearbox model	GBA20 (4x4)
Clutch / Reverse shuttle	PowerShuttle
Type	Dynashift
Autodrive	optional
Creeper unit 4/1	optional
Creeper unit 14/1	optional
Rear axle	
Axle model	GPA20
Final drive units	HD
Wheel shaft Ø	76 mm
Straight shaft	-
Flanged shaft	standard
Brake discs per trumpet housing	1
Handbrake discs	3
Differential lock	Coupler
Linkage	
Stabilisers	telescopic
Perforated bar	optional
3-point linkage	cat. 2, hook or ball type (*)
Clevis	pin-adjusting or quick-adjusting scale
Automatic clevis	pin-adjusting or quick-adjusting scale
Hitch eye bolt	eye bolt or automatic hook (*)
Swinging drawbar	standard
Roller swinging drawbar	optional
Power take-off	
Type	interchangeable / shiftable shaft
540/1000/eco	optional (*)
540/750/1000	-
750/1000	optional (*)
Number of clutch discs	4
Power take-off brake	hydraulic
Proportional PTO	optional
Automated power take-off	optional
Front power take-off	optional
Front axle	
Model	AG 105
Type	fixed or suspended (optional)
Rotational direction	clockwise
Number of clutch discs	5
Swinging fender (4WD)	optional
2WD	optional
Front linkage (optional)	2.5 T
Hydraulics	
57 l/min Open Centre	optional
100 l/min TFLS	optional
110 l/min Closed Centre	optional
150 l/min Closed Centre	-
Orbitrol steering unit	125cc
Brake master cylinder	standard
Assisted braking	optional
Trailer brake	optional (*)
Auxiliary spool valves (maximum number)	4 electrohydraulic (2 SMS) or 4 mechanical
Couplers	decompression
Electronics	
Transmission control	AUTOTRONIC 3
Instrument panel	DCC2
Linkage calculator	EHRC
Draft sensors	2
Sensor capacity	4 T (standard) or 6 T (optional)
Datatronic	optional
Dual control (front and rear)	optional
TIC with / without draft sensor	optional
Fieldstar	optional
Cab	
Suspension	optional
Rear view mirrors	manual (standard) or electrical (optional)
Air conditioning	manual (standard) or automatic (optional)
Standard bonnet	fixed
Optional bonnet	tilting
Standard roof	standard
High-visibility roof	optional
Steep nose bonnet	-
Platform	-
Reference (*): according to country	

Dyna -6

Engine	
ISO power hp (kW) at 2200 rpm	115 (84)
Trademark	PERKINS EEM
Type	1104C-E44TA
Number of cylinders / Cylinder capacity	4 / 4.4 Turbo
Injection pump	Bosch VP30
Fan	Viscostatic
Intercooler	Air / air
Alternator	80 A
Gearbox	
Gearbox model	GBA25 (6x4)
Clutch / Reverse shuttle	PowerShuttle
Type	Dyna -6
Autodrive	optional
Creeper unit 4/1	optional
Creeper unit 14/1	optional
Rear axle	
Axle model	GPA20
Final drive units	HD
Wheel shaft Ø	76 mm
Straight shaft	-
Flanged shaft	standard
Brake discs per trumpet housing	1
Handbrake discs	3
Differential lock	Coupler
Linkage	
Stabilisers	telescopic
Perforated bar	optional
3-point linkage	cat. 2, hook or ball type (*)
Clevis	pin-adjusting or quick-adjusting scale
Automatic clevis	pin-adjusting or quick-adjusting scale
Hitch eye bolt	eye bolt or automatic hook (*)
Swinging drawbar	standard
Roller swinging drawbar	optional
Power take-off	
Type	interchangeable / shiftable shaft
540/1000/eco	optional (*)
540/750/1000	-
750/1000	optional (*)
Number of clutch discs	4
Power take-off brake	hydraulic
Proportional PTO	optional
Automated power take-off	optional
Front power take-off	optional

Front axle	
Model	AG 105
Type	fixed or suspended (optional)
Rotational direction	clockwise
Number of clutch discs	5
Swinging fender (4WD)	optional
2WD	optional
Front linkage (optional)	2.5 T
Hydraulics	
57 l/min Open Centre	optional
100 l/min TFLS	optional
110 l/min Closed Centre	optional
150 l/min Closed Centre	-
Orbitrol steering unit	125cc
Brake master cylinder	standard
Assisted braking	optional
Trailer brake	optional (*)
Auxiliary spool valves (maximum number)	4 electrohydraulic (2 SMS) or 4 mechanical
Couplers	decompression
Electronics	
Transmission control	two AUTOTRONIC 5s
Instrument panel	DCC2
Linkage calculator	AUTOTRONIC 5
Draft sensors	2
Sensor capacity	4 T (standard) or 6 T (optional)
Datatronic	optional
Dual control (front and rear)	optional
TIC with / without draft sensor	optional
Fieldstar	optional
Cab	
Suspension	optional
Rear view mirrors	manual (standard) or electrical (optional)
Air conditioning	manual (standard) or automatic (optional)
Standard bonnet	fixed
Optional bonnet	tilting
Standard roof	standard
High-visibility roof	optional
Steep nose bonnet	-
Platform	-
Reference (*): according to country	

D . Model 6465

Dynashift

Engine	
ISO power hp (kW) at 2200 rpm	120 (89,5)
Trademark	PERKINS EEM
Type	1106C-E66TA
Number of cylinders / Cylinder capacity	6 / 6.0 Turbo
Injection pump	Bosch VP30
Fan	Viscostatic
Intercooler	Air / air
Alternator	80 or 120 A
Gearbox	
Gearbox model	GBA20 (4x4)
Clutch / Reverse shuttle	PowerShuttle
Type	Dynashift
Autodrive	optional
Creeper unit 4/1	optional
Creeper unit 14/1	optional
Rear axle	
Axle model	GPA20
Final drive units	HD
Wheel shaft Ø	76 mm
Straight shaft	optional
Flanged shaft	standard
Brake discs per trumpet housing	1
Handbrake discs	3
Differential lock	Coupler
Linkage	
Stabilisers	telescopic
Perforated bar	optional
3-point linkage	cat. 2 or 3, hook or ball type (*)
Clevis	pin-adjusting or quick-adjusting scale
Automatic clevis	pin-adjusting or quick-adjusting scale
Hitch eye bolt	eye bolt or automatic hook (*)
Swinging drawbar	standard
Roller swinging drawbar	optional
Power take-off	
Type	interchangeable / shiftable shaft
540/1000/eco	optional (*)
540/750/1000	-
750/1000	optional (*)
Number of clutch discs	5
Power take-off brake	hydraulic
Proportional PTO	optional
Automated power take-off	optional
Front power take-off	optional
Front axle	
Model	20.19
Type	fixed or suspended (optional)
Rotational direction	clockwise
Number of clutch discs	5
Swinging fender (4WD)	optional
2WD	optional
Front linkage (optional)	2.5 T or 3.5 T
Hydraulics	
57 l/min Open Centre	optional
100 l/min TFLS	optional
110 l/min Closed Centre	optional
150 l/min Closed Centre	-
Orbitrol steering unit	160cc
Brake master cylinder	standard
Assisted braking	optional
Trailer brake	optional (*)
Auxiliary spool valves (maximum number)	4 electrohydraulic (2 SMS) or 4 mechanical
Couplers	decompression
Electronics	
Transmission control	AUTOTRONIC 3
Instrument panel	DCC2
Linkage calculator	EHRC
Draft sensors	2
Sensor capacity	4 T (standard) or 6 T (optional)
Datatronic	optional
Dual control (front and rear)	optional
TIC with / without draft sensor	optional
Fieldstar	optional
Cab	
Suspension	optional
Rear view mirrors	manual (standard) or electrical (optional)
Air conditioning	manual (standard) or automatic (optional)
Standard bonnet	fixed
Optional bonnet	tilting
Standard roof	standard
High-visibility roof	optional
Steep nose bonnet	-
Platform	optional (*)
Reference (*): according to country	

Dyna -6

Engine	
ISO power hp (kW) at 2200 rpm	120 (89,5)
Trademark	PERKINS EEM
Type	1106C-E66TA
Number of cylinders / Cylinder capacity	6 / 6.0 Turbo
Injection pump	Bosch VP30
Fan	Viscostatic
Intercooler	Air / air
Alternator	80 or 120 A
Gearbox	
Gearbox model	GBA25 (6x4)
Clutch / Reverse shuttle	PowerShuttle
Type	Dyna -6
Autodrive	optional
Creeper unit 4/1	optional
Creeper unit 14/1	optional
Rear axle	
Axle model	GPA20
Final drive units	HD
Wheel shaft Ø	76 mm
Straight shaft	optional
Flanged shaft	standard
Brake discs per trumpet housing	1
Handbrake discs	3
Differential lock	Coupler
Linkage	
Stabilisers	telescopic
Perforated bar	optional
3-point linkage	cat. 2 or 3, hook or ball type (*)
Clevis	pin-adjusting or quick-adjusting scale
Automatic clevis	pin-adjusting or quick-adjusting scale
Hitch eye bolt	eye bolt or automatic hook (*)
Swinging drawbar	standard
Roller swinging drawbar	optional
Power take-off	
Type	interchangeable / shiftable shaft
540/1000/eco	optional (*)
540/750/1000	-
750/1000	optional (*)
Number of clutch discs	5
Power take-off brake	hydraulic
Proportional PTO	optional
Automated power take-off	optional
Front power take-off	optional

Front axle	
Model	20.19
Type	fixed or suspended (optional)
Rotational direction	clockwise
Number of clutch discs	5
Swinging fender (4WD)	optional
2WD	optional
Front linkage (optional)	2.5 T or 3.5 T
Hydraulics	
57 l/min Open Centre	optional
100 l/min TFLS	optional
110 l/min Closed Centre	optional
150 l/min Closed Centre	-
Orbitrol steering unit	160cc
Brake master cylinder	standard
Assisted braking	optional
Trailer brake	optional (*)
Auxiliary spool valves (maximum number)	4 electrohydraulic (2 SMS) or 4 mechanical
Couplers	decompression
Electronics	
Transmission control	two AUTOTRONIC 5s
Instrument panel	DCC2
Linkage calculator	AUTOTRONIC 5
Draft sensors	2
Sensor capacity	4 T (standard) or 6 T (optional)
Datatronic	optional
Dual control (front and rear)	optional
TIC with / without draft sensor	optional
Fieldstar	optional
Cab	
Suspension	optional
Rear view mirrors	manual (standard) or electrical (optional)
Air conditioning	manual (standard) or automatic (optional)
Standard bonnet	fixed
Optional bonnet	tilting
Standard roof	standard
High-visibility roof	optional
Steep nose bonnet	-
Platform	optional (*)
Reference (*): according to country	

E . Model 6470

Dynashift

Engine	
ISO power hp (kW) at 2200 rpm	125 (91)
Trademark	PERKINS EEM
Type	1104C-E44TA
Number of cylinders / Cylinder capacity	4 / 4.4 Turbo
Injection pump	Bosch VP30
Fan	Viscostatic
Intercooler	Air / air
Alternator	80 A
Gearbox	
Gearbox model	GBA20 (4x4)
Clutch / Reverse shuttle	PowerShuttle
Type	Dynashift
Autodrive	optional
Creeper unit 4/1	optional
Creeper unit 14/1	optional
Rear axle	
Axle model	GPA20
Final drive units	HD
Wheel shaft Ø	76 mm
Straight shaft	-
Flanged shaft	standard
Brake discs per trumpet housing	1
Handbrake discs	3
Differential lock	Coupler
Linkage	
Stabilisers	telescopic
Perforated bar	optional
3-point linkage	cat. 2 or 3, hook or ball type (*)
Clevis	pin-adjusting or quick-adjusting scale
Automatic clevis	pin-adjusting or quick-adjusting scale
Hitch eye bolt	eye bolt or automatic hook (*)
Swinging drawbar	standard
Roller swinging drawbar	optional
Power take-off	
Type	interchangeable / shiftable shaft
540/1000/eco	optional (*)
540/750/1000	-
750/1000	optional (*)
Number of clutch discs	4
Power take-off brake	hydraulic
Proportional PTO	optional
Automated power take-off	optional
Front power take-off	optional
Front axle	
Model	AG 105
Type	fixed
Rotational direction	clockwise
Number of clutch discs	5
Swinging fender (4WD)	optional
2WD	optional
Front linkage (optional)	2.5 T
Hydraulics	
57 l/min Open Centre	optional
100 l/min TFLS	optional
110 l/min Closed Centre	optional
150 l/min Closed Centre	-
Orbitrol steering unit	125cc
Brake master cylinder	standard
Assisted braking	optional
Trailer brake	optional (*)
Auxiliary spool valves (maximum number)	4 electrohydraulic (2 SMS) or 4 mechanical
Couplers	decompression
Electronics	
Transmission control	AUTOTRONIC 3
Instrument panel	DCC2
Linkage calculator	EHRC
Draft sensors	2
Sensor capacity	4 T (standard) or 6 T (optional)
Datatronic	optional
Dual control (front and rear)	optional
TIC with / without draft sensor	optional
Fieldstar	optional
Cab	
Suspension	optional
Rear view mirrors	manual (standard) or electrical (optional)
Air conditioning	manual (standard) or automatic (optional)
Standard bonnet	fixed
Optional bonnet	tilting
Standard roof	standard
High-visibility roof	optional
Steep nose bonnet	-
Platform	-
Reference (*): according to country	

SPECIFICATIONS - General specifications

Dyna -6

Engine	
ISO power hp (kW) at 2200 rpm	125 (91)
Trademark	PERKINS EEM
Type	1104C-E44TA
Number of cylinders / Cylinder capacity	4 / 4.4 Turbo
Injection pump	Bosch VP30
Fan	Viscostatic
Intercooler	Air / air
Alternator	80 A
Gearbox	
Gearbox model	GBA25 (6x4)
Clutch / Reverse shuttle	PowerShuttle
Type	Dyna -6
Autodrive	optional
Creeper unit 4/1	optional
Creeper unit 14/1	optional
Rear axle	
Axle model	GPA20
Final drive units	HD
Wheel shaft Ø	76 mm
Straight shaft	-
Flanged shaft	standard
Brake discs per trumpet housing	1
Handbrake discs	3
Differential lock	Coupler
Linkage	
Stabilisers	telescopic
Perforated bar	optional
3-point linkage	cat. 2 or 3, hook or ball type (*)
Clevis	pin-adjusting or quick-adjusting scale
Automatic clevis	pin-adjusting or quick-adjusting scale
Hitch eye bolt	eye bolt or automatic hook (*)
Swinging drawbar	standard
Roller swinging drawbar	optional
Power take-off	
Type	interchangeable / shiftable shaft
540/1000/eco	optional (*)
540/750/1000	-
750/1000	optional (*)
Number of clutch discs	4
Power take-off brake	hydraulic
Proportional PTO	optional
Automated power take-off	optional
Front power take-off	optional

Front axle	
Model	AG 105
Type	fixed or suspended (optional)
Rotational direction	clockwise
Number of clutch discs	5
Swinging fender (4WD)	optional
2WD	optional
Front linkage (optional)	2.5 T
Hydraulics	
57 l/min Open Centre	optional
100 l/min TFLS	optional
110 l/min Closed Centre	optional
150 l/min Closed Centre	-
Orbitrol steering unit	125cc
Brake master cylinder	standard
Assisted braking	optional
Trailer brake	optional (*)
Auxiliary spool valves (maximum number)	4 electrohydraulic (2 SMS) or 4 mechanical
Couplers	decompression
Electronics	
Transmission control	two AUTOTRONIC 5s
Instrument panel	DCC2
Linkage calculator	AUTOTRONIC 5
Draft sensors	2
Sensor capacity	4 T (standard) or 6 T (optional)
Datatronic	optional
Dual control (front and rear)	optional
TIC with / without draft sensor	optional
Fieldstar	optional
Cab	
Suspension	optional
Rear view mirrors	manual (standard) or electrical (optional)
Air conditioning	manual (standard) or automatic (optional)
Standard bonnet	fixed
Optional bonnet	tilting
Standard roof	standard
High-visibility roof	optional
Steep nose bonnet	-
Platform	-
Reference (*): according to country	

F . Model 6475

Dynashift

Engine	
ISO power hp (kW) at 2200 rpm	135 (101)
Trademark	PERKINS EEM
Type	1106C-E66TA
Number of cylinders / Cylinder capacity	6 / 6.0 Turbo
Injection pump	Bosch VP30
Fan	Viscostatic
Intercooler	Air / air
Alternator	80 or 120 A
Gearbox	
Gearbox model	GBA20 (4x4)
Clutch / Reverse shuttle	PowerShuttle
Type	Dynashift
Autodrive	optional
Creeper unit 4/1	optional
Creeper unit 14/1	optional
Rear axle	
Axle model	GPA20
Final drive units	SHD
Wheel shaft Ø	82 mm
Straight shaft	optional
Flanged shaft	standard
Brake discs per trumpet housing	1
Handbrake discs	3
Differential lock	Coupler
Linkage	
Stabilisers	telescopic
Perforated bar	optional
3-point linkage	cat. 2 or 3, hook or ball type (*)
Clevis	pin-adjusting or quick-adjusting scale
Automatic clevis	pin-adjusting or quick-adjusting scale
Hitch eye bolt	eye bolt or automatic hook (*)
Swinging drawbar	standard
Roller swinging drawbar	optional
Power take-off	
Type	interchangeable / shiftable shaft
540/1000/eco	optional (*)
540/750/1000	-
750/1000	optional (*)
Number of clutch discs	5
Power take-off brake	hydraulic
Proportional PTO	optional
Automated power take-off	optional
Front power take-off	optional
Front axle	
Model	20.22
Type	fixed or suspended (optional)
Rotational direction	clockwise
Number of clutch discs	5
Swinging fender (4WD)	optional
2WD	optional
Front linkage (optional)	2.5 T or 3.5 T
Hydraulics	
57 l/min Open Centre	optional
100 l/min TFLS	optional
110 l/min Closed Centre	optional
150 l/min Closed Centre	-
Orbitrol steering unit	160cc
Brake master cylinder	standard
Assisted braking	optional
Trailer brake	optional (*)
Auxiliary spool valves (maximum number)	4 electrohydraulic (2 SMS) or 4 mechanical
Couplers	decompression
Electronics	
Transmission control	AUTOTRONIC 3
Instrument panel	DCC2
Linkage calculator	EHRC
Draft sensors	2
Sensor capacity	6 T
Datatronic	optional
Dual control (front and rear)	optional
TIC with / without draft sensor	optional
Fieldstar	optional
Cab	
Suspension	optional
Rear view mirrors	manual (standard) or electrical (optional)
Air conditioning	manual (standard) or automatic (optional)
Standard bonnet	fixed
Optional bonnet	tilting
Standard roof	standard
High-visibility roof	optional
Steep nose bonnet	-
Platform	optional (*)
Reference (*): according to country	

Dyna -6

Engine	
ISO power hp (kW) at 2200 rpm	135 (101)
Trademark	PERKINS EEM
Type	1106C-E66TA
Number of cylinders / Cylinder capacity	6 / 6.0 Turbo
Injection pump	Bosch VP30
Fan	Viscostatic
Intercooler	Air / air
Alternator	80 or 120 A
Gearbox	
Gearbox model	GBA25 (6x4)
Clutch / Reverse shuttle	PowerShuttle
Type	Dyna -6
Autodrive	optional
Creeper unit 4/1	optional
Creeper unit 14/1	optional
Rear axle	
Axle model	GPA20
Final drive units	SHD
Wheel shaft Ø	82 mm
Straight shaft	optional
Flanged shaft	standard
Brake discs per trumpet housing	1
Handbrake discs	3
Differential lock	Coupler
Linkage	
Stabilisers	telescopic
Perforated bar	optional
3-point linkage	cat. 2 or 3, hook or ball type (*)
Clevis	pin-adjusting or quick-adjusting scale
Automatic clevis	pin-adjusting or quick-adjusting scale
Hitch eye bolt	eye bolt or automatic hook (*)
Swinging drawbar	standard
Roller swinging drawbar	optional
Power take-off	
Type	interchangeable / shiftable shaft
540/1000/eco	optional (*)
540/750/1000	-
750/1000	optional (*)
Number of clutch discs	5
Power take-off brake	hydraulic
Proportional PTO	optional
Automated power take-off	optional
Front power take-off	optional

Front axle	
Model	20.22
Type	fixed or suspended (optional)
Rotational direction	clockwise
Number of clutch discs	5
Swinging fender (4WD)	optional
2WD	optional
Front linkage (optional)	2.5 T or 3.5 T
Hydraulics	
57 l/min Open Centre	optional
100 l/min TFLS	optional
110 l/min Closed Centre	optional
150 l/min Closed Centre	-
Orbitrol steering unit	160cc
Brake master cylinder	standard
Assisted braking	optional
Trailer brake	optional (*)
Auxiliary spool valves (maximum number)	4 electrohydraulic (2 SMS) or 4 mechanical
Couplers	decompression
Electronics	
Transmission control	two AUTOTRONIC 5s
Instrument panel	DCC2
Linkage calculator	AUTOTRONIC 5
Draft sensors	2
Sensor capacity	6 T
Datatronic	optional
Dual control (front and rear)	optional
TIC with / without draft sensor	optional
Fieldstar	optional
Cab	
Suspension	optional
Rear view mirrors	manual (standard) or electrical (optional)
Air conditioning	manual (standard) or automatic (optional)
Standard bonnet	fixed
Optional bonnet	tilting
Standard roof	standard
High-visibility roof	optional
Steep nose bonnet	-
Platform	optional (*)
Reference (*): according to country	

G . Model 6480

Dynashift

Engine	
ISO power hp (kW) at 2200 rpm	145 (107,4)
Trademark	PERKINS EEM
Type	1106C-E66TA
Number of cylinders / Cylinder capacity	6 / 6.0 Turbo
Injection pump	Bosch VP30
Fan	Viscostatic or Vistronic
Intercooler	Air / air
Alternator	80 or 120 A
Gearbox	
Gearbox model	GBA20 (4x4)
Clutch / Reverse shuttle	PowerShuttle
Type	Dynashift
Autodrive	optional
Creeper unit 4/1	optional
Creeper unit 14/1	optional
Rear axle	
Axle model	GPA20
Final drive units	SHD
Wheel shaft Ø	82 mm
Straight shaft	standard (US), option (EU)
Flanged shaft	standard (EU), option (US)
Brake discs per trumpet housing	1
Handbrake discs	3
Differential lock	Coupler
Linkage	
Stabilisers	telescopic
Perforated bar	optional
3-point linkage	cat. 2 or 3, hook or ball type (*)
Clevis	pin-adjusting or quick-adjusting scale
Automatic clevis	pin-adjusting or quick-adjusting scale
Hitch eye bolt	eye bolt or automatic hook (*)
Swinging drawbar	standard
Roller swinging drawbar	optional
Power take-off	
Type	interchangeable / shiftable shaft
540/1000/eco	optional (*)
540/750/1000	-
750/1000	optional (*)
Number of clutch discs	5
Power take-off brake	hydraulic
Proportional PTO	optional
Automated power take-off	optional
Front power take-off	optional
Front axle	
Model	20.29
Type	fixed or suspended (optional)
Rotational direction	clockwise
Number of clutch discs	5
Swinging fender (4WD)	optional
2WD	optional
Front linkage (optional)	2.5 T or 3.5 T
Hydraulics	
57 l/min Open Centre	optional
100 l/min TFLS	optional
110 l/min Closed Centre	optional
150 l/min Closed Centre	-
Orbitrol steering unit	160cc
Brake master cylinder	standard
Assisted braking	optional
Trailer brake	optional (*)
Auxiliary spool valves (maximum number)	4 electrohydraulic (2 SMS) or 4 mechanical
Couplers	decompression
Electronics	
Transmission control	AUTOTRONIC 3
Instrument panel	DCC2
Linkage calculator	EHRC
Draft sensors	2
Sensor capacity	6 T
Datatronic	optional
Dual control (front and rear)	optional
TIC with / without draft sensor	optional
Fieldstar	optional
Cab	
Suspension	optional
Rear view mirrors	manual (standard) or electrical (optional)
Air conditioning	manual (standard) or automatic (optional)
Standard bonnet	fixed
Optional bonnet	tilting
Standard roof	standard
High-visibility roof	optional
Steep nose bonnet	-
Platform	optional (*)
Reference (*): according to country	

Dyna -6

Engine	
ISO power hp (kW) at 2200 rpm	145 (107,4)
Trademark	PERKINS EEM
Type	1106C-E66TA
Number of cylinders / Cylinder capacity	6 / 6.0 Turbo
Injection pump	Bosch VP30
Fan	Viscostatic or Vistronic
Intercooler	Air / air
Alternator	80 or 120 A
Gearbox	
Gearbox model	GBA25 (6x4)
Clutch / Reverse shuttle	PowerShuttle
Type	Dyna -6
Autodrive	optional
Creeper unit 4/1	optional
Creeper unit 14/1	optional
Rear axle	
Axle model	GPA20
Final drive units	SHD
Wheel shaft Ø	82 mm
Straight shaft	standard (US), option (EU)
Flanged shaft	standard (EU), option (US)
Brake discs per trumpet housing	1
Handbrake discs	3
Differential lock	Coupler
Linkage	
Stabilisers	telescopic
Perforated bar	optional
3-point linkage	cat. 2 or 3, hook or ball type (*)
Clevis	pin-adjusting or quick-adjusting scale
Automatic clevis	pin-adjusting or quick-adjusting scale
Hitch eye bolt	eye bolt or automatic hook (*)
Swinging drawbar	standard
Roller swinging drawbar	optional
Power take-off	
Type	interchangeable / shiftable shaft
540/1000/eco	optional (*)
540/750/1000	-
750/1000	optional (*)
Number of clutch discs	5
Power take-off brake	hydraulic
Proportional PTO	optional
Automated power take-off	optional
Front power take-off	optional

Front axle	
Model	20.29
Type	fixed or suspended (optional)
Rotational direction	clockwise
Number of clutch discs	5
Swinging fender (4WD)	optional
2WD	optional
Front linkage (optional)	2.5 T or 3.5 T
Hydraulics	
57 l/min Open Centre	optional
100 l/min TFLS	optional
110 l/min Closed Centre	optional
150 l/min Closed Centre	-
Orbitrol steering unit	160cc
Brake master cylinder	standard
Assisted braking	optional
Trailer brake	optional (*)
Auxiliary spool valves (maximum number)	4 electrohydraulic (2 SMS) or 4 mechanical
Couplers	decompression
Electronics	
Transmission control	two AUTOTRONIC 5s
Instrument panel	DCC2
Linkage calculator	AUTOTRONIC 5
Draft sensors	2
Sensor capacity	6 T
Datatronic	optional
Dual control (front and rear)	optional
TIC with / without draft sensor	optional
Fieldstar	optional
Cab	
Suspension	optional
Rear view mirrors	manual (standard) or electrical (optional)
Air conditioning	manual (standard) or automatic (optional)
Standard bonnet	fixed
Optional bonnet	tilting
Standard roof	standard
High-visibility roof	optional
Steep nose bonnet	-
Platform	optional (*)
Reference (*): according to country	

H . Model 6485

Dynashift

Engine	
ISO power hp (kW) at 2200 rpm	155 (115,6)
Trademark	SISU EEM
Type	Fortius 66ETA
Number of cylinders / Cylinder capacity	6 / 6.6 Turbo
Injection pump	Bosch VP30
Fan	Viscostatic or Vistronic
Intercooler	Air / air
Alternator	120 or 150 A
Gearbox	
Gearbox model	GBA10
Clutch / Reverse shuttle	PowerShuttle
Type	Dynashift
Autodrive	optional
Creeper unit 4/1	optional
Rear axle	
Axle model	GPA40
Final drive units	ND / HD
Wheel shaft Ø	95 mm
Straight shaft	standard (US), option (EU)
Flanged shaft	standard (EU), option (US)
Brake discs per trumpet housing	1
Handbrake discs	6
ParkLock	optional
Differential lock	5" multidisc
Linkage	
Stabilisers	telescopic / with shoes / automatic (*)
Perforated bar	optional
3-point linkage	cat. 2 or 3, hook or ball type (*)
Clevis	pin-adjusting or quick-adjusting scale (*)
Automatic clevis	pin-adjusting or quick-adjusting scale (*)
Hitch eye bolt	eye bolt or automatic hook (*)
Swinging drawbar	standard
Roller swinging drawbar	optional
Power take-off	
Type	shiftable
540/1000/eco	-
540/750/1000	optional (*)
750/1000	optional (*)
Number of clutch discs	5
Power take-off brake	hydraulic
Proportional PTO	optional
Automated power take-off	optional
Front power take-off	optional
Front axle	
Model	20.43
Type	fixed or suspended (optional)
Rotational direction	clockwise
Number of clutch discs	6
Swinging fender (4WD)	optional
2WD	optional
Front linkage (optional)	2.5 T or 3.5 T
Hydraulics	
57 l/min Open Centre	-
100 l/min TFLS	optional
110 l/min Closed Centre	optional
150 l/min Closed Centre	-
Orbitrol steering unit	80cc / 205cc
Brake master cylinder	-
Assisted braking	standard
Trailer brake	optional (*)
Auxiliary spool valves (maximum number)	4 electrohydraulic (2 SMS) or 4 mechanical
Couplers	decompression
Electronics	
Transmission control	AUTOTRONIC 3 / AUTOTRONIC 5
Instrument panel	DCC2
Linkage calculator	EHRC / AUTOTRONIC 5
Draft sensors	2
Sensor capacity	6 T
Datatronic	DATATRONIC 2 (optional) / DATATRONIC 3 (optional)
Dual control (front and rear)	optional
TIC with / without draft sensor	optional
Fieldstar	optional / -
Cab	
Suspension	optional
Rear view mirrors	manual (standard) or electrical (optional)
Air conditioning	manual (standard) or automatic (optional)
Standard bonnet	fixed
Optional bonnet	tilting
Standard roof	standard
High-visibility roof	optional
Steep nose bonnet	-
Platform	optional (*)
Reference (*): according to country	

I . Model 6490

Dynashift

Engine	
ISO power hp (kW) at 2200 rpm	170 (126,8)
Trademark	SISU EEM
Type	Fortius 66ETA
Number of cylinders / Cylinder capacity	6 / 6.6 Turbo
Injection pump	Bosch VP30
Fan	Viscostatic or Vistronic
Intercooler	Air / air
Alternator	120 or 150 A
Gearbox	
Gearbox model	GBA10
Clutch / Reverse shuttle	PowerShuttle
Type	Dynashift
Autodrive	optional
Creeper unit 4/1	optional
Rear axle	
Axle model	GPA40
Final drive units	HD / HDE
Wheel shaft Ø	95 mm
Straight shaft	standard (US), option (EU)
Flanged shaft	standard (EU), option (US)
Brake discs per trumpet housing	1
Handbrake discs	6
ParkLock	optional
Differential lock	5" multidisc
Linkage	
Stabilisers	telescopic / with shoes / automatic (*)
Perforated bar	optional
3-point linkage	cat. 2 or 3, hook or ball type (*)
Clevis	pin-adjusting or quick-adjusting scale (*)
Automatic clevis	pin-adjusting or quick-adjusting scale (*)
Hitch eye bolt	eye bolt or automatic hook (*)
Swinging drawbar	standard
Roller swinging drawbar	optional
Power take-off	
Type	shiftable
540/1000/eco	-
540/750/1000	optional (*)
750/1000	optional (*)
Number of clutch discs	5
Power take-off brake	hydraulic
Proportional PTO	optional
Automated power take-off	optional
Front power take-off	optional
Front axle	
Model	20.43
Type	fixed or suspended (optional)
Rotational direction	clockwise
Number of clutch discs	6
Swinging fender (4WD)	optional
2WD	optional
Front linkage (optional)	2.5 T or 3.5 T
Hydraulics	
57 l/min Open Centre	-
100 l/min TFLS	optional
110 l/min Closed Centre	optional
150 l/min Closed Centre	-
Orbitrol steering unit	80cc / 205cc
Brake master cylinder	-
Assisted braking	standard
Trailer brake	optional (*)
Auxiliary spool valves (maximum number)	4 electrohydraulic (2 SMS) or 4 mechanical
Couplers	decompression
Electronics	
Transmission control	AUTOTRONIC 3 / AUTOTRONIC 5
Instrument panel	DCC2
Linkage calculator	EHRC / AUTOTRONIC 5
Draft sensors	2
Sensor capacity	6 T
Datatronic	DATATRONIC 2 (optional) / DATATRONIC 3 (optional)
Dual control (front and rear)	optional
TIC with / without draft sensor	optional
Fieldstar	optional / -
Cab	
Suspension	optional
Rear view mirrors	manual (standard) or electrical (optional)
Air conditioning	manual (standard) or automatic (optional)
Standard bonnet	fixed
Optional bonnet	tilting
Standard roof	standard
High-visibility roof	optional
Steep nose bonnet	-
Platform	optional (*)
Reference (*): according to country	

J . Model 6495

Dynashift

Engine	
ISO power hp (kW) at 2200 rpm	185 (138)
Trademark	SISU EEM
Type	Fortius 66ETA
Number of cylinders / Cylinder capacity	6 / 6.6 Turbo
Injection pump	Bosch VP30
Fan	Viscostatic or Vistronic
Intercooler	Air / air
Alternator	120 or 150 A
Gearbox	
Gearbox model	GBA10
Clutch / Reverse shuttle	PowerShuttle
Type	Dynashift
Autodrive	optional
Creeper unit 4/1	optional
Rear axle	
Axle model	GPA40
Final drive units	HDE
Wheel shaft Ø	95 mm
Straight shaft	standard (US), option (EU)
Flanged shaft	standard (EU), option (US)
Brake discs per trumpet housing	1
Handbrake discs	6
ParkLock	optional
Differential lock	7" multidisc
Linkage	
Stabilisers	telescopic / with shoes / automatic (*)
Perforated bar	optional
3-point linkage	cat. 2 or 3, hook or ball type (*)
Clevis	pin-adjusting or quick-adjusting scale (*)
Automatic clevis	pin-adjusting or quick-adjusting scale (*)
Hitch eye bolt	eye bolt or automatic hook (*)
Swinging drawbar	standard
Roller swinging drawbar	optional
Power take-off	
Type	shiftable
540/1000/eco	-
540/750/1000	optional (*)
750/1000	optional (*)
Number of clutch discs	5
Power take-off brake	hydraulic
Proportional PTO	optional
Automated power take-off	optional
Front power take-off	optional
Front axle	
Model	20.43
Type	fixed or suspended (optional)
Rotational direction	clockwise
Number of clutch discs	6
Swinging fender (4WD)	optional
2WD	optional
Front linkage (optional)	2.5 T or 3.5 T
Hydraulics	
57 l/min Open Centre	-
100 l/min TFLS	optional
110 l/min Closed Centre	optional
150 l/min Closed Centre	-
Orbitrol steering unit	80cc / 205cc
Brake master cylinder	-
Assisted braking	standard
Trailer brake	optional (*)
Auxiliary spool valves (maximum number)	4 electrohydraulic (2 SMS) or 4 mechanical
Couplers	decompression
Electronics	
Transmission control	AUTOTRONIC 3 / AUTOTRONIC 5
Instrument panel	DCC2
Linkage calculator	EHRC / AUTOTRONIC 5
Draft sensors	2
Sensor capacity	6 T
Datatronic	DATATRONIC 2 (optional) / DATATRONIC 3 (optional)
Dual control (front and rear)	optional
TIC with / without draft sensor	optional
Fieldstar	optional / -
Cab	
Suspension	optional
Rear view mirrors	manual (standard) or electrical (optional)
Air conditioning	manual (standard) or automatic (optional)
Standard bonnet	fixed
Optional bonnet	tilting
Standard roof	standard
High-visibility roof	optional
Steep nose bonnet	-
Platform	optional (*)
Reference (*): according to country	

K . Model 6497

Dynashift

Engine	
ISO power hp (kW) at 2200 rpm	185 (138)
Trademark	SISU EEM
Type	Fortius 66ETA
Number of cylinders / Cylinder capacity	6 / 6.6 Turbo
Injection pump	Bosch VP30
Fan	Viscostatic or Vistronic
Intercooler	Air / air
Alternator	120 or 150 A
Gearbox	
Gearbox model	GBA10
Clutch / Reverse shuttle	PowerShuttle
Type	Dynashift
Autodrive	optional
Creeper unit 4/1	optional
Rear axle	
Axle model	GPA30
Final drive units	HDE / Composite
Wheel shaft Ø	95 mm / 110 mm
Straight shaft	standard
Brake discs per trumpet housing	1
Handbrake discs	6
ParkLock	optional
Differential lock	7" multidisc
Linkage	
Stabilisers	telescopic / with shoes / automatic (*)
Perforated bar	optional
3-point linkage	cat. 2 or 3, hook or ball type (*)
Clevis	pin-adjusting or quick-adjusting scale (*)
Automatic clevis	pin-adjusting or quick-adjusting scale (*)
Hitch eye bolt	eye bolt or automatic hook (*)
Swinging drawbar	standard
Roller swinging drawbar	optional
Power take-off	
Type	shiftable
540/1000/eco	-
540/750/1000	optional (*)
750/1000	optional (*)
Number of clutch discs	6
Power take-off brake	hydraulic
Proportional PTO	optional
Automated power take-off	optional

Front power take-off	optional	
Front axle		
Model	20.43	
Type	fixed or suspended (optional)	
Rotational direction	clockwise	
Number of clutch discs	6	
Swinging fender (4WD)	optional	
2WD	optional	
Front linkage (optional)	3.5 T or 5 T	
Hydraulics		
110 l/min Closed Centre	standard	
Orbitrol steering unit	80cc / 205cc	
Assisted braking	standard	
Trailer brake	optional (*)	
Auxiliary spool valves (maximum number)	4 electrohydraulic (2 SMS) or 4 mechanical	
Couplers	decompression	
Electronics		
Transmission control	AUTOTRONIC 3	AUTOTRONIC 5
Instrument panel	DCC2	
Linkage calculator	EHRC	AUTOTRONIC 5
Draft sensors	2	
Sensor capacity	6 T	
Datatronic	DATATRONIC 2 (optional)	DATATRONIC 3 (optional)
Dual control (front and rear)	optional	
TIC with / without draft sensor	optional	
Fieldstar	optional	-
Cab		
Suspension	optional	
Rear view mirrors	manual (standard) or electrical (optional)	
Air conditioning	manual (standard) or automatic (optional)	
Standard bonnet	fixed	
Optional bonnet	tilting	
Standard roof	standard	
High-visibility roof	optional	
Reference (*): according to country		

Dyna-6

Engine	
ISO power hp (kW) at 2200 rpm	200 (147)
Trademark	SISU EEM
Type	Citius 74CTA
Number of cylinders / Cylinder capacity	6 / 7,4 Turbo
Injection pump	Bosch CP3.3
Fan	Vistronic
Intercooler	Air / air
Alternator	120 ou 150 A
Gearbox	
Gearbox model	GBA15
Clutch / Reverse shuttle	Inverseur sous couple
Type	Dyna-6
Autodrive	option
Creeper unit 4/1	option
Rear axle	
Axle model	GPA40
Final drive units	HDE / Composite
Wheel shaft Ø	110 mm
Straight shaft	standard
Brake discs per trumpet housing	1
Handbrake discs	6
ParkLock	option
Differential lock	Multidisques 7"
Linkage	
Stabilisers	télescopique / à sabot / automatique (*)
Perforated bar	option
3-point linkage	cat.2 ou 3, avec crochets ou boules (*)
Clevis	échelle à broches ou réglage rapide (*)
Automatic clevis	échelle à broches ou réglage rapide (*)
Hitch eye bolt	piton ou crochet automatique (*)
Swinging drawbar	standard
Roller swinging drawbar	option
Power take-off	
Type	crabotable
540/1000/eco	-
540/750/1000	option (*)
750/1000	option (*)
Number of clutch discs	6
Power take-off brake	hydraulique
Proportional PTO	option
Automated power take-off	option
Front power take-off	option

Front axle	
Model	20.48
Type	fixe ou suspendu (option)
Rotational direction	horaire
Number of clutch discs	6
Swinging fender (4WD)	option
2WD	option
Front linkage (optional)	3,5 T ou 5 T
Hydraulics	
110 l/min Closed Centre	standard
Orbitrol steering unit	80cc / 205cc
Assisted braking	standard
Trailer brake	option (*)
Auxiliary spool valves (maximum number)	4 électro-hydrauliques ou 4 mécaniques
Couplers	décompression
Electronics	
Transmission control	AUTOTRONIC 5
Instrument panel	DCC2
Linkage calculator	AUTOTRONIC 5
Draft sensors	2
Sensor capacity	6 T
Datatronic	DATATRONIC 3 (option)
Dual control (front and rear)	option
TIC with / without draft sensor	option
Fieldstar	option
Cab	
Suspension	option
Rear view mirrors	manuel (standard) ou électrique (option)
Air conditioning	manuelle (standard) ou automatique (option)
Standard bonnet	fixe
Optional bonnet	articulé
Standard roof	standard
High-visibility roof	option
Reference (*): according to country	

L . Model 6499

Dynashift

Engine	
ISO power hp (kW) at 2200 rpm	215 (158)
Trademark	SISU EEM
Type	Fortius 74ETA
Number of cylinders / Cylinder capacity	6 / 7.4 Turbo
Injection pump	Bosch VP44
Fan	Viscostatic or Vistronic
Intercooler	Air / air
Alternator	120 or 150 A
Gearbox	
Gearbox model	GBA10
Clutch / Reverse shuttle	PowerShuttle
Type	Dynashift
Autodrive	optional
Creeper unit 4/1	optional
Rear axle	
Axle model	GPA30
Final drive units	Composite
Wheel shaft Ø	110 mm
Straight shaft	standard
Brake discs per trumpet housing	1
Handbrake discs	6
ParkLock	optional
Differential lock	7" multidisc
Linkage	
Stabilisers	telescopic / with shoes / automatic (*)
Perforated bar	optional
3-point linkage	cat. 2 or 3, hook or ball type (*)
Clevis	pin-adjusting or quick-adjusting scale (*)
Automatic clevis	pin-adjusting or quick-adjusting scale (*)
Hitch eye bolt	eye bolt or automatic hook (*)
Swinging drawbar	standard
Roller swinging drawbar	optional
Power take-off	
Type	shiftable
540/750/1000	optional (*)
750/1000	optional (*)
Number of clutch discs	6
Power take-off brake	hydraulic
Proportional PTO	optional
Automated power take-off	optional
Front power take-off	optional

Front axle		
Model	20.48	
Type	fixed or suspended (optional)	
Rotational direction	clockwise	
Number of clutch discs	7	
Swinging fender (4WD)	optional	
2WD	optional	
Front linkage (optional)	3.5 T or 5 T	
Hydraulics		
110 l/min Closed Centre	standard	
Orbitrol steering unit	80cc / 205cc	
Assisted braking	standard	
Trailer brake	optional (*)	
Auxiliary spool valves (maximum number)	4 electrohydraulic (2 SMS) or 4 mechanical	
Couplers	decompression	
Electronics		
Transmission control	AUTOTRONIC 3	AUTOTRONIC 5
Instrument panel	DCC2	
Linkage calculator	EHRC	AUTOTRONIC 5
Draft sensors	2	
Sensor capacity	6 T	
Datatronic	DATATRONIC 2 (optional)	DATATRONIC 3 (optional)
Dual control (front and rear)	optional	
TIC with / without draft sensor	optional	
Fieldstar	optional	-
Cab		
Suspension	optional	
Rear view mirrors	manual (standard) or electrical (optional)	
Air conditioning	manual (standard) or automatic (optional)	
Standard bonnet	fixed	
Optional bonnet	tilting	
Standard roof	standard	
High-visibility roof	optional	
Reference (*): according to country		

Dyna-6

Engine	
ISO power hp (kW) at 2200 rpm	215 (158)
Trademark	SISU EEM
Type	Citius 74CTA
Number of cylinders / Cylinder capacity	6 / 7,4 Turbo
Injection pump	Bosch CP3.3
Fan	Vistronic
Intercooler	Air / air
Alternator	120 ou 150 A
Gearbox	
Gearbox model	GBA15
Clutch / Reverse shuttle	Inverseur sous couple
Type	Dyna-6
Autodrive	option
Creeper unit 4/1	option
Rear axle	
Axle model	GPA40
Final drive units	HDE/Composite
Wheel shaft Ø	110 mm
Straight shaft	standard
Brake discs per trumpet housing	1
Handbrake discs	6
ParkLock	option
Differential lock	Multidisques 7"
Linkage	
Stabilisers	télescopique / à sabot / automatique (*)
Perforated bar	option
3-point linkage	cat.2 ou 3, avec crochets ou boules (*)
Clevis	échelle à broches ou réglage rapide (*)
Automatic clevis	échelle à broches ou réglage rapide (*)
Hitch eye bolt	piton ou crochet automatique (*)
Swinging drawbar	standard
Roller swinging drawbar	option
Power take-off	
Type	crabotable
540/1000/eco	
540/750/1000	option (*)
750/1000	option (*)
Number of clutch discs	6
Power take-off brake	hydraulique
Proportional PTO	option
Automated power take-off	option
Front power take-off	option

Front axle	
Model	20.48
Type	fixe ou suspendu (option)
Rotational direction	horaire
Number of clutch discs	7
Swinging fender (4WD)	option
2WD	option
Front linkage (optional)	3,5 T ou 5 T
Hydraulics	
110 l/min Closed Centre	standard
Orbitrol steering unit	80cc / 205cc
Assisted braking	standard
Trailer brake	option (*)
Auxiliary spool valves (maximum number)	4 électro-hydrauliques ou 4 mécaniques
Couplers	décompression
Electronics	
Transmission control	AUTOTRONIC 5
Instrument panel	DCC2
Linkage calculator	AUTOTRONIC 5
Draft sensors	2
Sensor capacity	6 T
Datatronic	DATATRONIC 3 (option)
Dual control (front and rear)	option
TIC with / without draft sensor	option
Fieldstar	option
Cab	
Suspension	option
Rear view mirrors	manuel (standard) ou électrique (option)
Air conditioning	manuelle (standard) ou automatique (option)
Standard bonnet	fixe
Optional bonnet	articulé
Standard roof	standard
High-visibility roof	option
Reference (*): according to country	

1B11 - SPECIFICATIONS - Ground speeds

CONTENTS

A . 6445

Dynashift 16.9R38 tyres

Ratio	Speeds at 2,200 rpm, forward and reverse position (kph)		
	Dynashift speeds	Creeper unit	Super creeper unit
Lo/1/A	2,03	0,51	0,14
B	2,38	0,59	0,17
C	2,81	0,70	0,20
D	3,29	0,82	0,23
2/A	3,45	0,86	0,25
B	4,04	1,01	0,29
C	4,77	1,19	0,34
D	5,59	1,40	0,40
3/A	4,55	1,14	0,32
B	5,32	1,33	0,38
C	6,28	1,57	0,45
D	7,35	1,84	0,52
4/A	6,15	1,54	0,44
B	7,20	1,80	0,51
C	8,50	2,13	0,60
D	9,95	2,49	0,71
Hi/1/A	7,62	-	-
B	8,92	-	-
C	10,53	-	-
D	12,32	-	-
2/A	12,95	-	-
B	15,16	-	-
C	17,89	-	-
D	20,94	-	-
3/A	17,04	-	-
B	19,95	-	-
C	23,55	-	-
D	27,56	-	-
4/A	23,06	-	-
B	26,99	-	-
C	31,86	-	-
D	37,29	-	-

6445 Dyna-6 - 19.4R38 tyres

Ratio	Speeds at 2,200 rpm, forward and reverse position (kph)		
	Dynashift speeds	Creeper unit	Super creeper unit
1/A	1,67	0,42	0,12
B	2,00	0,50	0,14
C	2,35	0,59	0,17
D	2,83	0,71	0,20
E	3,33	0,83	0,24
F	4,01	1,00	0,29
2/A	4,51	1,13	0,32
B	5,42	1,36	0,39
C	6,36	1,59	0,45
D	7,66	1,92	0,55
E	9,01	2,25	0,64
F	10,84	2,71	0,77
3/A	9,16	-	0,65
B	11,01	-	0,79
C	12,93	-	0,92
D	15,55	-	1,11
E	18,29	-	1,31
F	22,01	-	1,57
4/A	19,09	-	1,36
B	22,95	-	1,64
C	26,93	-	1,92
D	32,41	-	2,32
E	38,11	-	2,72
F	45,86*	-	3,28*

* : Ratio not authorised. The speed limit is ensured by the gearbox electronic control.

B . 6455

Dyanshift 18.4R38 tyres

Ratio	Speeds at 2,200 rpm, forward and reverse position (kph)		
	Dynashift speeds	Creeper unit	Super creeper unit
Lo/1/A	2,10	0,52	0,15
B	2,45	0,61	0,17
C	2,90	0,72	0,21
D	3,39	0,85	0,24
2/A	3,56	0,89	0,25
B	4,17	1,04	0,30
C	4,92	1,23	0,35
D	5,76	1,44	0,41
3/A	4,69	1,17	0,33
B	5,49	1,37	0,39
C	6,48	1,62	0,46
D	7,58	1,90	0,54
4/A	6,35	1,59	0,45
B	7,43	1,86	0,53
C	8,77	2,19	0,62
D	10,26	2,57	0,73
Hi/1/A	7,86	-	-
B	9,20	-	-
C	10,86	-	-
D	12,71	-	-
2/A	13,36	-	-
B	15,63	-	-
C	18,45	-	-
D	21,60	-	-
3/A	17,58	-	-
B	20,57	-	-
C	24,29	-	-
D	28,42	-	-
4/A	23,79	-	-
B	27,84	-	-
C	32,86	-	-
D	38,46	-	-

6455 Dyna-6 - 18.4R38 tyres

Ratio	Speeds at 2,200 rpm, forward and reverse position (kph)		
	Dyna-6 speeds	Creeper unit	Super creeper unit
1/A	1,67	0,42	0,12
B	2,00	0,50	0,14
C	2,35	0,59	0,17
D	2,83	0,71	0,20
E	3,33	0,83	0,24
F	4,01	1,00	0,29
2/A	4,51	1,13	0,32
B	5,42	1,36	0,39
C	6,36	1,59	0,45
D	7,66	1,92	0,55
E	9,01	2,25	0,64
F	10,84	2,71	0,77
3/A	9,16	-	0,65
B	11,01	-	0,79
C	12,93	-	0,92
D	15,55	-	1,11
E	18,29	-	1,31
F	22,01	-	1,57
4/A	19,09	-	1,36
B	22,95	-	1,64
C	26,93	-	1,92
D	32,41	-	2,32
E	38,11	-	2,72
F	45,86*	-	3,28*

* : Ratio not authorised. The speed limit is ensured by the gearbox electronic control.

C . 6460, 6465, 6470

Dynashift 18.4R38 tyres

Ratio	Speeds at 2,200 rpm, forward and reverse position (kph)		
	Dynashift speeds	Creeper unit	Super creeper unit
Lo/1/A	2,17	0,54	0,15
B	2,54	0,63	0,18
C	2,99	0,75	0,21
D	3,50	0,88	0,25
2/A	3,27	0,82	0,23
B	3,83	0,96	0,27
C	4,52	1,13	0,32
D	5,29	1,32	0,38
3/A	4,85	1,21	0,34
B	5,67	1,42	0,40
C	6,70	1,67	0,47
D	7,84	1,96	0,56
4/A	7,52	1,88	0,53
B	8,80	2,20	0,62
C	10,39	2,60	0,74
D	12,16	3,04	0,86
Hi/1/A	8,12	-	-
B	9,51	-	-
C	11,22	-	-
D	13,13	-	-
2/A	12,27	-	-
B	14,36	-	-
C	16,95	-	-
D	19,84	-	-
3/A	18,16	-	-
B	21,26	-	-
C	25,09	-	-
D	29,37	-	-
4/A	28,18	-	-
B	32,98	-	-
C	38,93	-	-
D	-	-	-

Dyna-6 18.4R38 tyres

Ratio	Speeds at 2,200 rpm, forward and reverse position (kph)		
	Dyna-6 speeds	Creeper unit	Super creeper unit
1/A	1,67	0,42	0,12
B	2,00	0,50	0,14
C	2,35	0,59	0,17
D	2,83	0,71	0,20
E	3,33	0,83	0,24
F	4,01	1,00	0,29
2/A	4,51	1,13	0,32
B	5,42	1,36	0,39
C	6,36	1,59	0,45
D	7,66	1,92	0,55
E	9,01	2,25	0,64
F	10,84	2,71	0,77
3/A	9,16	-	0,65
B	11,01	-	0,79
C	12,93	-	0,92
D	15,55	-	1,11
E	18,29	-	1,31
F	22,01	-	1,57
4/A	19,09	-	1,36
B	22,95	-	1,64
C	26,93	-	1,92
D	32,41	-	2,32
E	38,11	-	2,72
F	45,86*	-	3,28*

* : Ratio not authorised. The speed limit is ensured by the engine electronic control.

D . 6475, 6480

Dynashift 20.8R38 tyres

Ratio	Speeds at 2,200 rpm, forward and reverse position (kph)		
	Dynashift speeds	Creeper unit	Super creeper unit
Lo/1/A	2,21	0,55	0,16
B	2,59	0,65	0,18
C	3,06	0,76	0,22
D	3,58	0,89	0,25
2/A	3,34	0,84	0,24
B	3,91	0,98	0,28
C	4,62	1,15	0,33
D	5,40	1,35	0,38
3/A	4,95	1,24	0,35
B	5,79	1,45	0,41
C	6,83	1,71	0,48
D	8,00	2,00	0,57
4/A	7,67	1,92	0,54
B	8,98	2,24	0,64
C	10,60	2,65	0,75
D	12,41	3,10	0,88
Hi/1/A	8,29	-	-
B	9,70	-	-
C	11,45	-	-
D	13,40	-	-
2/A	12,52	-	-
B	14,65	-	-
C	17,30	-	-
D	20,25	-	-
3/A	18,54	-	-
B	21,70	-	-
C	25,61	-	-
D	29,98	-	-
4/A	28,76	-	-
B	33,66	-	-
C	39,73	-	-
D	-	-	-

Dyna-6 20.8R38 tyres

Ratio	Speeds at 2,200 rpm, forward and reverse position (kph)		
	Dyna-6 speeds	Creeper unit	Super creeper unit
1/A	1,58	0,40	0,11
B	1,90	0,48	0,14
C	2,24	0,56	0,16
D	2,69	0,67	0,19
E	3,16	0,79	0,23
F	3,81	0,95	0,27
2/A	4,28	1,07	0,31
B	5,15	1,29	0,37
C	6,05	1,51	0,43
D	7,28	1,82	0,52
E	8,56	2,14	0,61
F	10,30	2,58	0,74
3/A	8,70	-	0,62
B	10,46	-	0,75
C	12,28	-	0,88
D	14,78	-	1,06
E	17,38	-	1,24
F	20,91	-	1,49
4/A	19,53	-	1,40
B	23,48	-	1,68
C	27,56	-	1,97
D	33,16	-	2,37
E	39,00	-	2,79
F	46,93*	-	3,35*

* : Ratio not authorised. The speed limit is ensured by the engine electronic control.

E . 6485

ND 20.8R42 tyres

Ratio	Speeds at 2,200 rpm, forward and reverse position (kph)	
	Dynashift speeds	Creeper unit
Lo/1/A	2,55	0,62
B	2,99	0,73
C	3,53	0,86
D	4,13	1,01
2/A	3,86	0,94
B	4,52	1,11
C	5,34	1,30
D	6,24	1,53
3/A	5,52	1,35
B	6,46	1,58
C	7,62	1,86
D	8,92	2,18
4/A	7,99	1,95
B	9,35	2,29
C	11,04	2,70
D	12,92	3,16
Hi/1/A	9,83	-
B	11,51	-
C	13,59	-
D	15,90	-
2/A	14,87	-
B	17,40	-
C	20,54	-
D	24,04	-
3/A	21,24	-
B	24,86	-
C	29,34	-
D	34,35	-
4/A	30,76	-
B	36,00	-
C	42,50	-
D	-	-

6485 HD 20.8R42 tyres

Ratio	Speeds at 2,200 rpm, forward and reverse position (kph)	
	Dynashift speeds	Creeper unit
Lo/1/A	2,52	0,62
B	2,95	0,72
C	3,48	0,85
D	4,07	1,00
2/A	3,81	0,93
B	4,45	1,09
C	5,26	1,29
D	6,15	1,50
3/A	5,44	1,33
B	6,36	1,56
C	7,51	1,84
D	8,79	2,15
4/A	7,87	1,93
B	9,22	2,25
C	10,88	2,66
D	12,73	3,11
Hi/1/A	9,69	-
B	11,34	-
C	13,39	-
D	15,67	-
2/A	14,65	-
B	17,15	-
C	20,24	-
D	23,69	-
3/A	20,93	-
B	24,50	-
C	28,92	-
D	33,85	-
4/A	30,32	-
B	35,48	-
C	41,88	-
D	-	-

F . 6490

HD 20.8R38 tyres

Ratio	Speeds at 2,200 rpm, forward and reverse position (kph)	
	Dynashift speeds	Creeper unit
Lo/1/A	2,38	0,58
B	2,78	0,68
C	3,29	0,80
D	3,85	0,94
2/A	3,60	0,88
B	4,21	1,03
C	4,97	1,21
D	5,82	1,42
3/A	5,14	1,26
B	6,01	1,47
C	7,10	1,74
D	8,31	2,03
4/A	7,44	1,82
B	8,71	2,13
C	10,28	2,51
D	12,03	2,94
Hi/1/A	9,16	-
B	10,72	-
C	12,65	-
D	14,81	-
2/A	13,85	-
B	16,21	-
C	19,13	-
D	22,39	-
3/A	19,78	-
B	23,15	-
C	27,33	-
D	31,99	-
4/A	28,65	-
B	33,53	-
C	39,58	-
D	-	-

G . 6490, 6495, 6497

HDE 20.8R42 tyres

Ratio	Speeds at 2,200 rpm, forward and reverse position (kph)	
	Dynashift speeds	Creeper unit
Lo/1/A	2,36	0,58
B	2,76	0,68
C	3,26	0,80
D	3,82	0,93
2/A	3,57	0,87
B	4,18	1,02
C	4,93	1,21
D	5,77	1,41
3/A	5,10	1,25
B	5,97	1,46
C	7,05	1,72
D	8,25	2,02
4/A	7,39	1,81
B	8,65	2,11
C	10,21	2,50
D	11,95	2,92
Hi/1/A	9,09	-
B	10,64	-
C	12,56	-
D	14,70	-
2/A	13,75	-
B	16,09	-
C	18,99	-
D	22,23	-
3/A	19,64	-
B	22,99	-
C	27,13	-
D	31,76	-
4/A	28,44	-
B	33,29	-
C	39,30	-
D	-	-

H . 6497, 6499

Composite 20.8R42 tyres

Ratio	Speeds at 2,200 rpm, forward and reverse position (kph)	
	Dynashift speeds	Creeper unit
Lo/1/A	2,35	0,57
B	2,75	0,67
C	3,25	0,79
D	3,80	0,93
2/A	3,55	0,87
B	4,16	1,02
C	4,91	1,20
D	5,75	1,41
3/A	5,08	1,24
B	5,94	1,45
C	7,01	1,72
D	8,21	2,01
4/A	7,35	1,80
B	8,61	2,10
C	10,16	2,48
D	11,89	2,91
Hi/1/A	9,05	-
B	10,59	-
C	12,50	-
D	14,63	-
2/A	13,68	-
B	16,02	-
C	18,90	-
D	22,13	-
3/A	19,55	-
B	22,88	-
C	27,01	-
D	31,61	-
4/A	28,31	-
B	33,14	-
C	39,11	-
D	-	-

1B12 - SPECIFICATIONS - Dimensions

CONTENTS

A . Adjusting track width

Note : Distance in mm measured between tyre centres.

6445, 6455, 6460, 6465, 6470, 6475, 6480, 6485, 6490, 6495 (welded steel discs)

Model	6445	6455	6460	6465	6470	6475	6480	6485	6485	6490	6490	6495
Type of final drive units	HD	HD	HD	HD	HD	SHD	SHD	ND	HD	HD	HDE	HDE
Assembly with rim offset turned inwards (Fig. 1)												
Without spacer (A)	1622					1685		1758	1790		1812	
With 1 spacer (B)	1708					1771		1808	1840		1862	
With 2 spacers (C)	-					-		1858	1890		1912	
Assembly with rim offset turned outwards (Fig. 1)												
Without spacer (D)	1952					2015		2088	2120		2142	
With 1 spacer (E)	2038					2101		2138	2170		2192	
With 2 spacers (F)	-					-		2188	2220		2242	
Spacer width	43mm / spacer							25mm / spacer				
Wheel attachment	8-hole flange, Ø 203.2							8-hole flange, Ø 275				
Rim offset 75mm, disc thickness 15mm												

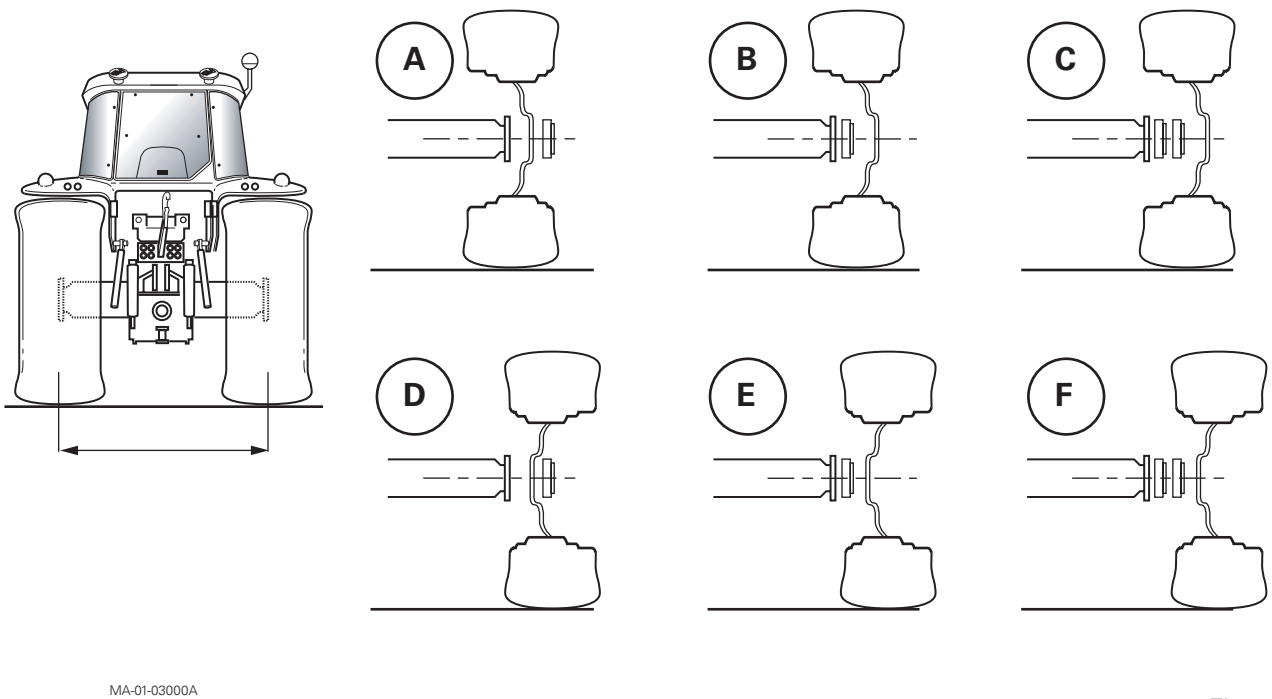


Fig. 1

6497, 6499 straight axle shafts (welded steel discs

and semi-drop centre cast iron disc)

Welded steel discs (Fig. 2)						
Type	HDE trumpet housings			Composite trumpet housings		
	Min.	Max.		Min.	Max.	
		Short shaft	Long shaft		Short shaft	Long shaft
Inwards rim offset (1)	1685	1991	3065	1662	2052	2724
Outwards rim offset (2)	2015	2321	3395	1992	2382	3054

Semi-drop centre cast iron discs (Fig. 2)							
Type		HDE trumpet housings			Composite trumpet housings		
		Min.	Max.		Min.	Max.	
			Short shaft	Long shaft		Short shaft	Long shaft
Inwards disc offset	Inwards rim offset (3)	1504	1808	2882	1448	1837	2509
	Outwards rim offset (4)	1834	2138	3208	1778	2167	2839
Outwards disc offset	Inwards rim offset (5)	1978	2282	3356	1922	2312	2984
	Outwards rim offset (6)	2308	2612	3686	2252	2642	3314

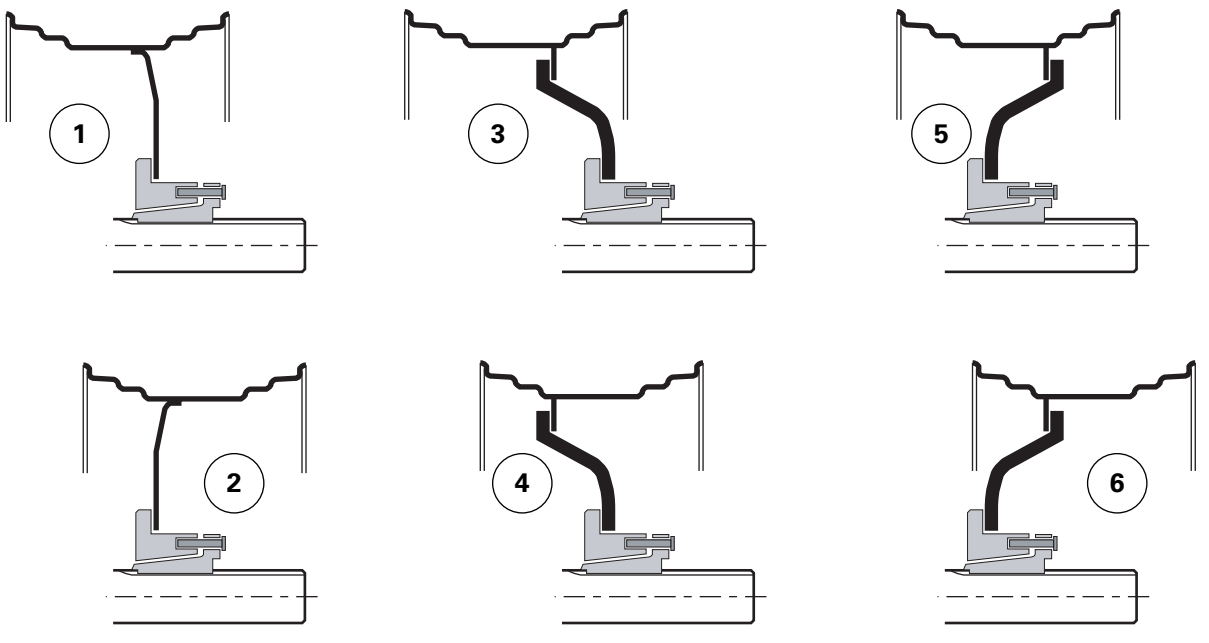
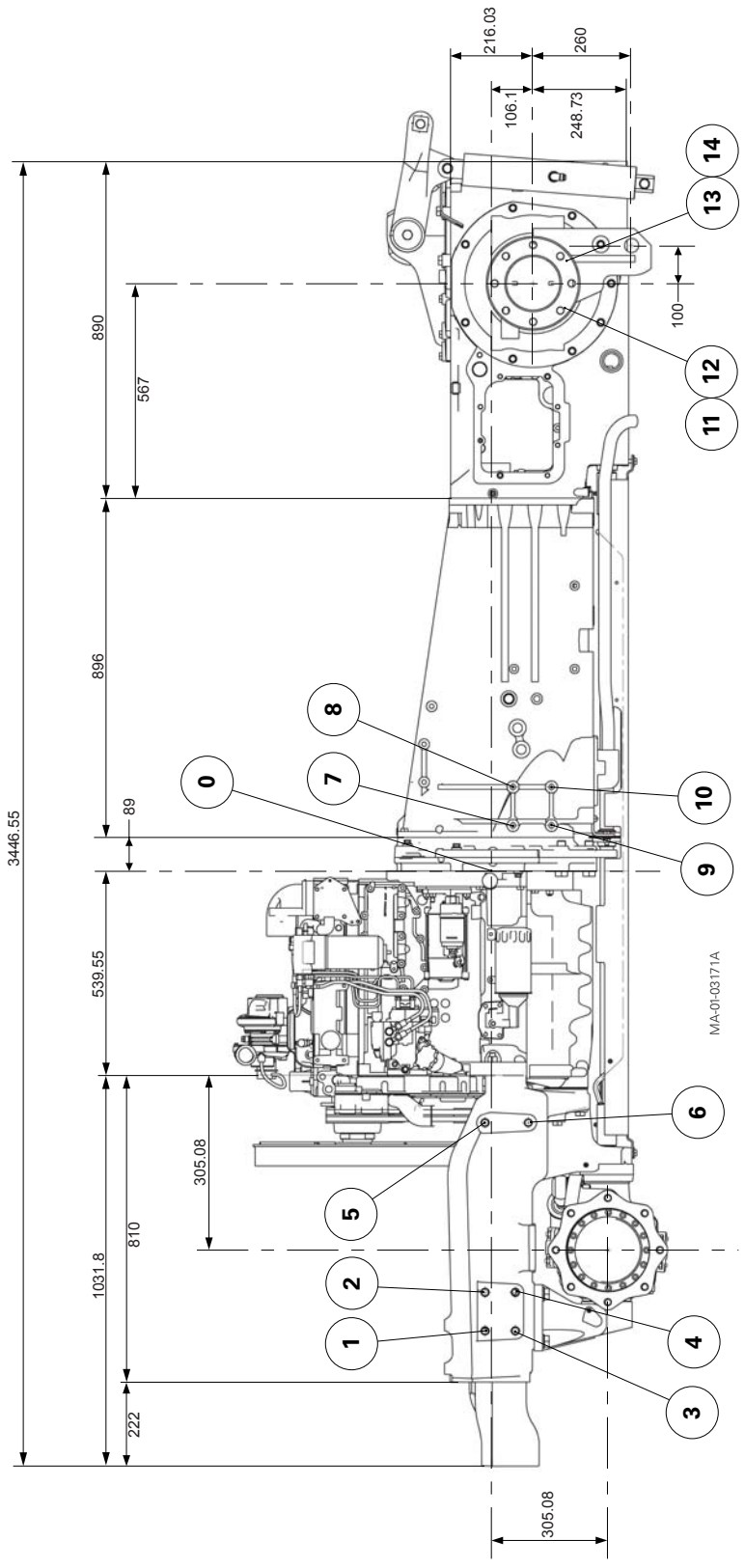


Fig. 2

B . Attachment points and dimensions

6445/6455/6460/6470 Dynashift

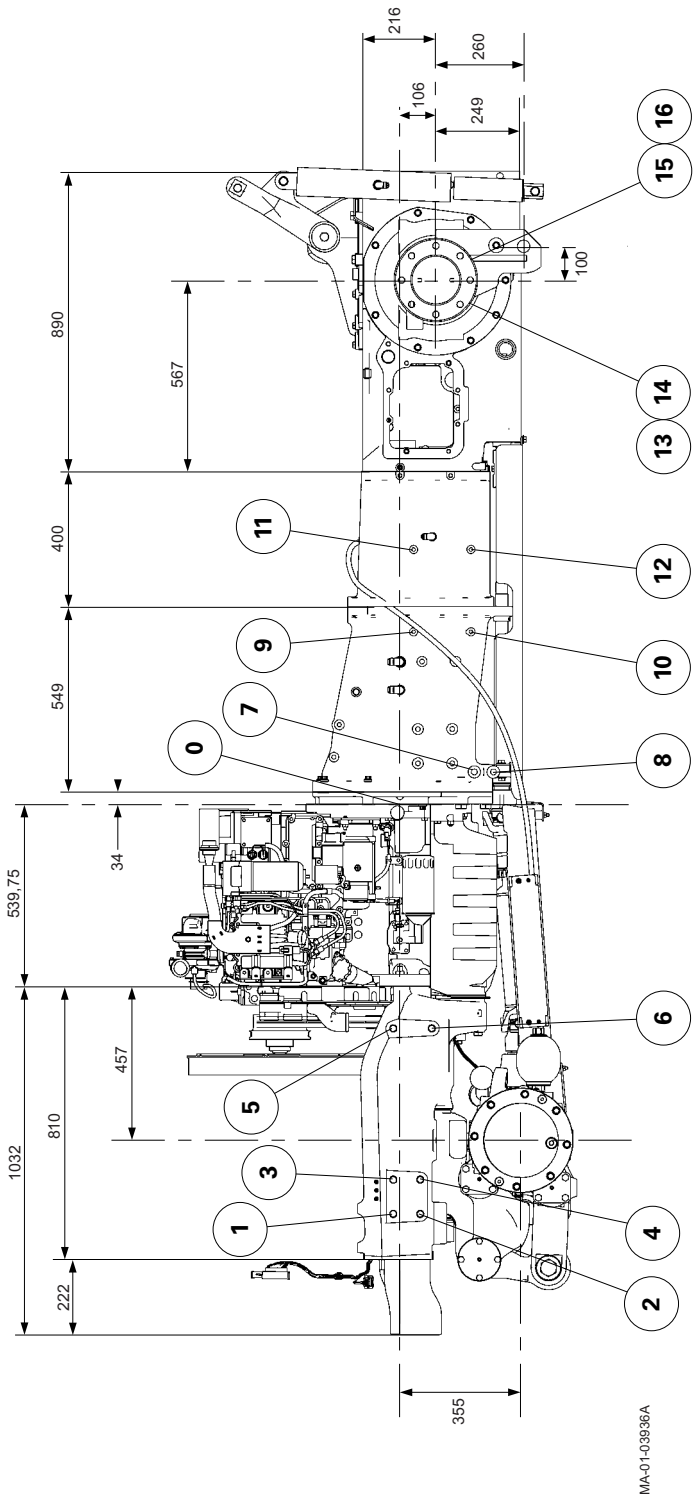


0	Reference point			
	Diameter	X	Y	Z
1	M20	-1214	280.241	20.79
2	M20	-1112.55	280.241	20.79
3	M20	-1214	280.241	-59.21
4	M20	-1112.55	280.241	-59.21
5	M20	-664.55	275.241	20.79
6	M20	-664.55	275.241	-93.21

7	M16	120.4	223	-53	
8	M16	222	223	-53	
9	M16	120.4	183	-154.6	
10	M16	222	183	-154.6	
11	20	1487	500.6	-198.1	
12	20	1487	600.6	-198.1	
13	20	1617	500.6	-198.1	
14	20	1617	600.6	-198.1	

Fig. 3

6445 / 6455 / 6460 / 6470 Dyna-6

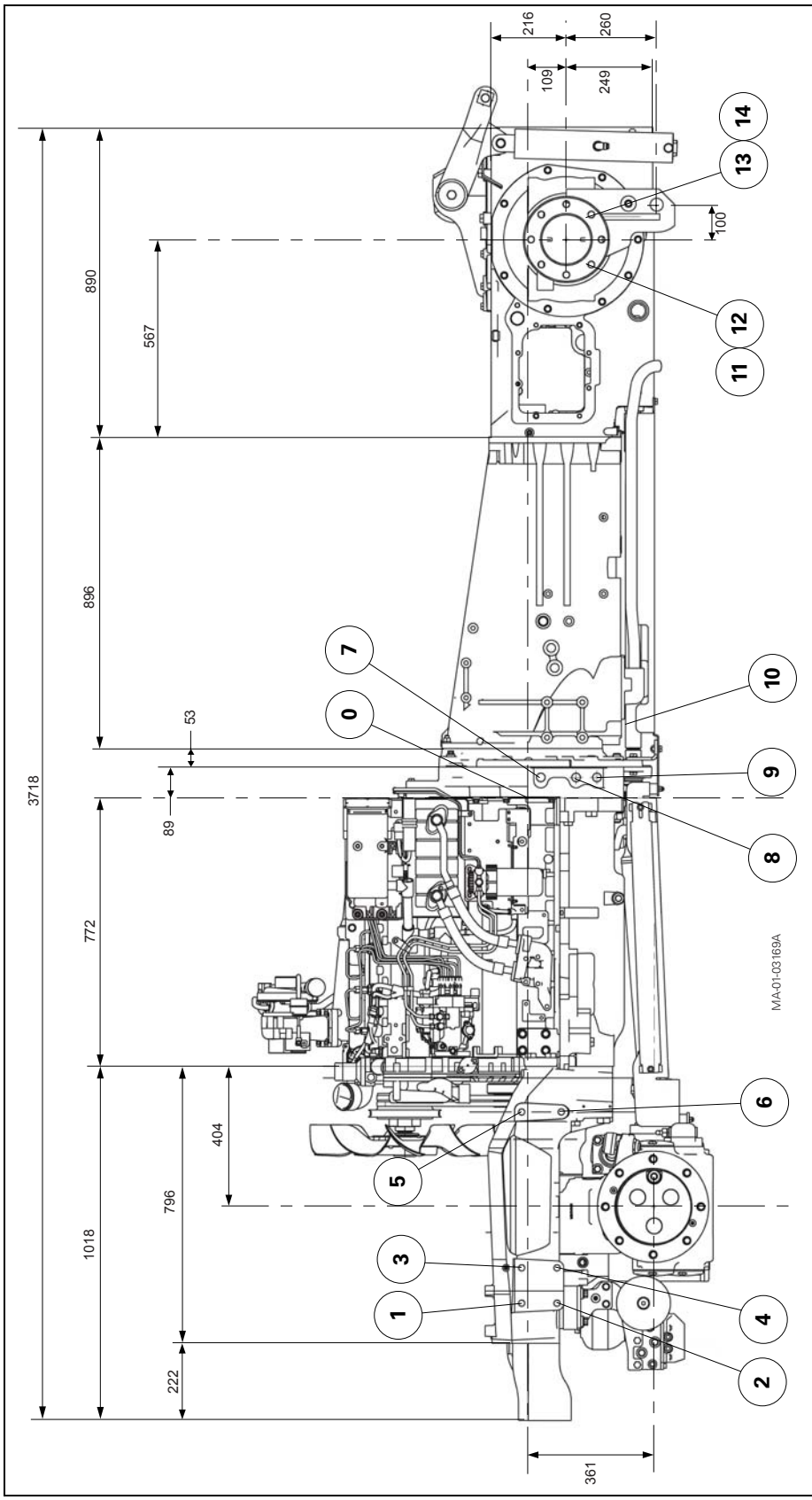


8	M20	95	138	-277
9	M12	510	229	-40
10	M12	510	179	-210
11	M12	754	185	-40
12	M12	754	157	-210
13	20	1487	500.6	-92
14	20	1487	600.6	-92
15	20	1617	500.6	-92
16	20	1617	600.6	-92

0	Reference point			
	Diameter	X	Y	Z
1	M20	-1214	280.241	20.79
2	M20	-1112.55	280.241	20.79
3	M20	-1214	280.241	-59.21
4	M20	-1112.55	280.241	-59.21
5	M20	-664.55	275.241	20.79
6	M20	-664.55	275.241	-93.21
7	M20	95	138	-220

Fig. 4

6465/6475/6480 Dynashift

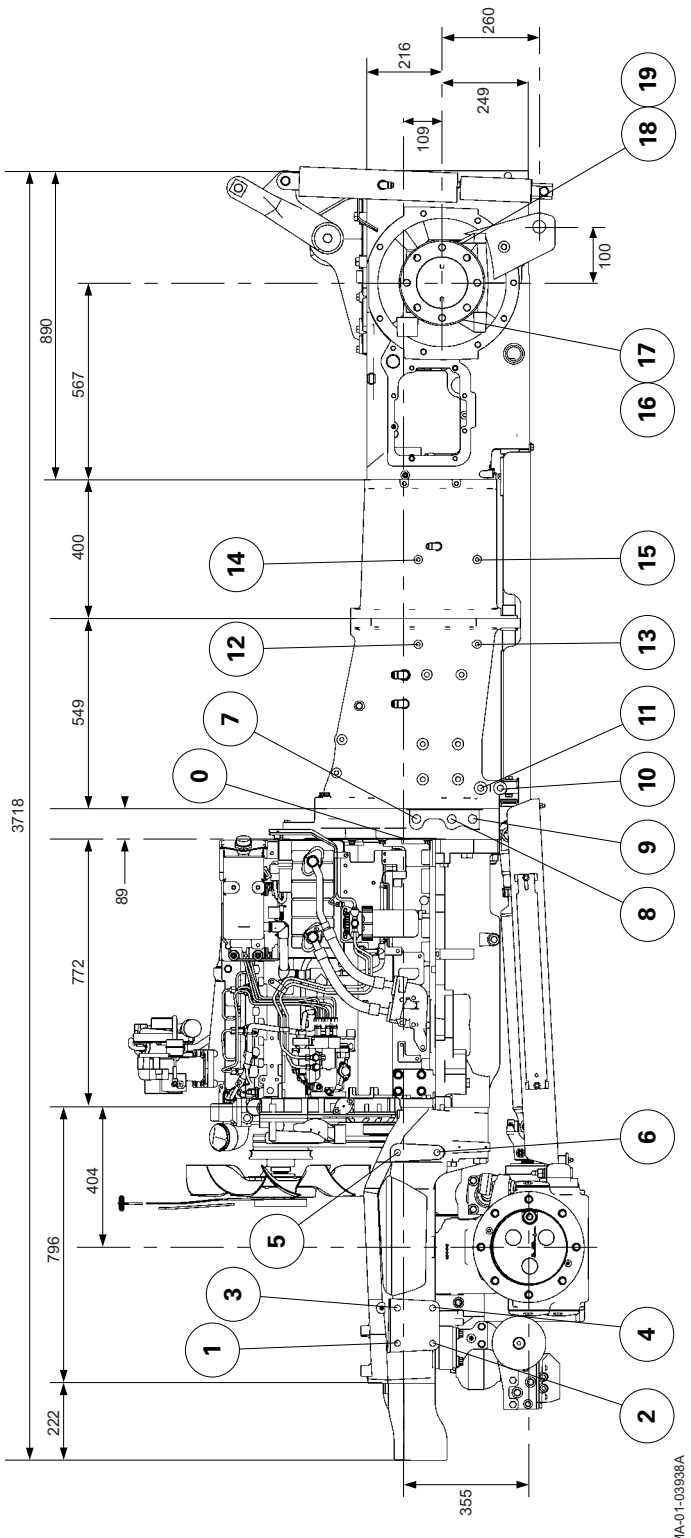


0	Reference point			
	Diameter	X	Y	Z
1	M20	-1452	+/-280	20
2	M20	-1452	+/-280	-81.6
3	M20	-1350.5	+/-280	20
4	M20	-1350.5	+/-280	-81.6
5	M20	-902.5	+/-275	20
6	M20	-902.5	+/-275	-94

7	M16	59	+/-274	-35
8	M16	59	+/-274	-136.6
9	M16	59	+/-274	-196.6
10	M16	201	+/-142.75	-267
11	20	1540	+/-600.6	-200.53
12	20	1540	+/-500.6	-200.53
13	20	1670	+/-600.6	-200.53
14	20	1670	+/-500.6	-200.53

Fig. 5

6465/6475/6480 Dyna-6

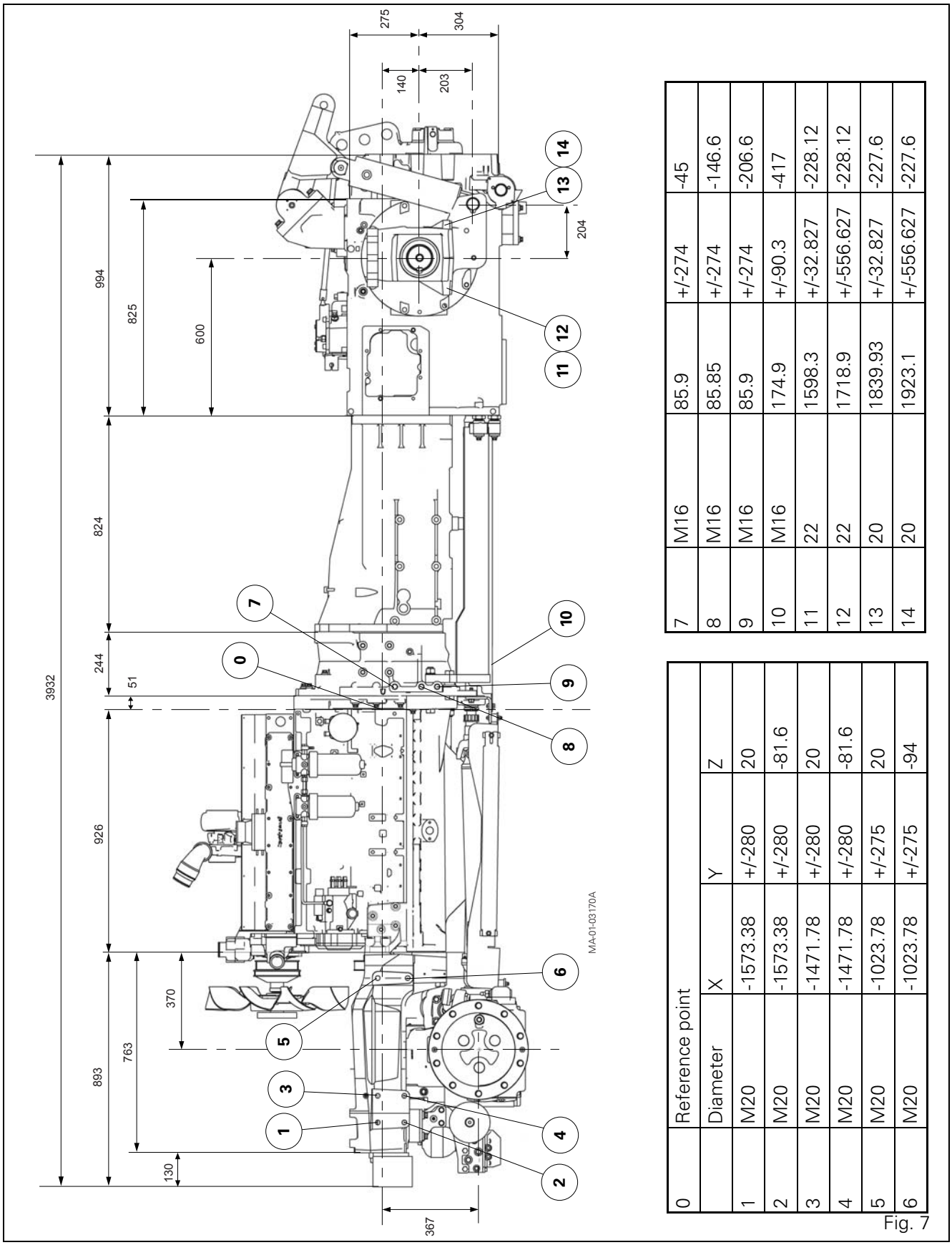


10	M20	148	+/-138	-277
11	M20	148	+/-138	-220
12	M12	563	+/-229	40
13	M12	563	+/-179	-210
14	M12	807	+/-185	-40
15	M12	807	+/-157	-210
16	20	1540	+/-600.6	-200.53
17	20	1540	+/-500.6	-200.53
18	20	1670	+/-600.6	-200.53
19	20	1670	+/-500.6	-200.53

0	Reference point			
	Diameter	X	Y	Z
1	M20	-1452	+/-280	20
2	M20	-1452	+/-280	-81.6
3	M20	-1350.5	+/-280	20
4	M20	-1350.5	+/-280	-81.6
5	M20	-902.5	+/-275	20
6	M20	-902.5	+/-275	-94
7	M20	59	+/-274	-35
8	M20	59	+/-274	-136.6
9	M20	59	+/-274	-196.6

Fig. 6

6485/6490/6495 Dynashift

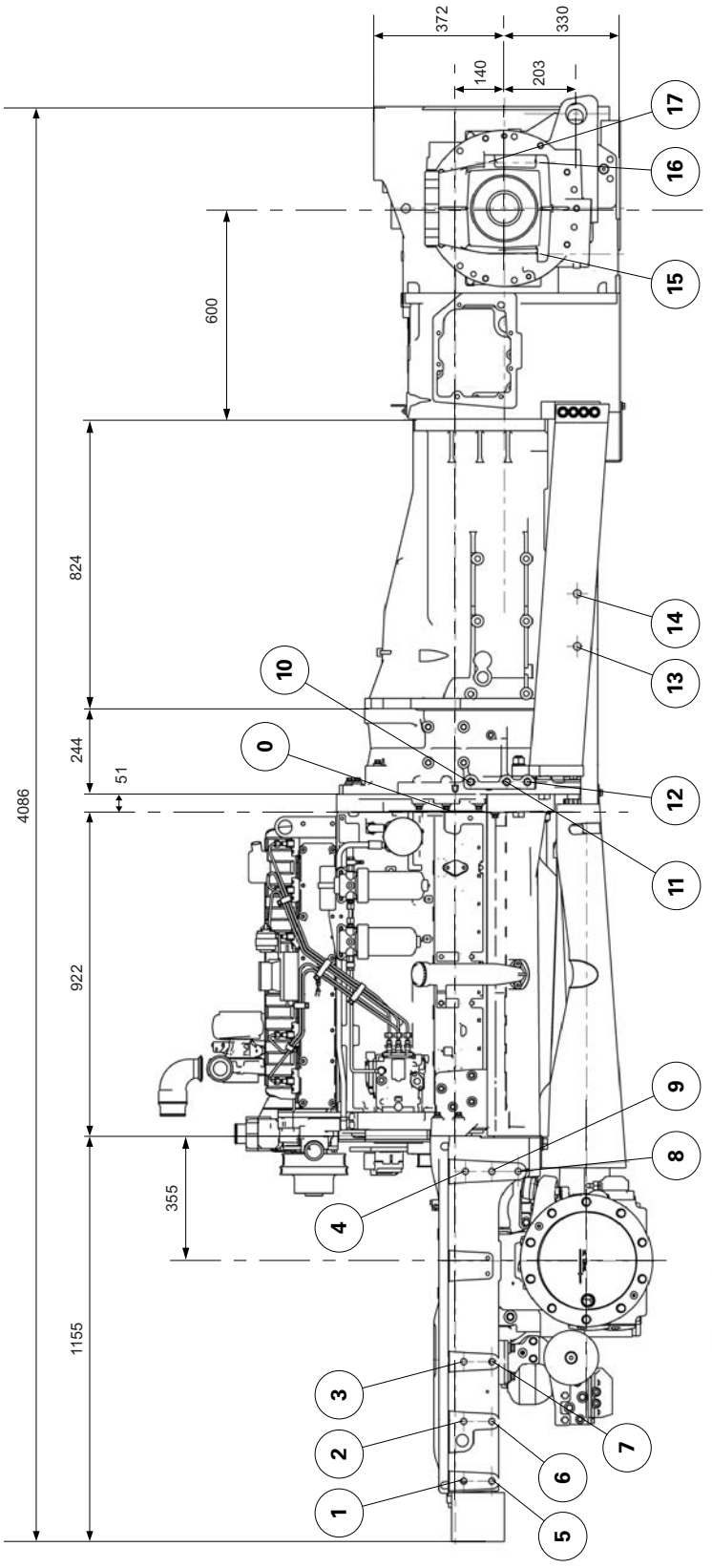


0	Reference point			
	Diameter	X	Y	Z
1	M20	-1573.38	+/-280	20
2	M20	-1573.38	+/-280	-81.6
3	M20	-1471.78	+/-280	20
4	M20	-1471.78	+/-280	-81.6
5	M20	-1023.78	+/-275	20
6	M20	-1023.78	+/-275	-94

7	M16	85.9	+/-274	-45
8	M16	85.85	+/-274	-146.6
9	M16	85.9	+/-274	-206.6
10	M16	174.9	+/-90.3	-417
11	22	1598.3	+/-32.827	-228.12
12	22	1718.9	+/-556.627	-228.12
13	20	1839.93	+/-32.827	-227.6
14	20	1923.1	+/-556.627	-227.6

Fig. 7

6497/6499 Dynashift



0	Reference point			
	Diameter	X	Y	Z
1	M20	-1905	+/-272	-24,7
2	M20	-1735	+/-272	-24,7
3	M20	-1565	+/-272	-24,7
4	M20	-1023	+/-263	-29,7
5	M20	-1905	+/-272	-104,7
6	M20	-1023.78	+/-272	-104,7
7	M20	-1565	+/-272	-104,7
8	M20	-1023	+/-263	-104,7

9	M20	-1023	+/-263	-179,7
10	M20	85,9	+/-274	-45
11	M20	85,9	+/-274	-146,6
12	M20	85,9	+/-274	-206,6
13	22	471,83	+/-210	-348
14	22	621,83	+/-210	-348
15	20,6	1589	+/-709	-234
16	20,6	1849	+/-586	-230
17	20,6	1849	+/-666	-230

Fig. 8

1B13 - SPECIFICATIONS - Capacities

CONTENTS

A . Capacities

	Engine oil	Engine cooling	Transmission oil	Front axle	Front final drive units	Fuel tank	Additional tank	Windshield washer	Air conditioning
6445	8	16.6	68 (Dynashift) 63 (Dyna-6)	5.5	2X0.9	150	50	4	1550
6455	8	16.6	68 (Dynashift) 63 (Dyna-6)	5.5	2X0.9	150	50	4	1550
6460	8	16.6	68 (Dynashift) 63 (Dyna-6)	5.5	2X1.1	150	50	4	1550
6470	8	16.6	68 (Dynashift) 63 (Dyna-6)	5.5	2X1.1	150	50	4	1550
6465	14.5	25.6	72 (Dynashift) 65 (Dyna-6)	fixed 6 susp 8.5	fixed 2X0.7 susp 2X0.6	270	-	4	1550
6475	14.5	25.6	72 (Dynashift) 65 (Dyna-6)	fixed 6 susp 8.5	fixed 2X0.7 susp 2X0.6	270	-	4	1550
6480	14.5	25.6	72 (Dynashift) 65 (Dyna-6)	fixed 6 susp 8.5	fixed 2X1.5 susp 2X1.3	270	-	4	1550
6485	20	34	109 (ND) 108 (HD)	fixed 6 susp 8.5	fixed 2X1.5 susp 2X1.3	380	-	4	1550
6490	20	34	108 (HD) 107 (HDE)	fixed 6 susp 8.5	fixed 2X1.5 susp 2X1.3	380	-	4	1550
6495	20	34	108 (HDE)	fixed 6 susp 8.5	fixed 2X1.5 susp 2X1.6	380	-	4	1550
6497	20	34	147 (HDE)	fixed 6 susp 8.5	fixed 2X1.5 susp 2X1.6	410	-	4	1550
6499	19	34	142	fixed 10 susp 10	fixed 2X1.9 susp 2X1.9	410	-	4	1550
Rear final drive units for 6490 HDE, 6495 and 6497 HDE: 2 X 3.6 litres; for 6499: 2 X 4.5 Litres									
Value in litres, and in grammes for the air conditioning circuit									

1C10 - Miscellaneous

CONTENTS

A . Conversion tables

LENGTH		
multiply by		
mm	x 0.0394	in
in	x 25,400	mm
m	x 3.2808	ft
ft	x 0.3048	m
km	x 0.6214	mile
mile	x 1.6093	km

SURFACE AREA		
multiply by		
mm^2	x 0.0016	in^2
in^2	x 645.16	mm^2
m^2	x 10,764	ft^2
ft^2	x 0.0929	m^2
ha	x 2.4711	acre
acre	x 0.4047	ha

VOLUME		
multiply by		
cm^3	x 0.06102	in^3
in^3	x 16,387	cm^3
m^3	x 35,315	ft^3
ft^3	x 0.0283	m^3

CAPACITY		
multiply by		
ml	x 0.0351	liquid oz
liquid oz	x 28,413	ml
litre	x 0.2200	imp. gal.
imp. gal.	x 4.5640	litre
litre	x 0.2640	gal. English US
gal. English US	x 3.7850	litre
imp. gal.	x 1.2010	gal. English US
gal. English US	x 0.8330	imp. gal.

POWER		
multiply by		
ps	x 0.9863	ch
ch	x 1.0139	ps
kW	x 1.3410	ch
ch	x 0.7457	kW

TORQUE		
multiply by		
Nm	x 738	lbf ft
lbf ft	x 1,356	Nm

PRESSURE		
multiply by		
bar	x 14,504	lbf/in^2
lbf/in^2	x 0.0690	bar

SPEED		
multiply by		
kph	x 0.6214	mph
mph	x 1.6093	kph

WEIGHT		
multiply by		
gramme	x 0.0353	oz
oz	x 28,350	gramme
kg	x 2.2046	pound
pounds	x 0.4536	kg
kg	x 0.00098	British ton
British ton	x 1016.1	kg
ton (metric)	x 0.9842	British ton
British ton	x 1,016	ton (metric)

TEMPERATURE		
°C	°C x 1.8 + 32	°F
°F	(°F - 32)/1.8	°C

B . Retaining compounds and sealing products

The Loctite compounds mentioned in this manual are referred to by their industrial name.

For repair purposes, use their commercial names or the corresponding AGCO references listed in the following table:

Loctite industrial name	Description name
270	Stud lock
242	Lock and Seal
Silicone AS 310	Clear silicone
5910 black silicone trumpet sealant	Blacktite
510 mating face sealant	Formajoint Masterjoint
518 mating face sealant	Unijoint Masterjoint

NOTE: *use the product "Form A gasket 2" when sealing between plastic material and cast iron (or steel).*

These products can be ordered from the following address:

Henkel Loctite France S.A.
10, avenue Eugène Gazeau
BP 40090
F-60304 Senlis Cedex, FRANCE

Application method for Loctite products

1. Remove all traces of previous sealants and corrosion
- mechanically: wire brush or emery cloth
- chemically: "DECAPLOC 88"

Leave the product to take effect and then wipe clean.

2. Degrease the components with dry solvent
- preferably, use "Super Solvant Sec LOCTITE 706".

3. Allow the solvents to evaporate

4. Apply the recommended type of LOCTITE product to the parts:
- for blind tapped holes, apply a quantity of the product to the last threads at the bottom of the hole
- for cylindrical fittings, apply the product on the two mating faces using a clean brush
- for mating faces, apply a bead to one of the two faces, circling the holes, and then tighten as quickly as possible

NOTA:
- *Do not use too much of the compound in order to avoid locking adjacent parts.*
- *Do not attempt to retighten after 5 minutes of curing, in order to avoid breaking the film of compound.*
- *If the ambient temperature is less than +10°C, and to ensure quicker setting of Loctite compounds, (except SILICOMET), use LOCTITE T 747 activator on at least one of the two parts. Excess sealant outside the joint will not harden (anaerobic curing of the compound – i.e. curing takes place only in absence of oxygen).*

Grease

When grease is used in components which are in contact with transmission oil, use grease which is miscible with oil to avoid clogging the hydraulic filters.

Use "Amber Technical" grease supplied by: WITCO company, 76320 Saint-Pierre des Elfes, France.

C . Tightening torques

Use the tightening torques for screws and nuts as indicated in the tables:

- 1 and 2 for metric threads
- 3 and 4 for inch-system threads

When a specific torque is required, it is stated in the text.

Tables 1 and 3 indicate the nomal tightening torque values to apply to threaded zinc-plated elements, with normal nuts, with coarse or fine threads, with or without a flat washer or lockwasher, and weldable nuts more than 0.8 d high.

Tables 2 and 4 indicate the reduced tightening torque values to apply to threaded elements in assemblies with zinc-plated self-locking locknuts, phosphate-coated nuts and screws, thin nuts, waldable nuts less than 0.8 d high.

These values are to be applied to dry assemblies. If the threads are oiled, reduce the tightening torques.

NOTA: *Read the tensile grade on the screw head to determine the corresponding tightening torque.*

Example:

Table 1: Tightening torque values. Zinc-plated metric threads

Nominal dimension d	Tensile grade		Tensile grade	
	ISO 8.8 (SAE 5, BS S)		ISO 10.9 (SAE 8, BS V)	
	Torque Nm		Torque Nm	
	Min	Max	Min	Max
M3	1.3	1.7	1	2.4
M4	3.1	4.1	4	5.7
M5	6	8	8	11.5
M6	10	14	14	20
M8	25	35	36	46
M10	50	70	72	96
M12	90	120	120	160
M16	200	260	300	400
M20	420	560	600	800
M24	720	960	1000	1300
M30	1400	1800	2100	2800
M36	2500	3300	3600	4800

Table 2: Reduced tightening torque values. Metric threads

Nominal dimension d	Tensile grade		Tensile grade	
	ISO 8.8 (SAE 5, BS S)		ISO 10.9 (SAE 8, BS V)	
	Torque Nm		Torque Nm	
	Min	Max	Min	Max
M3	1	1.4	1	1.9
M4	2.5	3.3	3	4.6
M5	4.8	6.4	6	9.2
M6	8	11	12	16
M8	20	28	29	37
M10	40	56	57	77
M12	72	96	100	130
M16	160	210	240	320
M20	340	450	480	640
M24	570	770	800	1040
M30	1100	1400	1700	2200
M36	2000	2600	2900	3800

Table 3: Tightening torque values. Zinc-plated inch system threads

Nominal dimension d	Tensile grade		Tensile grade	
	SAE 5 (ISO 8.8, BS S)		SAE 8 (ISO 10.9, BS V)	
	Torque Nm		Torque Nm	
	Min	Max	Min	Max
#6	1.8	2.4	2	3.3
#8	3.4	4.4	4	6.3
#10	4.7	6.3	6	8.9
1/4	11	15	16	22
5/16	22	30	31	43
3/8	39	53	55	75
7/16	64	86	90	120
1/2	100	130	140	180
5/8	200	260	280	370
3/4	350	460	490	660
7/8	560	760	800	1060
1	840	1120	1200	1600
1 1/8	1050	1390	1700	2200
1 1/4	1500	2000	2400	3200
1 1/2	2600	3400	4100	5400

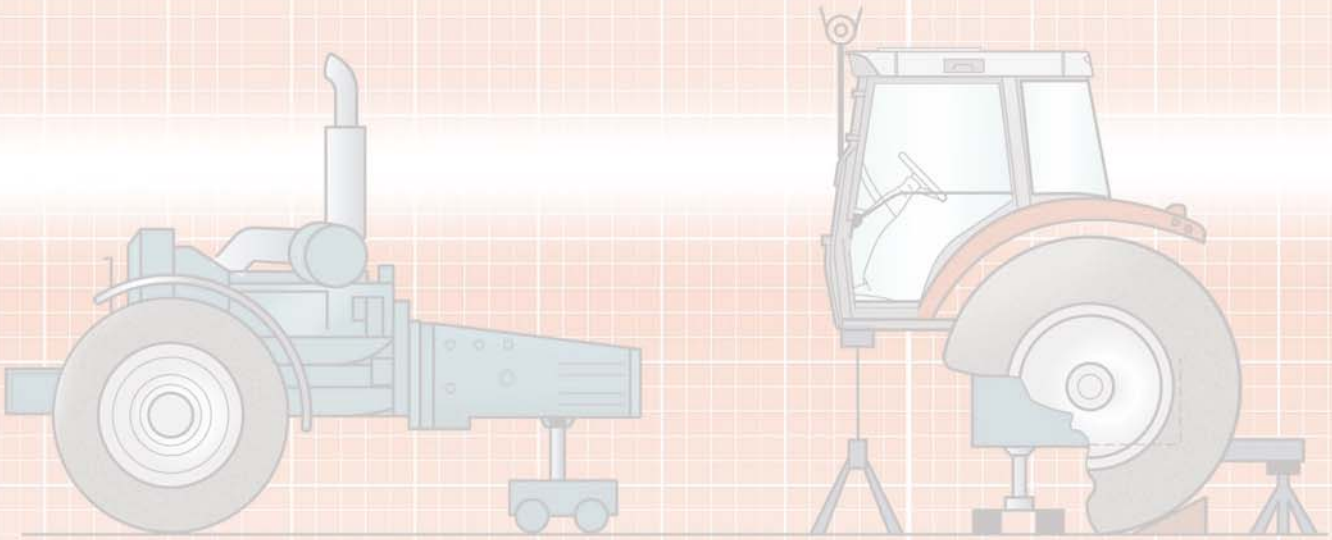
Table 4: Reduced tightening torque values. Inch-system threads

Nominal dimension d	Tensile grade		Tensile grade	
	SAE 5 (ISO 8.8, BS S)		SAE 8 (ISO 10.9, BS V)	
	Torque Nm		Torque Nm	
	Min	Max	Min	Max
#6	1.5	1.9	2	2.6
#8	2.7	3.5	3	5
#10	3.8	5	5	7.1
1/4	8.8	12	13	18
5/16	18	24	25	34
3/8	31	42	44	60
7/16	51	69	72	96
1/2	80	104	110	140
5/8	160	210	220	300
3/4	280	370	390	530
7/8	450	610	640	850
1	670	900	960	1280
1 1/8	8400	1100	1360	1760
1 1/4	1200	1600	1920	2560
1 1/2	2100	2700	3280	4320



02 - Splitting the tractor

CONTENTS



02A01 - Splitting - Front frame / Perkins engine

CONTENTS

A . General

The front frame and the engine must be disassembled when each of the assemblies needs to be replaced, or when servicing is necessary on one of the mechanical elements located at the front of the engine.

Remark

This section presents a general disassembly procedure. Before and during disassembly, check that all connections have been properly separated between the fixed assembly and mobile assembly.

B . Disassembling and reassembling (Perkins 6-cylinder engine)

Preliminary operations

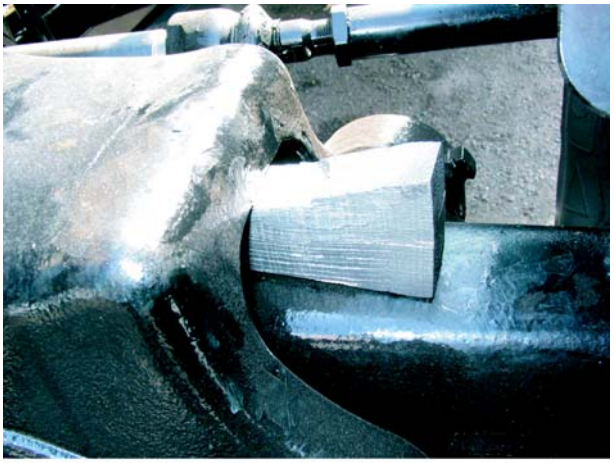
1. Apply the handbrake.
2. Ensure that the suspended front axle (if fitted) is in raised position and position chocks between the upper control arm and front axle housing (Fig. 1).
3. Remove the bleed screw from the control unit (see chapter 9).
4. Remove the lateral panels from the engine and bonnet.

Servicing under the tractor

5. Remove the guard and the shaft (4 WD tractors).

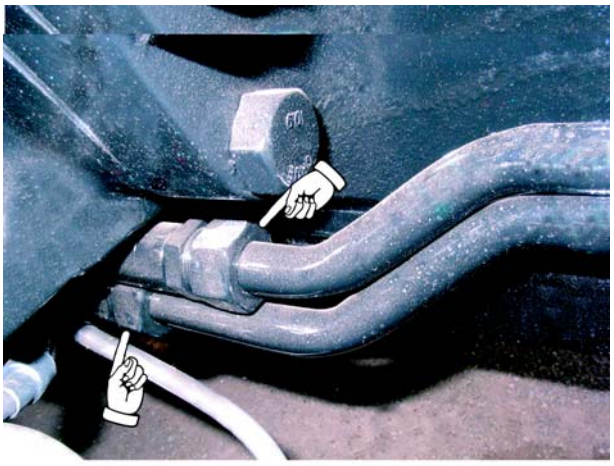
Servicing on the right-hand side of the tractor

6. Disconnect the batteries.
7. Mark then disconnect:
   - the differential lock hoses on the front axle,
   - the feed hose on the steering ram,
   - the lubricating hoses (running to and from the cooler) (Fig. 2).
8. Remove the protection grille close to the radiator.
9. Disconnect the air sleeve (1) (turbo outlet) from the cooling sleeve (Fig. 3).



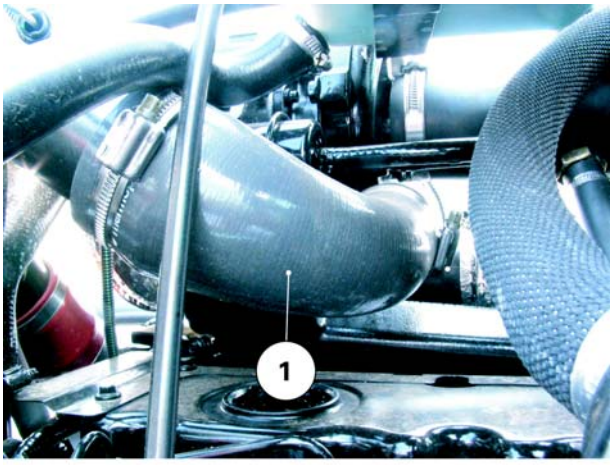
MA-02-05021A

Fig. 1



MA-02-05022A

Fig. 2



MA-02-05023A

Fig. 3

Servicing on the left-hand side of the tractor

10. Mark then disconnect:
- the feed hose on the steering ram,
- the hoses (pressure-return and LS) on the rigid tubes (Fig. 4) of the suspended front axle (if fitted).

11. Remove the protection grille close to the radiator.

12. Disconnect the air sleeve (2) (intake on inlet manifold) from the cooling sleeve (Fig. 5).

Draining the cooling system

13. Unscrew the wing plug located on the left-hand side and front of the radiator. Drain the liquid into a clean container.

If the engine is hot, gradually loosen the expansion tank plug and remove it in order to expel the pressure from the circuit.

14. Disconnect the lower radiator hose (1) and the hose (2) linking the expansion tank to the base of the radiator (Fig. 6).

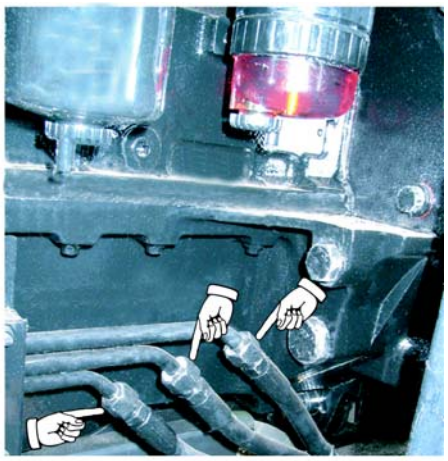

MA-02-05024A

Fig. 4

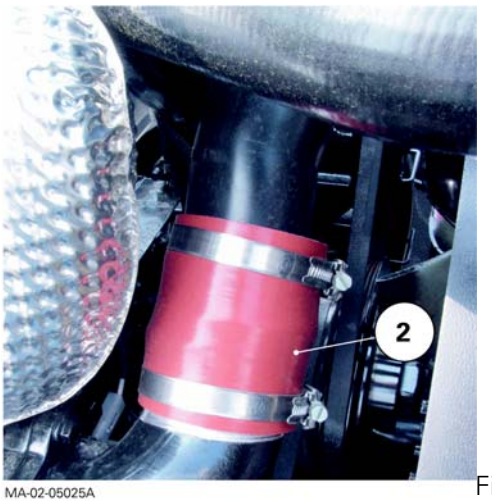


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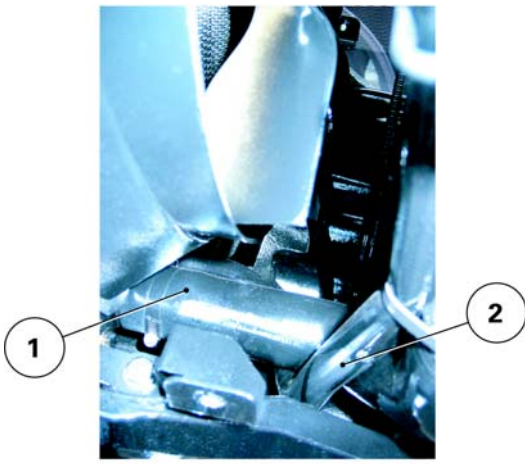
Fig. 5



MA-02-05026A

Fig. 6

Servicing above the engine

15. Disconnect the upper radiator hose (1) (Fig. 7).

Servicing at the front of the tractor

16. Remove the weights (if fitted).

17. Separate the compressor, the condenser and the filter from their respective holders, and remove them carefully, without breaking the circuit (see chapter 12).

18. Mark and disconnect the wiring harnesses:

- inside the grille,
- on the control unit solenoid valves (suspended front axle, if fitted).

19. Disconnect the air sleeves (3) (4) on the air cooler located inside the grille (Fig. 8).

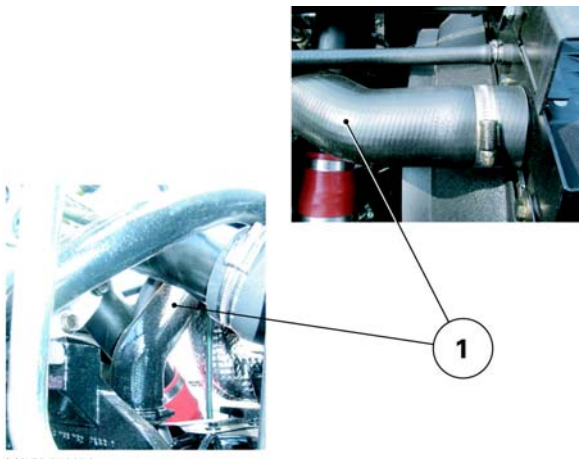


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Fig. 7

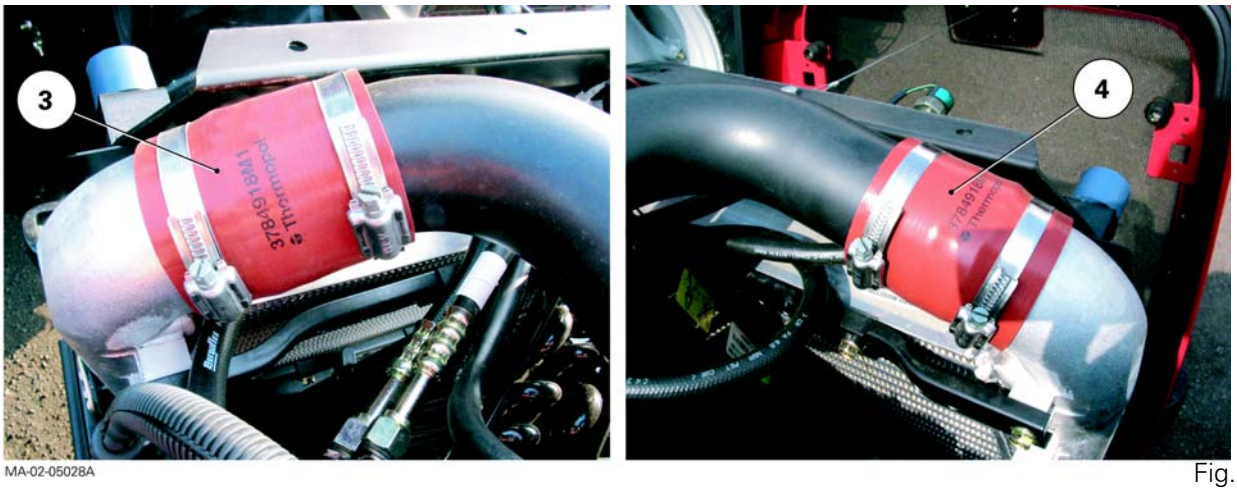

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Fig. 8

Preparing for disassembling

20. Cancel the front axle oscillation (all versions) by sliding a suitable chock in at each side of the support (1) (Fig. 9).

21. Chock the rear wheels.

22. Install (Fig. 11):

- a mobile stand under the front axle beam,
- a suitable sling under the front of the frame,
- a fixed axle stand under the engine sump.

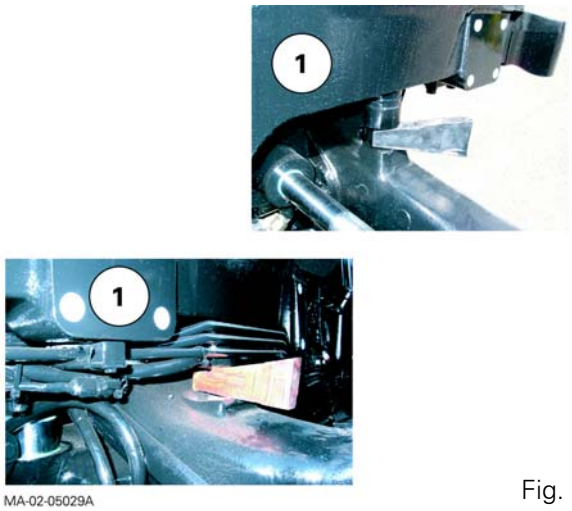

Fig. 9

Disassembly

23. Remove lateral screws (1) (Fig. 10).

24. With the help of an operator, loosen the screws (2)(3) (Fig.10), simultaneously moving the frame away from the engine.

When disassembling, use the sling to reduce the risk of toppling of the front frame assembly.

Screw dimensions

- M16 x 55 mm
- M16 x 60 mm
- M16 x 115 mm
- M20 x 190 mm
- M24 x 200 mm

Reminder

When disassembling, check that connections (hoses, pipes and harnesses) are all disconnected.

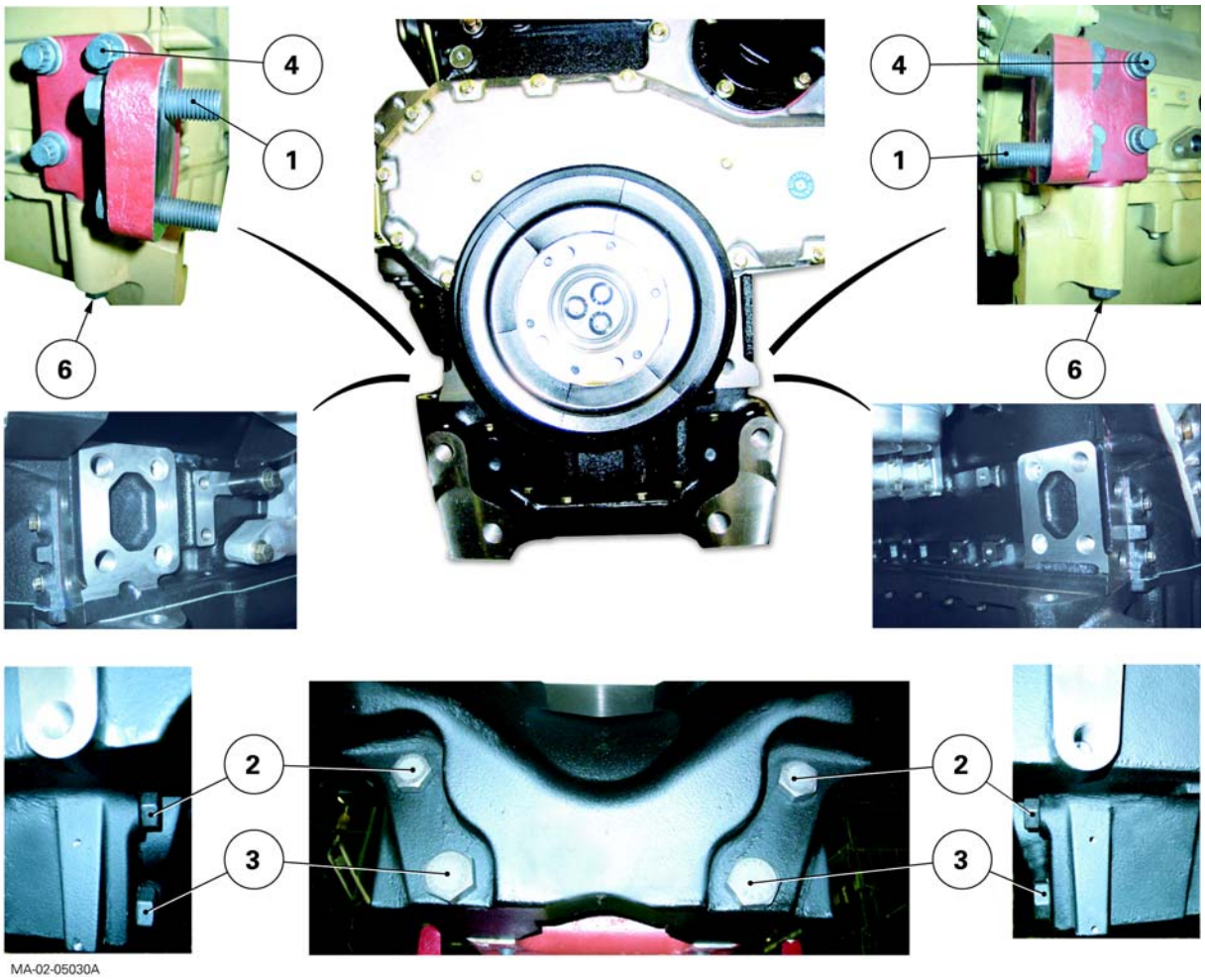

Fig. 10

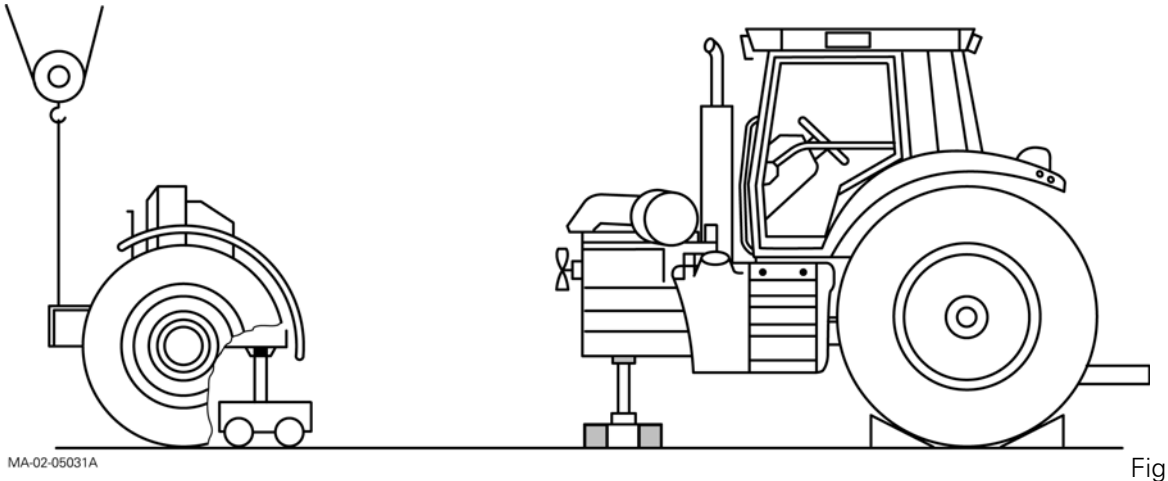

Fig. 11

Reassembly

25. Clean the mating faces of the engine and front frame.

Special point

For tractors fitted with a Perkins six-cylinder engine, check with a ruler prior to assembly that the supports (5) are in line with the front face of the lower engine housing (Fig. 13). If they are not, adjust the support(s) until they are correctly aligned. Tighten the screws to:

- (4) 240 - 320 Nm (Loctite 270 or equivalent),
- (6) 240 - 320 Nm.

Check correct alignment after tightening.

26. Screw a guide stud onto each rear face of the frame (Fig. 12).

27. With the help of an operator, assemble the front frame onto the engine. Take out the guide studs.

28. Fit and tighten the diametrically opposed screws (Fig. 15) in the following order:

- Screw (2): 480 -640 Nm.
- Screw (3): 800 -1040 Nm.
- Screw (1): 240 -320 Nm.

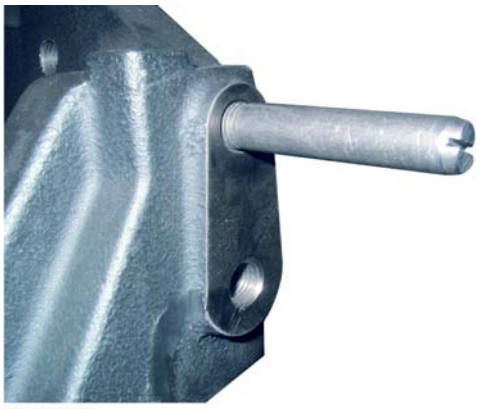

Fig. 12

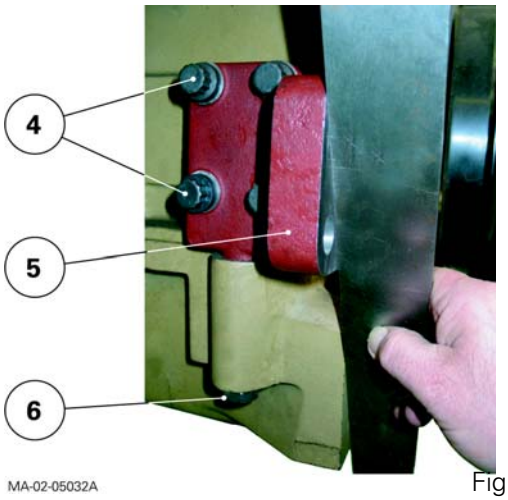

Fig. 13

Final operations

Remark

Final operations are not especially difficult.

They should be carried out in the reverse order to preliminary operations.

However, it will be necessary during reassembly to carry out the tightening torques, adjustments and tests described below.

Tightening torque

As required, wheel screws or nuts (see chapter 6).

Topping-up

- of coolant, to the maximum level marked on the expansion tank (Fig. 14).

Tests

- air conditioning system (if fitted – see chapter 12),
- cab suspension (if fitted – see chapter 12),
- All mechanical, hydraulic, electrical and electronic functions concerned by servicing.

Check tightness:

- of hydraulic unions
- of water hoses,
- of bleed screw on control unit of suspended front axle (if fitted)

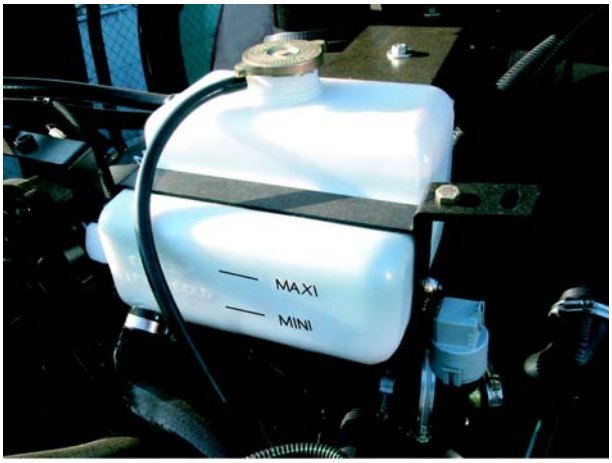

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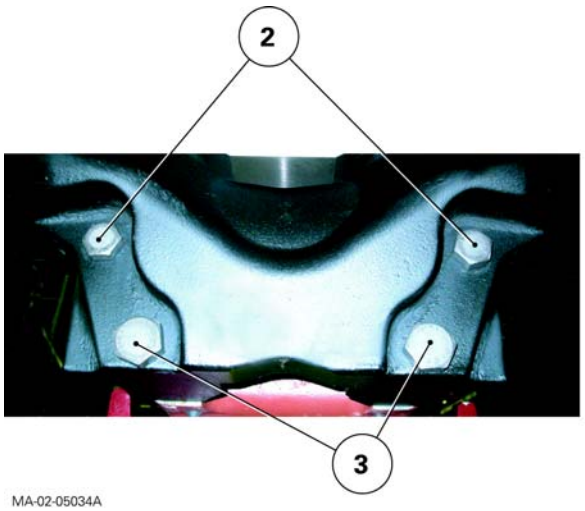
Fig. 14



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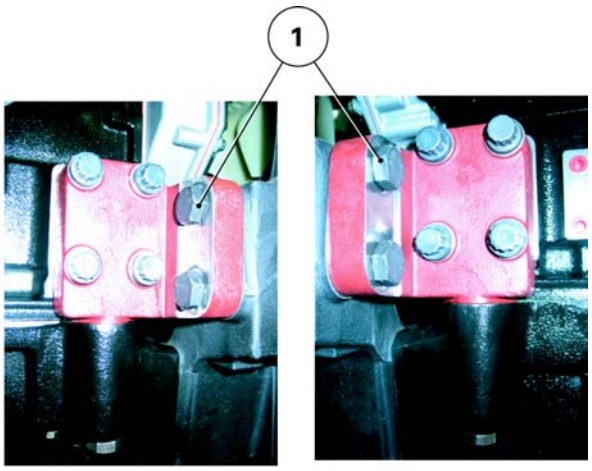

Fig. 15

C . Disassembling and reassembling (Perkins 4-cylinder engine)

Reminder

There are two types of front frame. Each model corresponds to a specific engine type: Perkins engine with mechanical injection or Perkins EEM engine with electronic injection.

The frames are different in shape and assembly.

Each front frame must be assembled to its corresponding engine.

Preliminary operations

29. Apply the handbrake.

30. Remove the side panels, prefilter (Perkins EEM engine), bonnet and side protection grilles.

Servicing under the tractor

31. Take off the guard, shaft and differential lock supply pipe (4 WD tractors).

Servicing at the front of the tractor

32. Remove the front weights (if fitted).

33. Disconnect the batteries. Remove them if required (Perkins engine with mechanical injection).

Tractors with…	Battery location
Perkins engine with mechanical injection	in the grille compartment
Perkins EEM engine	behind the right-hand footstep

Location of batteries

34. Detach the air conditioning compressor, condensor and filter from their respective supports (if fitted).

Place the assembly beside the tractor without disconnecting the pipes and hoses (see chapter 12).

Servicing inside the grille

35. Mark then disconnect:
- electrical harnesses,
- air sleeves (3) and (4) on the cooler (Perkins EEM engine - Fig. 16).

Servicing on the right-hand side of the tractor

36. Mark and disconnect the feed hose on the steering ram.

37. Mark and disconnect the lubricating hoses running to and from the cooler (Perkins EEM engine - Fig. 17).

38. Remove the protection grille close to the radiator.

39. Disconnect the air sleeve (1) (turbo outlet) from the cooling sleeve (Perkins EEM engine - Fig. 18).

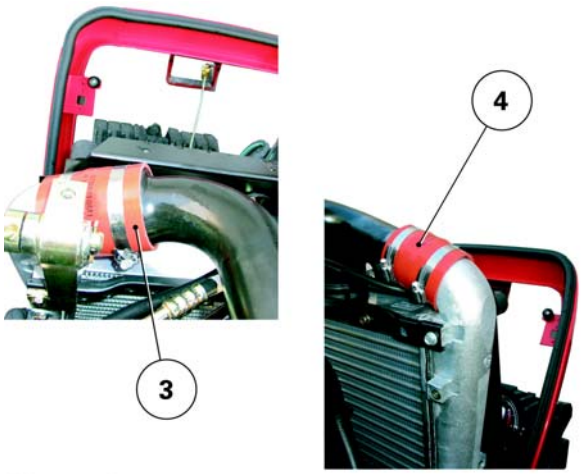

Fig. 16

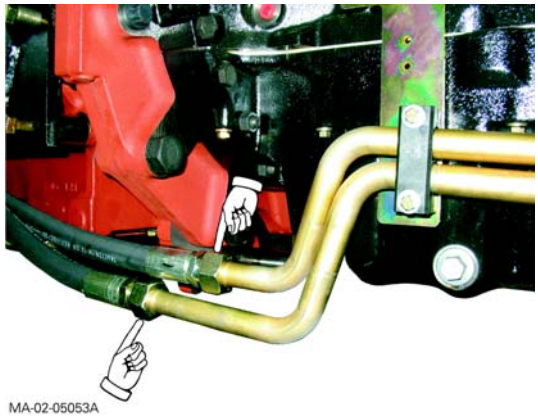

Fig. 17

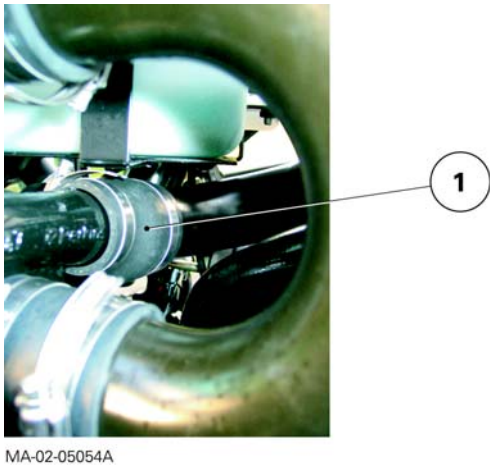

Fig. 18

Servicing on the left-hand side of the tractor

40. Mark and disconnect the feed hose on the steering ram.

41. Remove the protection grille close to the radiator.

42. If necessary, disconnect the air sleeve (2) from the cooler inlet (intake manifold inlet - Perkins EEM engine - Fig. 19).

Draining the cooling system

43. Unscrew the wing plug located on the front left-hand side of the radiator, to drain the circuit.

If the engine is hot, gradually loosen the expansion tank plug and remove it in order to release the pressure from the circuit.

44. Disconnect the lower radiator hose (1) and the hose (2) linking the expansion tank to the base of the radiator (Fig. 20).

Servicing above the engine

45. Disconnect the upper radiator hose (1) (Fig. 21).

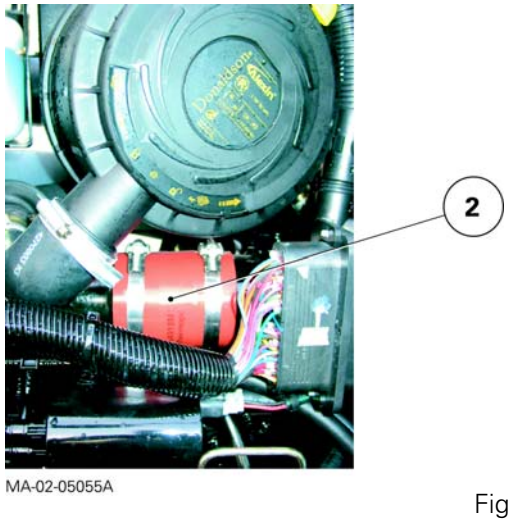

Fig. 19

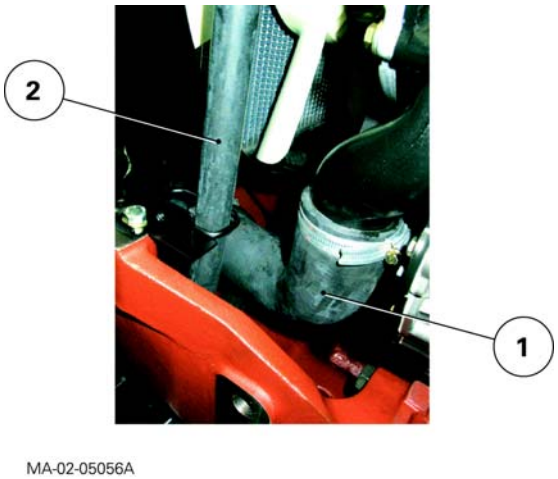

Fig. 20

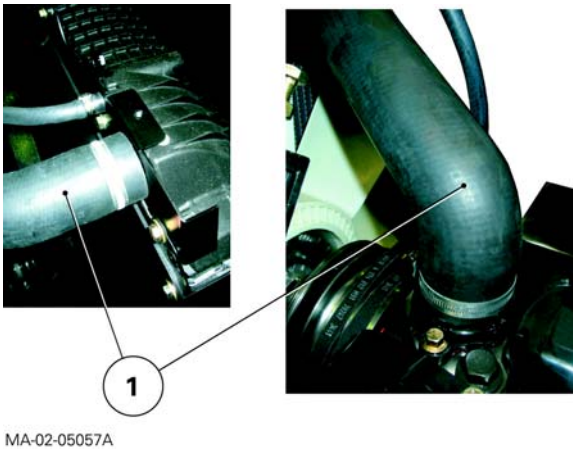

Fig. 21

Preparing for disassembling

46. Stop the front axle oscillation by sliding a suitable wooden chock either side of the support (1) (Fig. 22).

47. Chock the rear wheels.

48. Install (Fig. 25):

- a mobile stand under the front axle beam,
- a suitable sling under the front of the frame,
- a fixed axle stand under the engine sump.

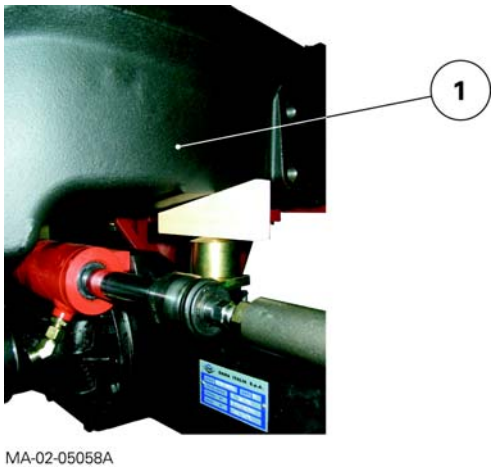

Fig. 22

Disassembly

Reminder

Before disassembling:

- check that the unions (hoses, pipes and harnesses) are all disconnected;
- note the position and location of chocks (1) inserted between the engine sump and front frame (Perkins EEM engine - Fig. 23).

49. Loosen and remove (Fig. 24):

- for Perkins engine with mechanical injection: screws and bolts (2), (4) and (1),
- for Perkins EEM engine: screws and bolts (2), (3), (4) and (1).

With the help of an operator, gradually separate the engine front frame at the same time (Fig. 25).

When disassembling, also use the sling to reduce the risk of toppling of the front frame assembly (Fig. 25).

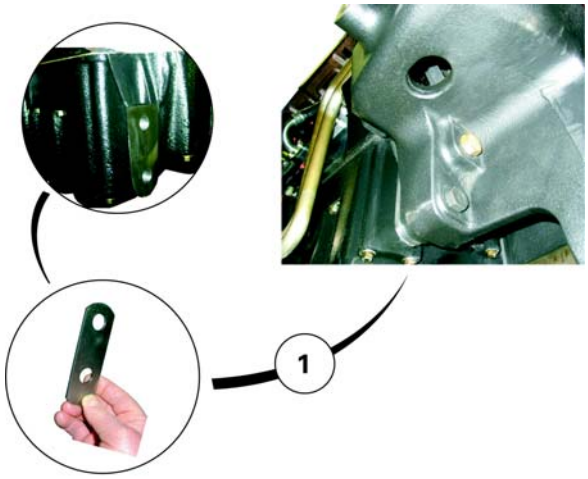

Fig. 23

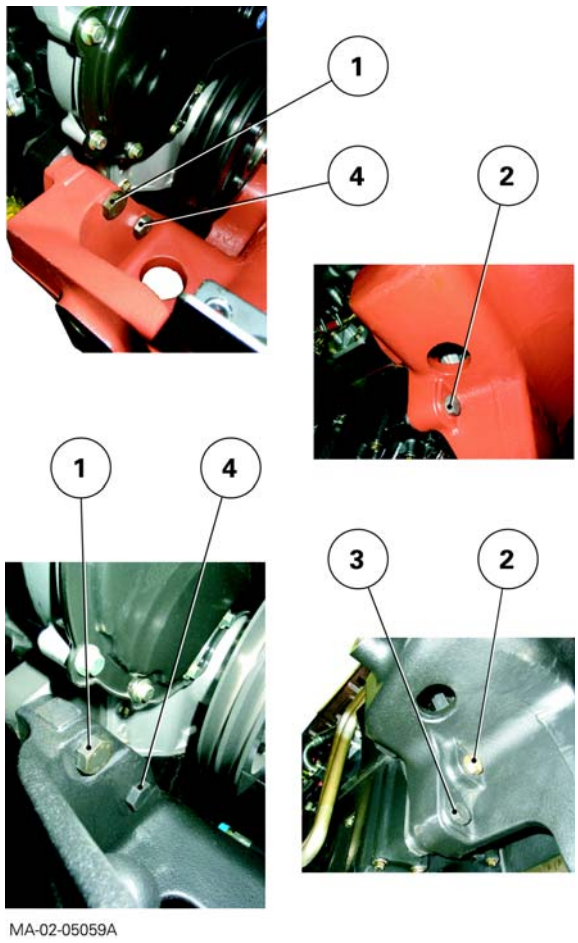

Fig. 24

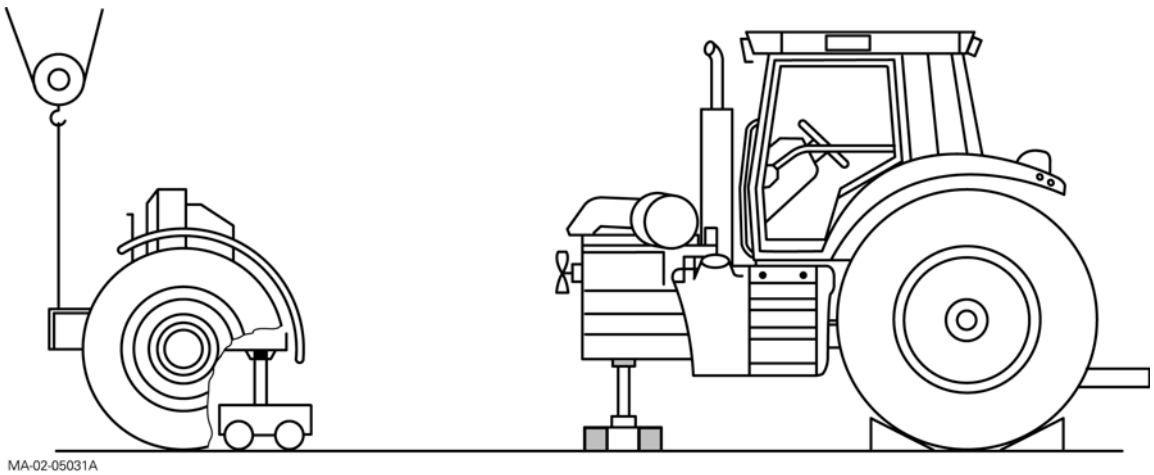

Fig. 25

Dimensions of the screws and nuts

- Front frame and Perkins engine with mechanical injection

Screws	Nuts
M16 x 75 mm M16 x 85 mm M16 x 115 mm	M16

- Front frame and Perkins EEM engine

Screws	Nuts
M16 x 85 mm M16 x 95 mm M16 x 105 mm M16 x 120 mm	M16

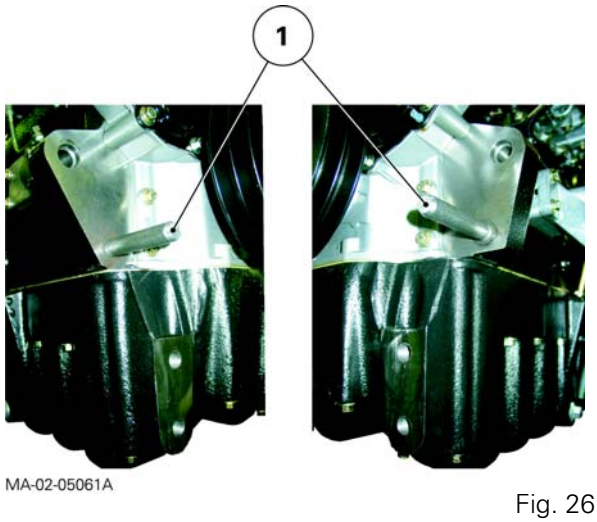

Fig. 26

Reassembly

Advice for use

Use guide studs to assist reassembly of the front frame and engine.

50. Clean the mating faces of the engine and front frame.

51. Screw two guide studs (1) to the front mating face of the engine (Fig. 26).

52. With the help of an operator, assemble the front frame onto the engine as follows:

- **Front frame and Perkins engine with mechanical injection (Fig. 27)**

  53. Fit screws (2), (4) and nuts (1), simultaneously taking out the guide studs.

  54. Tighten opposing screws and nuts to a torque of 240 - 320 Nm in the following order (2) (4) (1).

- **Front frame and Perkins EEM engine (Fig. 28)**

  Reminder

  If it is necessary to chock the front frame, refer to § D.

  55. Fit screws (2), (3) and (4) and nuts (1), simultaneously taking out the guide studs.

  56. Tighten opposing screws and nuts to a torque of 240 - 320 Nm in the following order (2) (3) (4) (1).

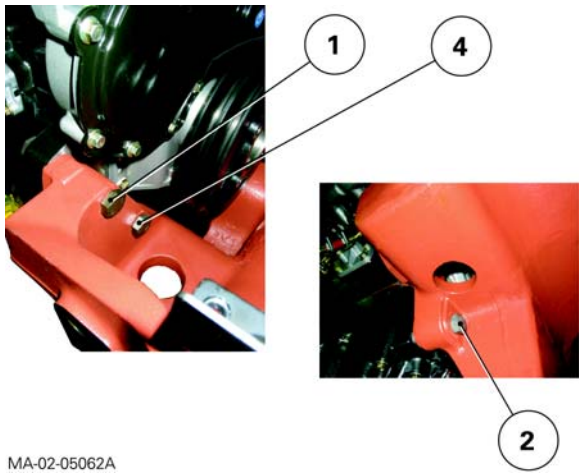

Fig. 27

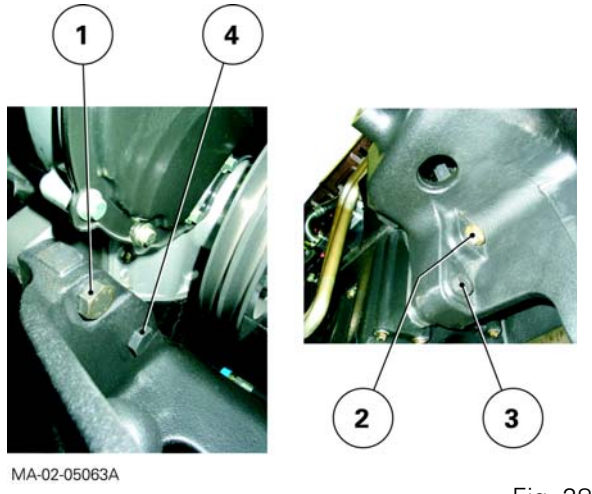

Fig. 28

Final operations

Remark

Final operations are not especially difficult.

They are carried out in reverse order to the preliminary operations. However, during reassembly, the tightening torques, settings and tests outlined below must be carried out.

Tightening torque:

- as required, wheel screws or nuts (see chapter 6).

Topping-up:

- of coolant, to the maximum level marked on the expansion tank (Fig. 29).

Tests:

- air conditioning system (if fitted) (see chapter 12),
- cab suspension (if fitted) (see chapter 12),
- all mechanical, hydraulic, electrical and electronic functions concerned by servicing.

Check tightness:

- of hydraulic unions,
- of water hoses.

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Fig. 29

D . Shimming the front frame (Perkins 4-cylinder EEM engine)

Special point

When the front frame is fitted to the Perkins EEM engine, the mating face of the engine sump is not in contact with the mating face of the front frame. It is therefore advised to fill this space with shims (1) (Fig. 30) whose thickness will be measured and set afterwards.

Reminder

Shimming should only be carried out if the front frame and or engine has / have been replaced.

57. With the help of an operator, assemble the front frame onto the engine.

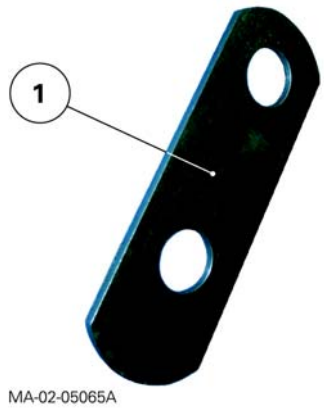

Fig. 30

Preparing for shimming (Fig. 31)

58. Fit only screws (4) and nuts (1), simultaneously taking out the guide studs.

59. Tighten opposing screws and nuts to a torque of 240 - 320 Nm in the following order (4) (1).

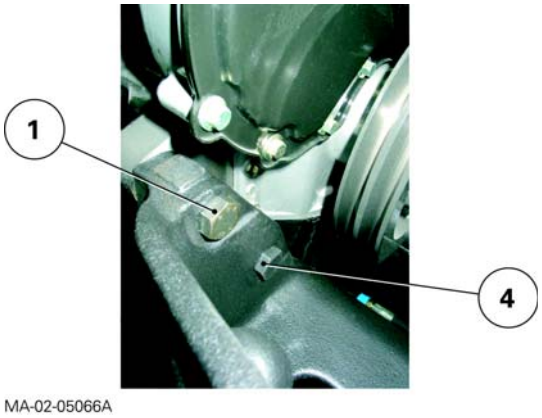

Fig. 31

Shimming

Important

To avoid applying undue loads to the mating faces during shimming, avoid adjusting the safety stands placed under the engine and front frame during disassembly.

60. Using two stacked shims (1), each at least 2.30 mm thick (Fig. 32), measure the gap between the mating faces of the engine sump and front frame.

Determine the thickness of shims to be fitted by increasing, as required, the thickness of each shim until they fit tightly in the gap.

Remark

Shimming is carried out using shims between 2.30 and 2.60 mm thick.

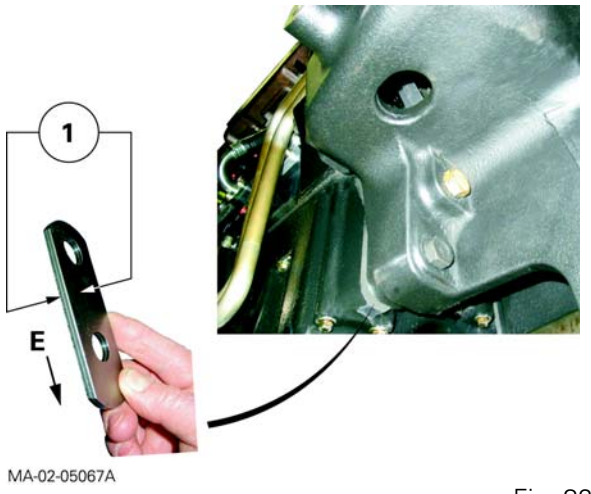

Fig. 32

Inserting shims between the front frame and the engine

61. Slightly loosen the screws (4) and bolts (1) (Fig. 31).

62. Position the shims (1): the end E should be turned downwards.

Insert them between the front frame and the engine sump (Fig. 32).

63. Fit screws (2) and (3) (Fig. 33).

64. Tighten opposing nuts and all screws of the front frame to a torque of 240 - 320 Nm in the following order (2) (3) (4) (1) (Fig. 33).

65. Release the safety stands.

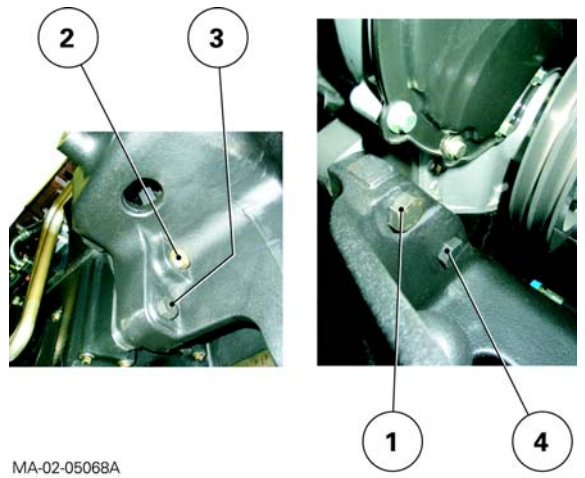

Fig. 33

Splitting - Front frame / Perkins engine

02A02 - Splitting - Front frame / Sisu engine

CONTENTS

A . General

The front frame and engine must be disassembled when the assemblies need to be replaced, or when servicing is necessary on one of the mechanical elements located at the front of the engine.

Remark

This section presents a general disassembly procedure. Before and during disassembly, check that all connections have been properly separated between the fixed assembly and mobile assembly

B . Disassembling

Preliminary operations

1. Put on the handbrake if necessary.

Remark

Putting on the handbrake is optional because the Park Lock mechanism (option) automatically immobilises the tractor when stationary.

2. Ensure that the suspended front axle (if fitted) is in raised position and position chocks between the upper control arm and front axle housing (Fig. 1). Remove the bleed screw from the control unit (see chapter 9).

3. Remove the lateral panels from the engine and bonnet.

Servicing under the tractor

4. Remove the guard and the 4WD shaft located under the engine.

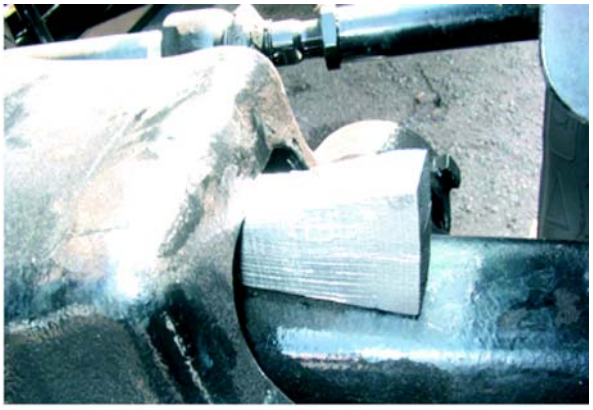

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Fig. 1

Servicing on the right-hand side of the tractor

5. Disconnect the batteries.

6. Mark then disconnect:
- the differential lock hoses on the front axle,
- the feed hose on the steering ram,
- the lubricating hoses running to and from the cooler (Fig. 2).

7. Remove the protection grille close to the radiator.

8. Disconnect the air sleeve (1) (turbo outlet) from the cooling sleeve (Fig. 3).

Servicing on the left-hand side of the tractor

9. Mark then disconnect:
- the feed hose on the steering ram,
- the hoses (pressure-return and LS) on the rigid tubes (Fig. 4) of the suspended front axle (if fitted).

10. Remove the protection grille close to the radiator.

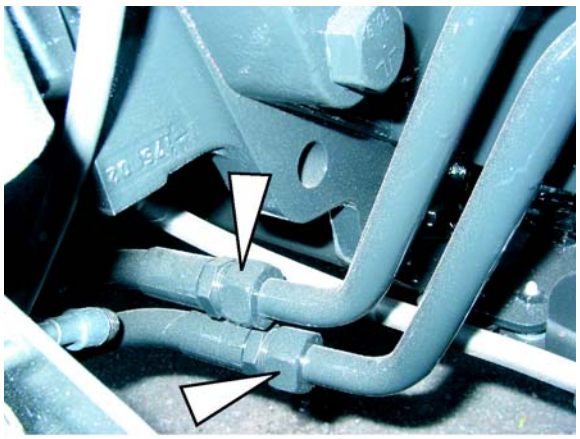

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Fig. 2

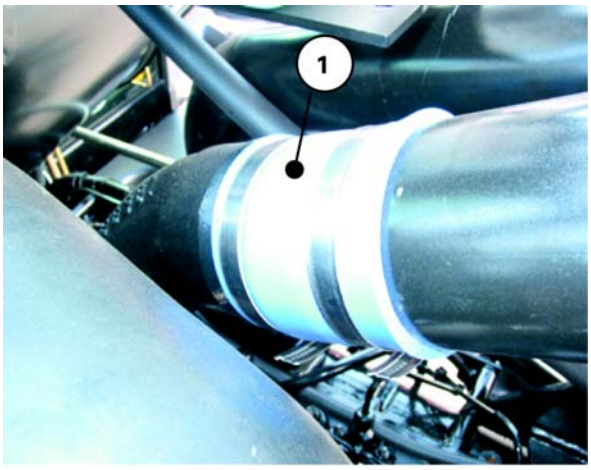

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Fig. 3

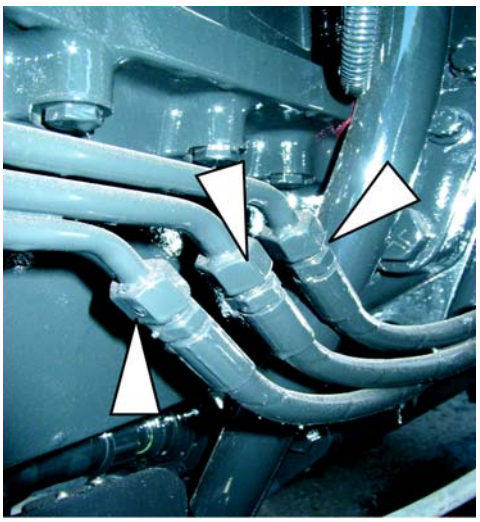

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Fig. 4

11. Disconnect the air sleeve (2) (intake on inlet manifold) from the cooling sleeve (Fig. 5).

Draining the cooling system

12. Unscrew the wing plug located on the left-hand side and front of the radiator. Drain the liquid into a clean container.

If the engine is hot, gradually loosen the expansion tank plug and remove it in order to drive the pressure from the circuit.

13. Disconnect the lower radiator hose (1) and the hose (2) linking the expansion tank to the base of the radiator (Fig. 6).

Servicing above the engine

14. Disconnect the upper radiator hose (1) (Fig. 7).

Servicing at the front of the tractor

15. Remove the weights (if fitted).

16. Separate the compressor, the condenser and the filter from their respective holders, and remove them carefully, without breaking the circuit (see chapter 12).

17. Mark and disconnect the wiring harnesses:

- inside the grille,
- on the control unit solenoid valves (suspended front axle, if fitted).

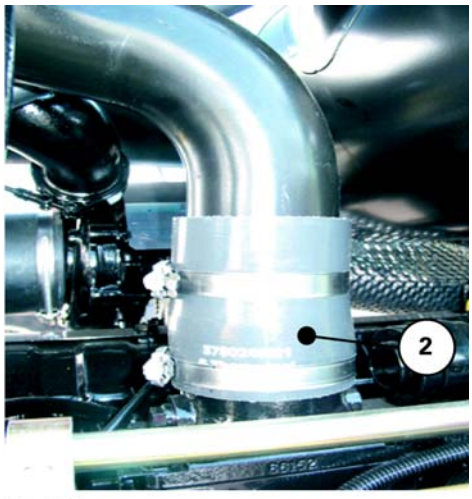

Fig. 5

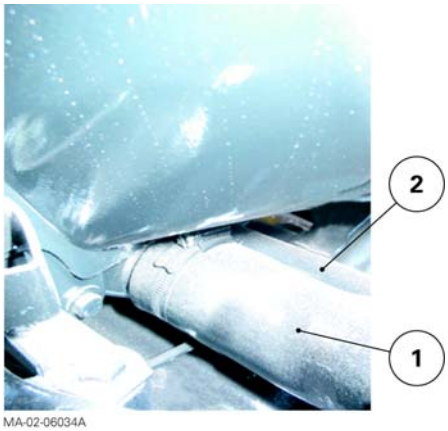

Fig. 6

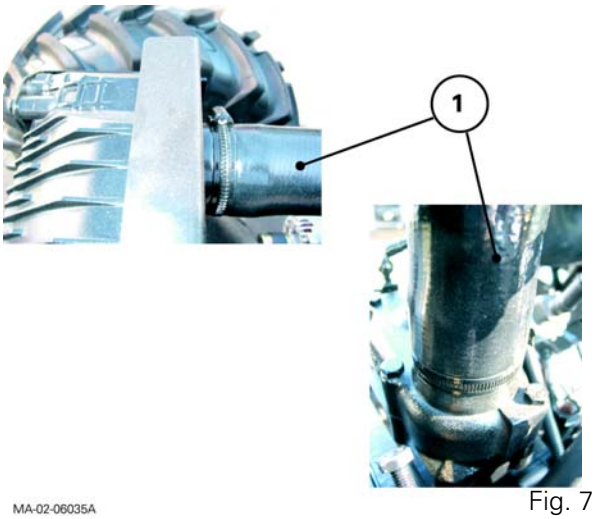

Fig. 7

18. Disconnect the air sleeve (3)(4) on the air cooler located inside the grille (Fig. 9).

Preparing for disassembling

19. Cancel the front axle oscillation (all versions) by sliding a suitable chock in at each side of the support (1) (Fig. 8).

20. Chock the rear wheels.

21. Install (Fig. 11):

- a mobile stand under the front axle beam,
- a suitable sling under the front of the frame,
- a fixed axle stand under the engine sump.

Disassembling

22. Remove lateral screws (1) (Fig. 10).

23. With the help of an operator, loosen the screws (2)(3) (Fig.10), simultaneously moving the frame away from the engine.

When disassembling, use the sling to reduce the risk of toppling of the front frame assembly.

Screw dimensions

- M16 x 100
- M20 x 150
- M24 x 165

Reminder

When disassembling, check that connections (hoses, pipes and harnesses) are all disconnected.

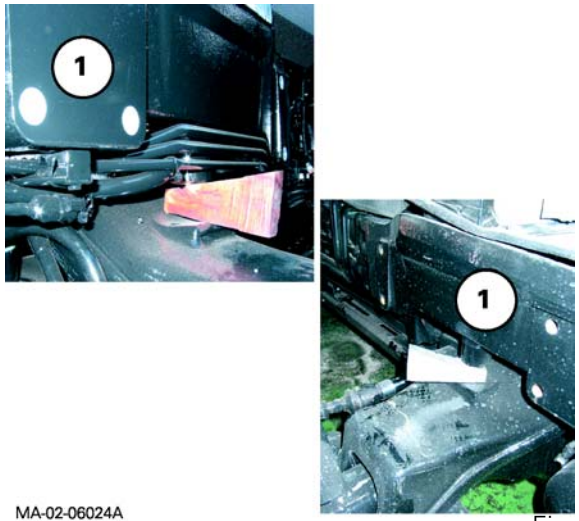

Fig. 8

Fig. 9

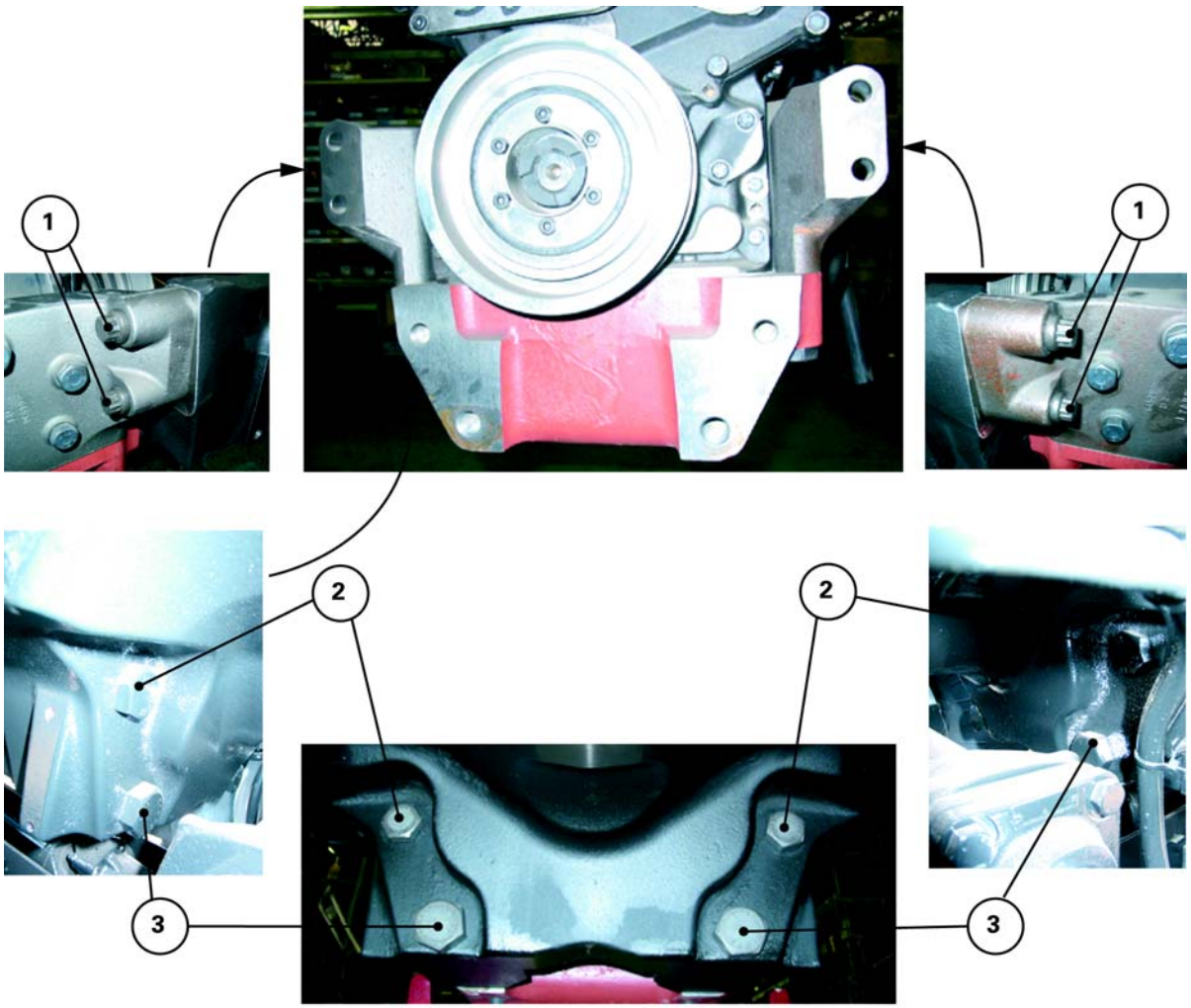

Fig. 10

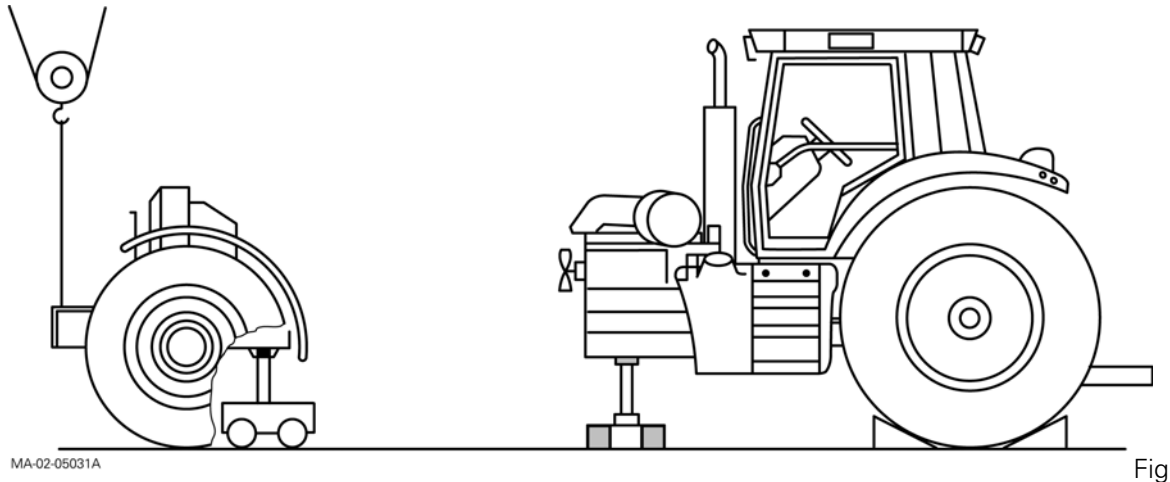

Fig. 11

C . Reassembling

24. Clean the mating faces of the engine and front frame.

25. Screw a guide studs onto each rear face of the front frame (Fig. 12).

26. With the help of an operator, assemble the front frame onto the engine. Take out the guide studs.

27. Fit and tighten the diametrically opposed screws (Fig. 10) in the following order:

- Screw (2): 480 -640 Nm,
- Screw (3): 800 -1040 Nm,
- Screw (1): 240 -320 Nm.

Final operations

Remark

Final operations are quite simple, and should therefore be carried out in the reverse order to preliminary operations.

However, it will be necessary during reassembly to carry out the tightening torques, checks and tests described below.

Tightening torques

- As required, wheel screws or nuts (see chapter 6).

Topping-up

- of coolant, to the maximum level marked on the expansion tank (Fig. 13).

Testing

- air conditioning mechanism (if fitted – see chapter 12),
- suspended front axle (if fitted – see chapter 8),
- all mechanical, hydraulic, electrical and electronic functions concerned by servicing.

Checking tightness

- of hydraulic unions,
- of water hoses,
- of bleed screw on control unit of suspended front axle (if fitted).

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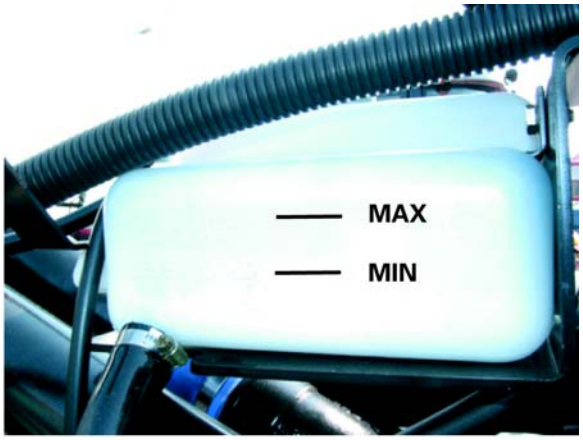
Fig. 12



MA-02-06040A

Fig. 13

Splitting - Front frame / Sisu engine

2A30 - Splitting the front frame/Sisu engine - MF 6497-6499

CONTENTS

Splitting the front frame/Sisu engine - MF 6497-6499

A . General

The front frame and engine must be split when the assemblies need to be replaced, or when servicing is necessary on one of the mechanical elements located at the front of the engine.

IMPORTANT: *This section presents a general disassembly procedure. Before and during disassembly, check that all connections have been properly separated between the fixed assembly and mobile assembly.*

B . Disassembly

Preliminary operations

1. Apply the handbrake.
2. Check that the suspended front axle (if fitted) is in high position.
   Position chocks between the upper control arms and front axle housing (Fig. 1).
3. Remove the bleed screw from the control unit (if fitted, see chapter 9).
4. Take off:
   - the side panels either side of the engine,
   - the bonnet (if necessary).

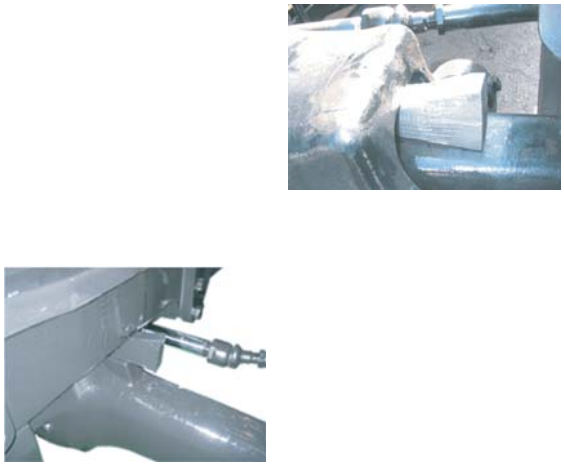


Fig. 1

Servicing under the tractor

5. Mark then disconnect the two ends of the hoses fixed to the 4 WD transmission shaft guards (front and rear). Block their openings.
6. Remove the guards and 4 WD transmission shaft.

Servicing on the right-hand side of the tractor

7. Disconnect the batteries.
8. Take off:
   - the front mudguard;
   - the vertical exhaust assembly (including support);
   - the side engine reinforcement;
   - the protection grille close to the radiator.
9. Disconnect:
   - the turbocharger outlet air sleeve (1) (Fig. 2);
   - the flexible air filter sleeve.

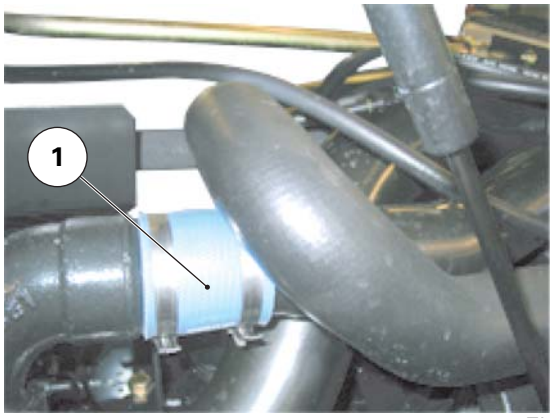


Fig. 2

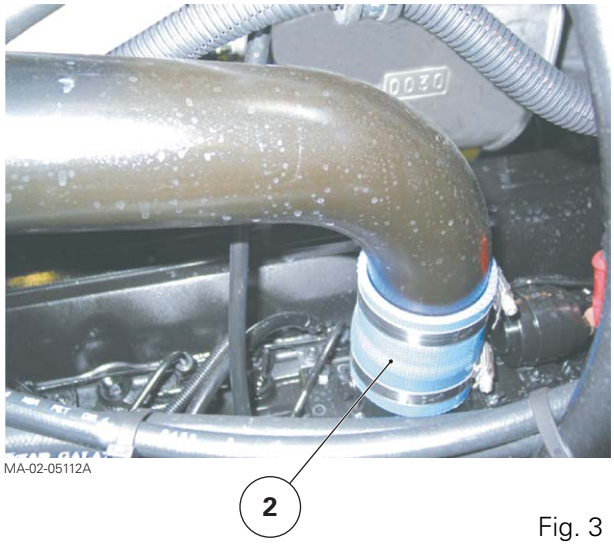


Fig. 3

Servicing on the left-hand side of the tractor

10. Remove the front mudguard.

11. Remove or move the fuel tank apart the side of the tractor.

12. Take off:

- the side engine reinforcement;
- the protection grille close to the radiator.

13. Disconnect the intake air manifold sleeve (2) (Fig. 3).

14. Disconnect (Fig. 4):

- the rigid pipes (1) (pressure, return and LS) to the suspended front axle (if fitted);
- the rigid pipes (2) to the front linkage (if fitted).

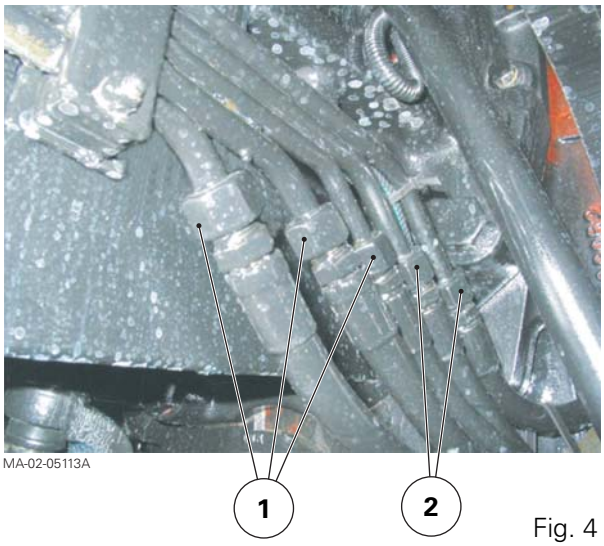


Fig. 4

Draining the cooling system

15. Unscrew the wing plug (1) located on the left-hand side and front of the radiator (Fig. 5). Drain the liquid into a clean container.

DANGER: If the engine is hot, before loosening the wing plug (1), gradually loosen the expansion tank plug and remove it in order to expel the pressure from the circuit.

16. Disconnect the lower radiator hose (1) and the hose (2) linking the expansion tank to the base of the radiator (Fig. 6).

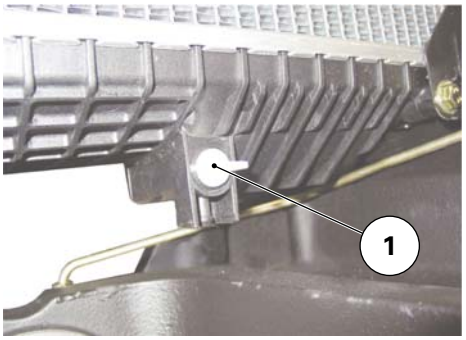


Fig. 5

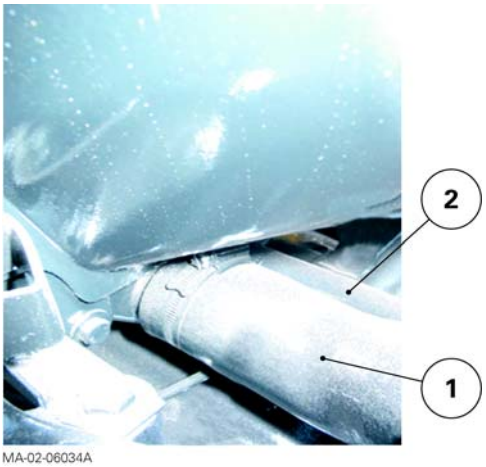


Fig. 6

Servicing above the engine

17. Take off:
- the sleeve (3) and the rigid air sleeve (5) of the air cooler inlet (Fig. 7);
- the sleeve (4) and the rigid air sleeve (6) of the air cooler outlet (Fig. 8);

18. Disconnect:
- the flexible particle suction sleeve between the air filter and the exhaust;
- the lubricating pipes/hoses connecting the rear axle right-hand hydraulic cover to the oil cooler.

19. Disconnect:
- the thermostatic fan ENG 19 connector;
- the upper hose (1) and the hose (2) linking the expansion tank to the top of the radiator (Fig. 9).

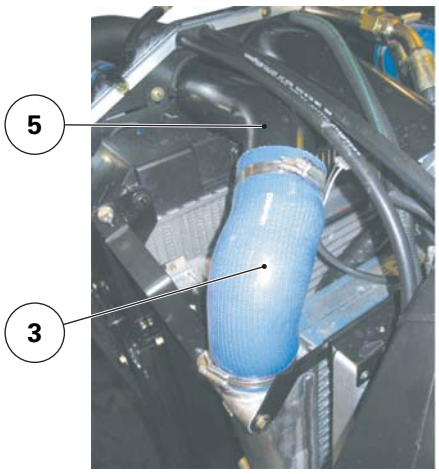


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Fig. 7

Servicing at the front of the tractor

20. Take off:
- the front weights (if fitted);
- the centre weight (if fitted).

21. Detach the air conditioning compressor, condenser and filter from their respective supports. Carefully keep them apart without opening the circuit (see chapter 12).

IMPORTANT: *If the air conditioning circuit should be open, see chapter 12 before any action.*

22. Mark and disconnect the wiring harnesses:
- inside the grille;
- on the control unit solenoid valves (suspended front axle, if fitted).

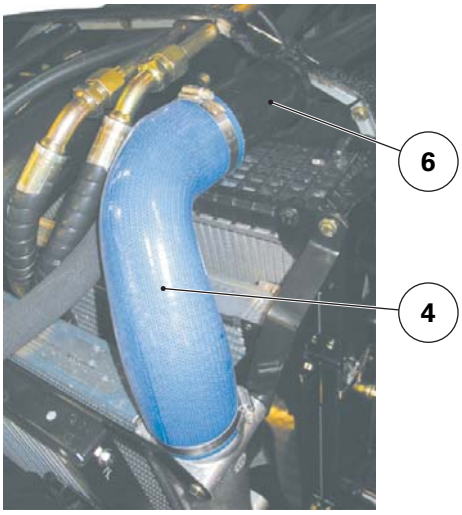

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Fig. 8

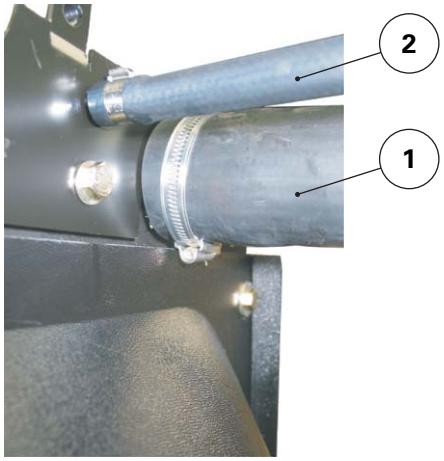

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Fig. 9

Disassembly

The lower screws M20x135 (2) and M24x165 (3), attaching the front frame to the lower engine housing, are not accessible on 4 WD tractors (Fig. 10). These screws are facing the drive pinion carrier, which also serves as a steering ram support.

Front frame / engine splitting takes place in two steps:

- first step: removing the front axle (fixed or suspended);
- second step: splitting the front frame (radiators/cooler) from the engine

First step: removing the front axle (fixed or suspended, see chapter 8)

23. Cancel the front axle oscillation (all versions) by sliding a suitable chock in at each side of the frame and front axle (1) (Fig. 11).

24. Chock the rear wheels.

25. Remove the front wheels.

26. Install (Fig. 12):

- a fixed stand at the front of and under the gearbox;
- a fixed stand under the engine.

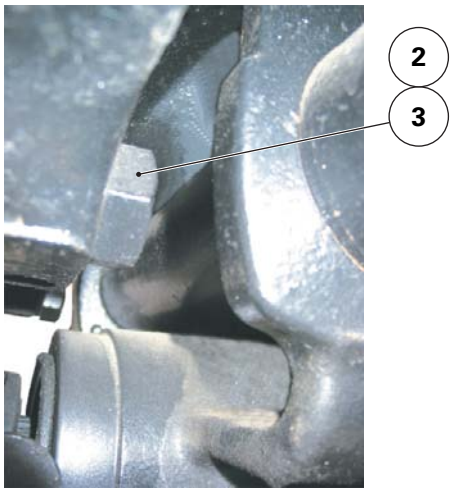

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Fig. 10

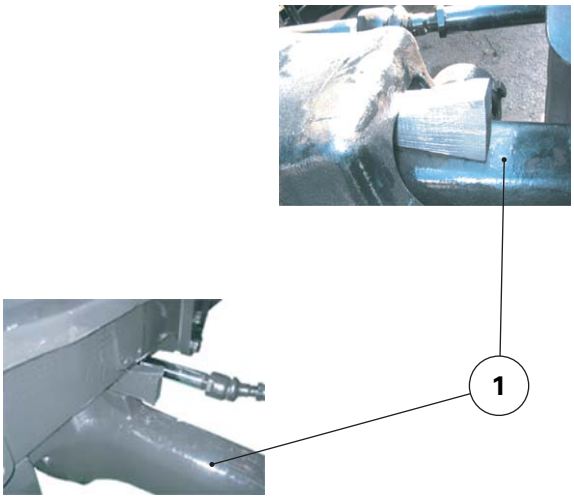

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Fig. 11

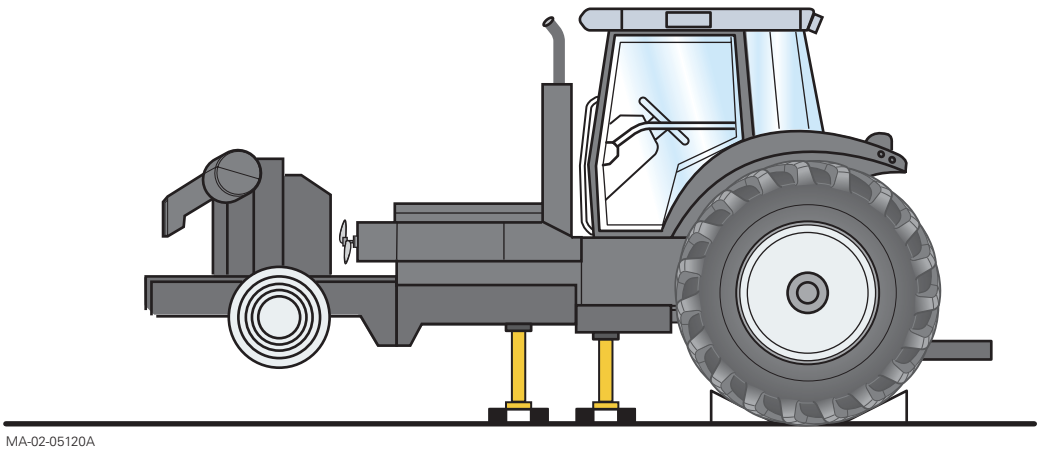

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Fig. 12

27. Remove the suspended front axle control block (if fitted, see chapter 9).

28. Remove (see chapter 8):

- the first bearing of the fixed or suspended (according to version) front axle;
- the front axle.

Second step: splitting the front frame (radiators/cooler) from the engine.

29. Correctly sling and balance the front frame assembly (radiators/cooler), using the tapped holes drilled into each side of the front frame (Fig. 14).

30. Loosen one M16x85 side screw (1) on the left and right-hand side of the engine (Fig. 13). Replace with a guide stud of appropriate length.

31. With the help of an operator, loosen the screws (2) (3) (Fig. 13).

32. Remove the front frame from the engine.

Screw dimensions (Fig. 13)

Screw	
M16x85	(1)
M20x135	(2)
M24x165	(3)

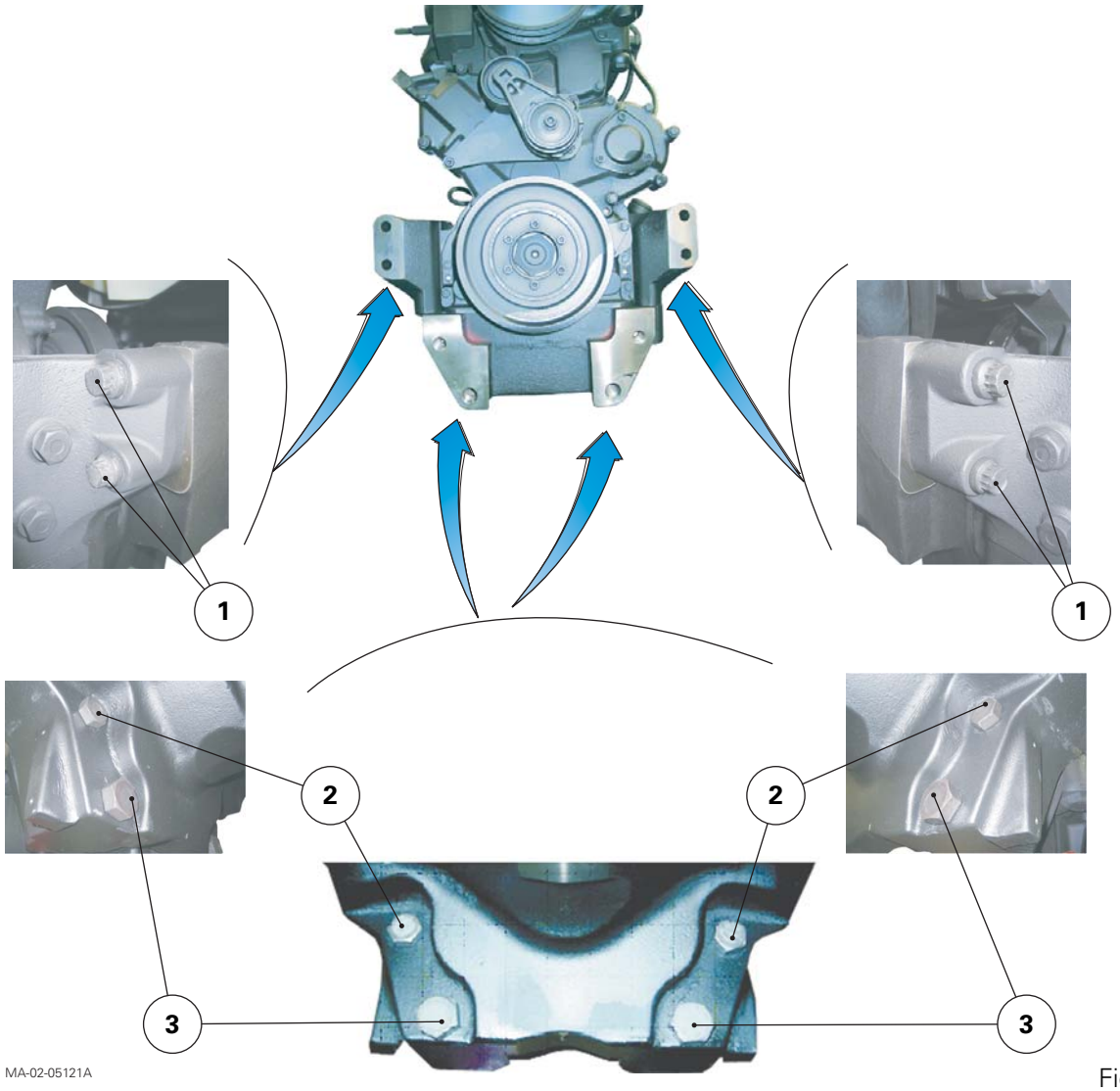

Fig. 13

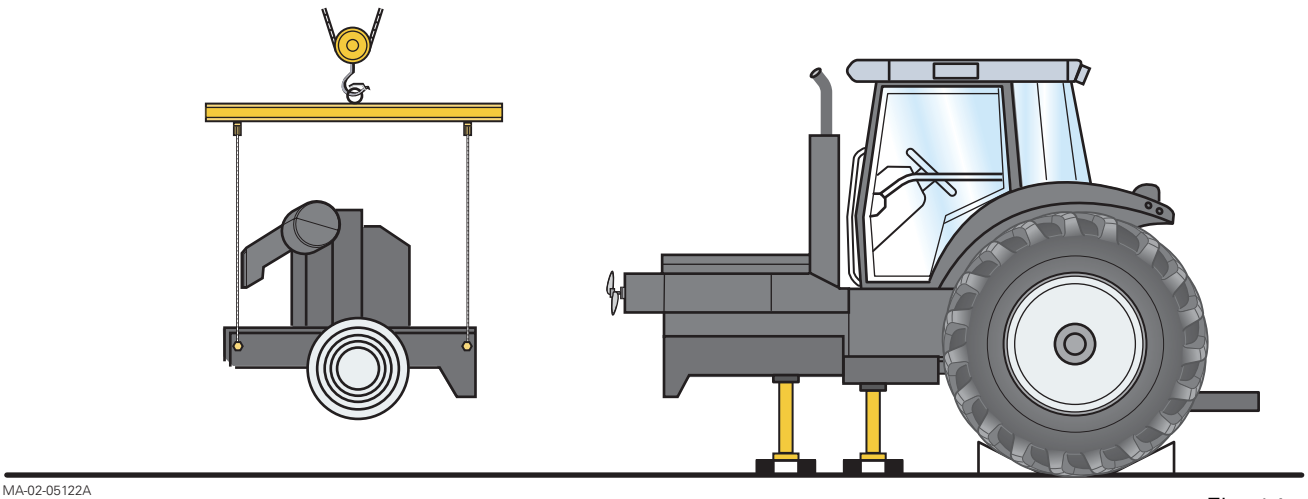

Fig. 14

C . Reassembly

33. Clean the mating faces of the engine and front frame.

34. Screw a guide studs onto each rear face of the front frame (Fig. 15).

35. With the help of an operator, assemble the front frame onto the engine.

36. Tighten two screws (1) (Fig. 13).

Take out the guide studs.

Fit and tighten the diametrically opposed screws (Fig. 13) in the following order:

- screws (1) to a torque of 240 - 320 Nm;
- screws (2) to a torque of 480 - 640 Nm;
- screws (3) to a torque of 800 - 1040 Nm.

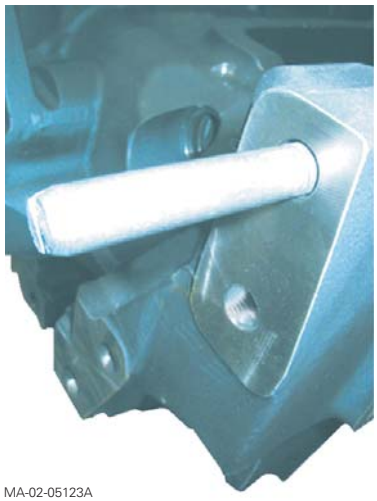

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Fig. 15

Final operations

Final operations are not especially difficult. They therefore will be carried out in the reverse order of the preliminary operations.

However, the following operations need to be performed during refitting:

- if necessary, tighten the screws or wheel nuts at the required **tightening torque** (see chapter 6);
- make up the **level of coolant**, to the maximum level marked on the expansion tank (Fig. 16);
- **test:**
  - the air conditioning system (if fitted - see chapter 12);
  - the suspended front axle (if fitted, see chapter 8),
  - all mechanical, hydraulic, electrical and electronic functions concerned by servicing;
- **check the tightness**:
  - of the hydraulic unions,
  - of water hoses,
  - of the bleed screw on control unit of suspended front axle (if fitted).

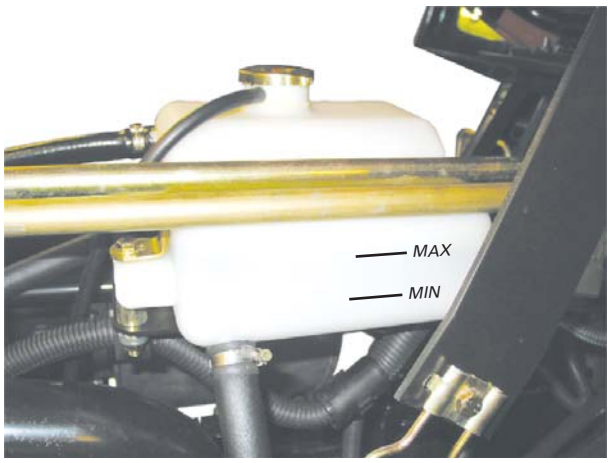

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Fig. 16

Splitting the front frame/Sisu engine - MF 6497-6499

02B01 - Splitting - Perkins Engine / GBA20 Gearbox

CONTENTS

Splitting - Perkins Engine / GBA20 Gearbox

A . General

On 6400 series tractors fitted with a GBA20 gearbox, two types of engine may be fitted:

- Perkins 6-cylinder engine.
- Perkins 4-cylinder engine.

It is required to split the tractor between the engine and the gearbox when access is necessary to carry out servicing on the main following elements:

Engine interface

- Transmission damper
- Engine flywheel
- Engine adapter plate

Gearbox interface

- Spacer and sealing ring
- Internal hydraulic pipes
- Reverse shuttle and Dynashift

Remark

- This section presents a general disassembly procedure. Before and during disassembly, check that all connections have been properly separated between the fixed assembly and mobile assembly.
- The cab remains attached to the centre housing.

B . Disassembling and reassembling (Perkins 6-cylinder engine)

Preliminary operations

1. Apply the handbrake.
2. Check that the suspended front axle (if fitted) is in low position and unscrew the control unit bleed screw (see chapter 9).
3. Remove the lateral panels from each side of the engine and bonnet (if necessary).

Servicing under the tractor

4. Remove the guard and the shafts (4 WD tractors).

Servicing at the front of the tractor

5. Remove the front weights (if fitted).

Servicing on the right-hand side of the tractor

6. Remove the footstep.
7. Disconnect and remove first the batteries and then the support.
8. Disconnect the flexible sleeve (1) (Fig. 1) fitted to the suction port. Remove the vertical exhaust assembly (including support Fig. 2).
9. Mark then disconnect:
   - the cables (positive and negative) on the starter,
   - the front differential lock hose,
   - the hose on the steering ram,
   - the lubricating hoses (running to and from the cooler) (Fig. 3).

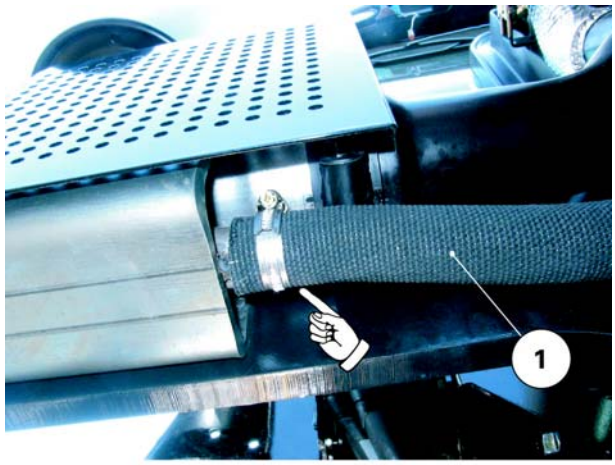

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Fig. 1

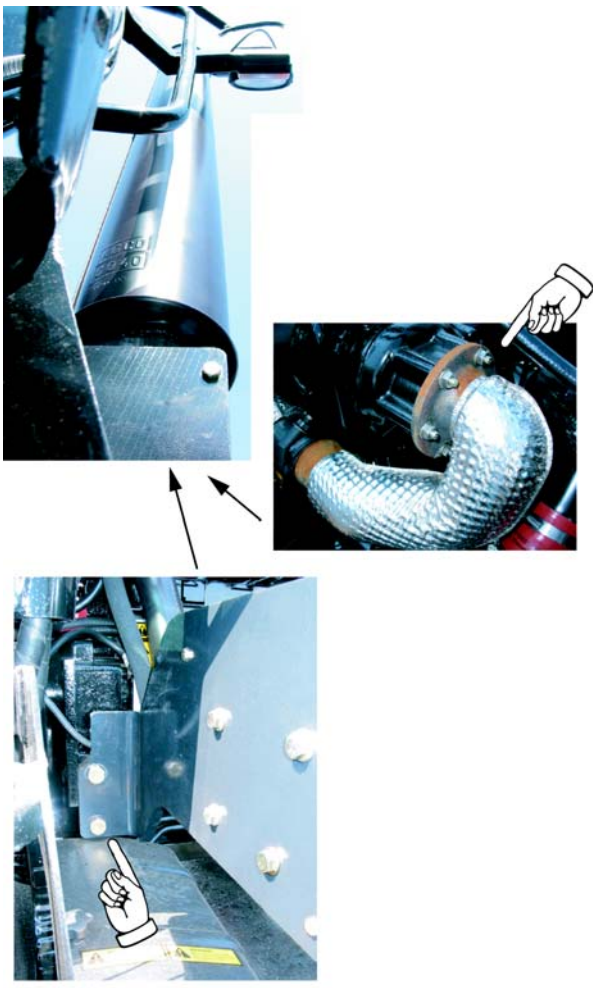

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Fig. 2

Servicing on the left-hand side of the tractor

10. Remove the footstep.

11. Mark then disconnect:

- the hose on the steering ram,
- the hoses (pressure-return and LS) on the rigid pipes (Fig. 4) of the suspended front axle (if fitted).

12. Mark and disconnect the fuel feed and return hoses on the engine (block ports immediately).

Remark

If the fuel tank is not removed it obstructs access to the engine attachment screw on the spacer, but does not prevent access. However, if there is a problem, remove the tank having previously marked and disconnected:

- the gauge harness,
- the vent hose on the tank.

Servicing under the cab

13. Mark, toe-in and disconnect the heating hoses, immediately blocking the ports.

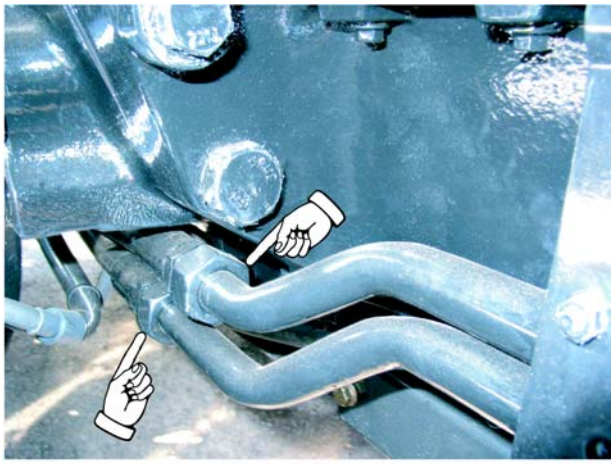

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Fig. 3

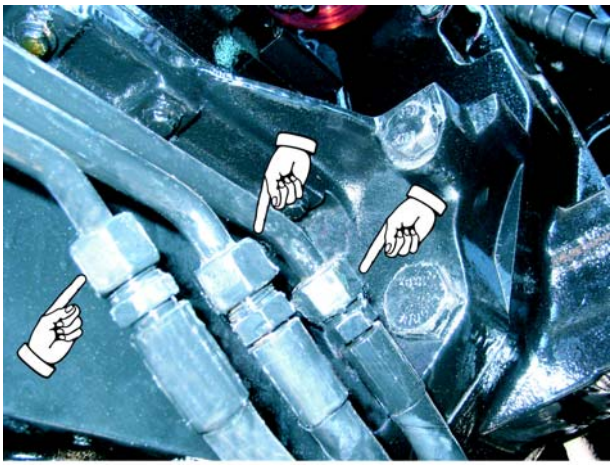

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Fig. 4

Servicing the engine

14. If necessary disconnect the connector (1) of the main wiring harness (Fig. 5).

15. Separate the compressor, the condenser and the filter from their respective holders, and remove them carefully, without breaking the circuit (see chapter 12).

Remark

Work carefully.

Servicing at the front of the cab

16. Disconnect the connectors (2) on the left-hand face of the fire wall (Fig. 5).

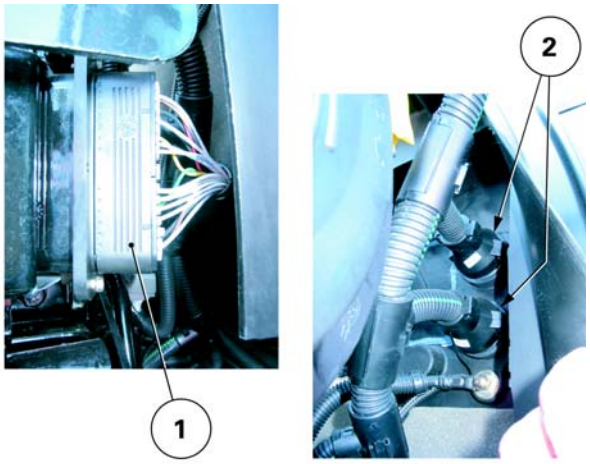

Fig. 5

Preparing for disassembling

17. Cancel the front axle oscillation (all versions) by sliding a suitable chock in at each side of the support (1) (Fig. 6).

18. Chock the rear wheels.

19. Install (Fig. 7):

- a fixed stand at the front of the gearbox,
- a mobile stand at the back of the engine.

20. If necessary, separate the cab from the front right- and left-hand supports. Gently lift it using two straps fitted to the lateral handles. Fit a wooden chock temporarily between the cab and the supports.

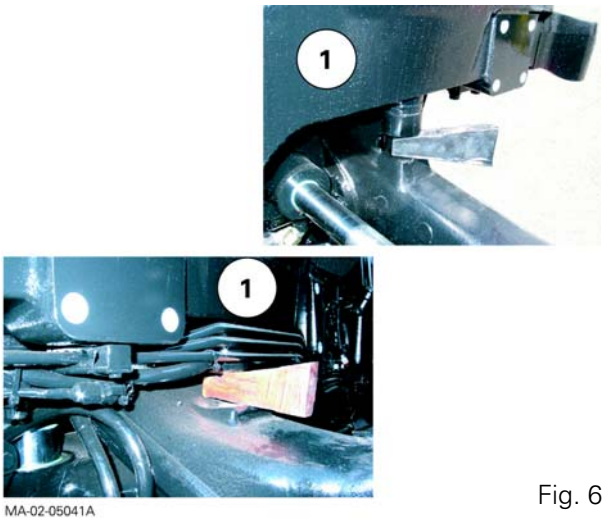

Fig. 6

Disassembly

21. Remove the screws and nuts attaching the engine to the gearbox (Fig. 8). Mark their lengths and positionings.

22. With the help of an operator, separate the assemblies (Fig. 7).

Reminder

When disassembling, check that connections (hoses, pipes and harnesses) are all disconnected.

Dimensions of the screws, studs and nuts

Screws

- M16 x 60 mm
- M16 x 115 mm
- M16 x 185 mm
- M22 x 160mm

Studs

- M12 x 185 mm
- M22 x 160 mm

Nuts

- M12
- M22

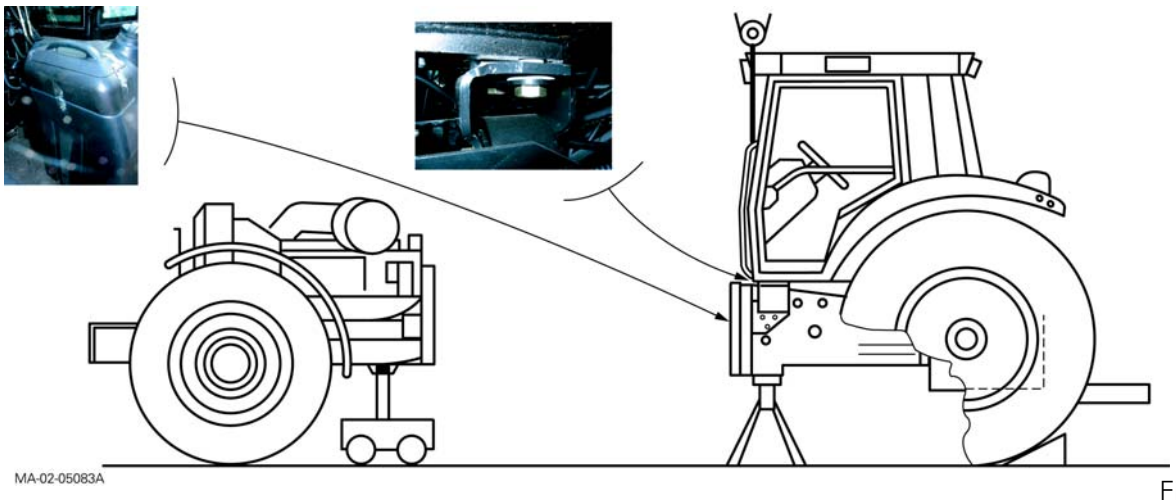

Fig. 7

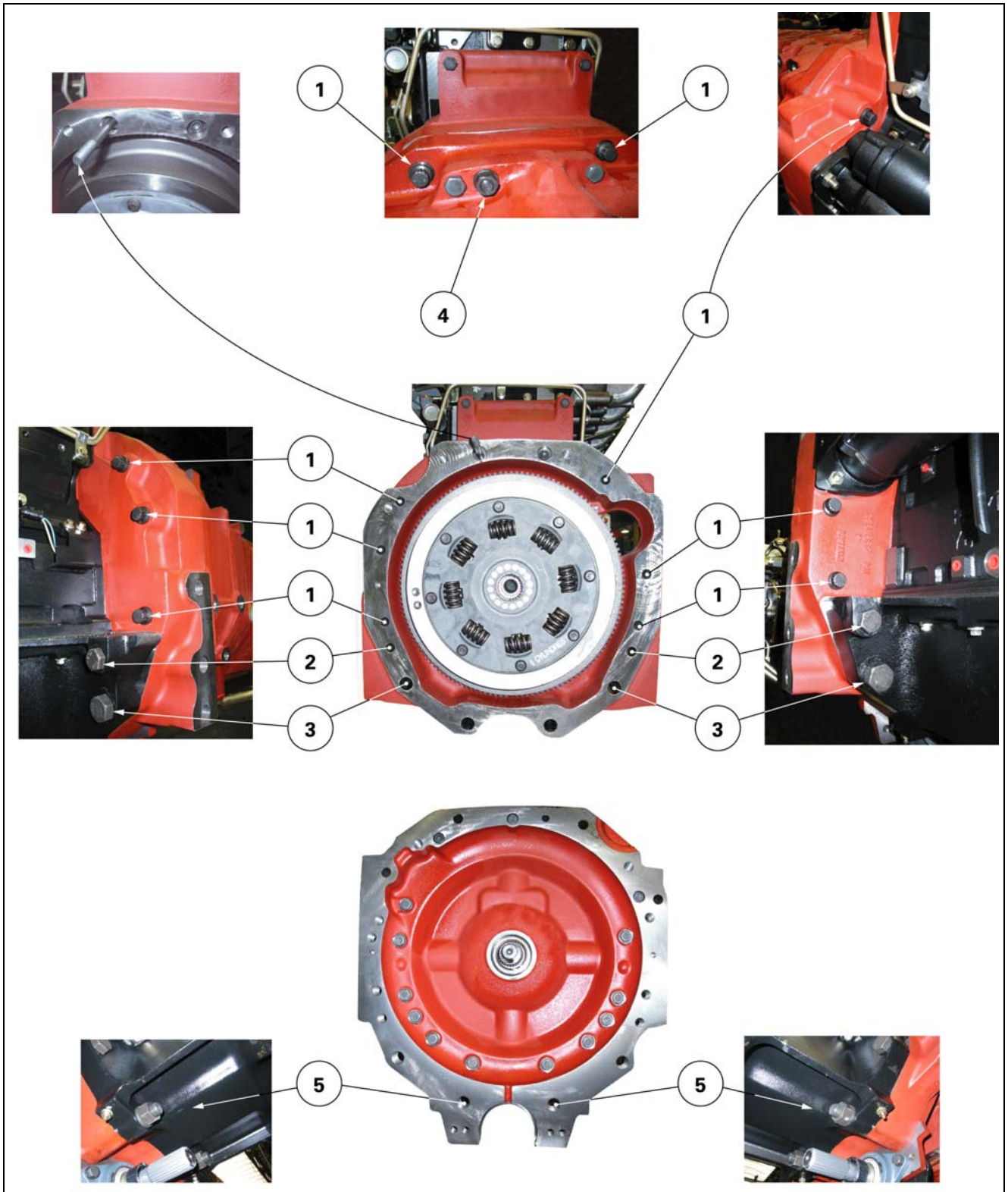

Fig. 8

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Reassembly

23. Clean the mating faces of the engine and the gearbox spacer.

24. Check:

- the presence of locating pins (1) on the engine (Fig. 9),
- the tightness of the upper nut (M12) on the engine adapter plate (Loctite 270),
- the tightness of the lower studs (M22) on the gearbox spacer (Loctite 270).

25. Lightly lubricate the splines of main shaft (1) (Fig. 10) with grease (type GN + Molykote) or equivalent.

26. If necessary screw two supplementary diametrically opposed guide studs into the gearbox.

27. Assemble the engine onto the gearbox spacer.

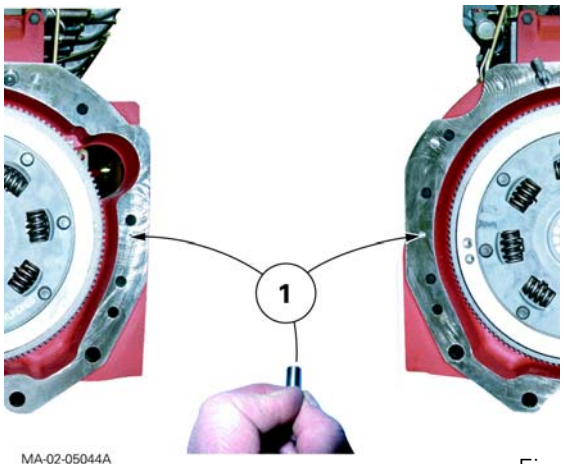

Fig. 9

Reminder

If necessary, remove the starter and turn the flywheel ring gear using a suitable tool. This will ease the engagement of the vibration damper splines with those of the main shaft. If there is resistance, do not force it and find the cause of the problem.

28. When the elements are joined, remove the guide studs (if fitted). Lightly grease the thread of the screws and nuts with Loctite 270 or equivalent and refit according to the marks made at disassembly. Tighten to the required torques (Fig. 11)

- Screw (1): 240 - 320 Nm.
- Screw (2): 240 - 320 Nm.
- Screw (3): 630 - 840 Nm.
- Nuts (4): 100 - 130 Nm.
- Nuts (5): 630 - 840 Nm.

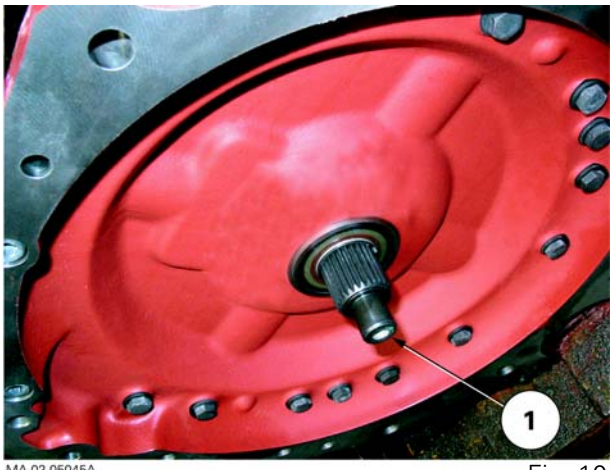

Fig. 10

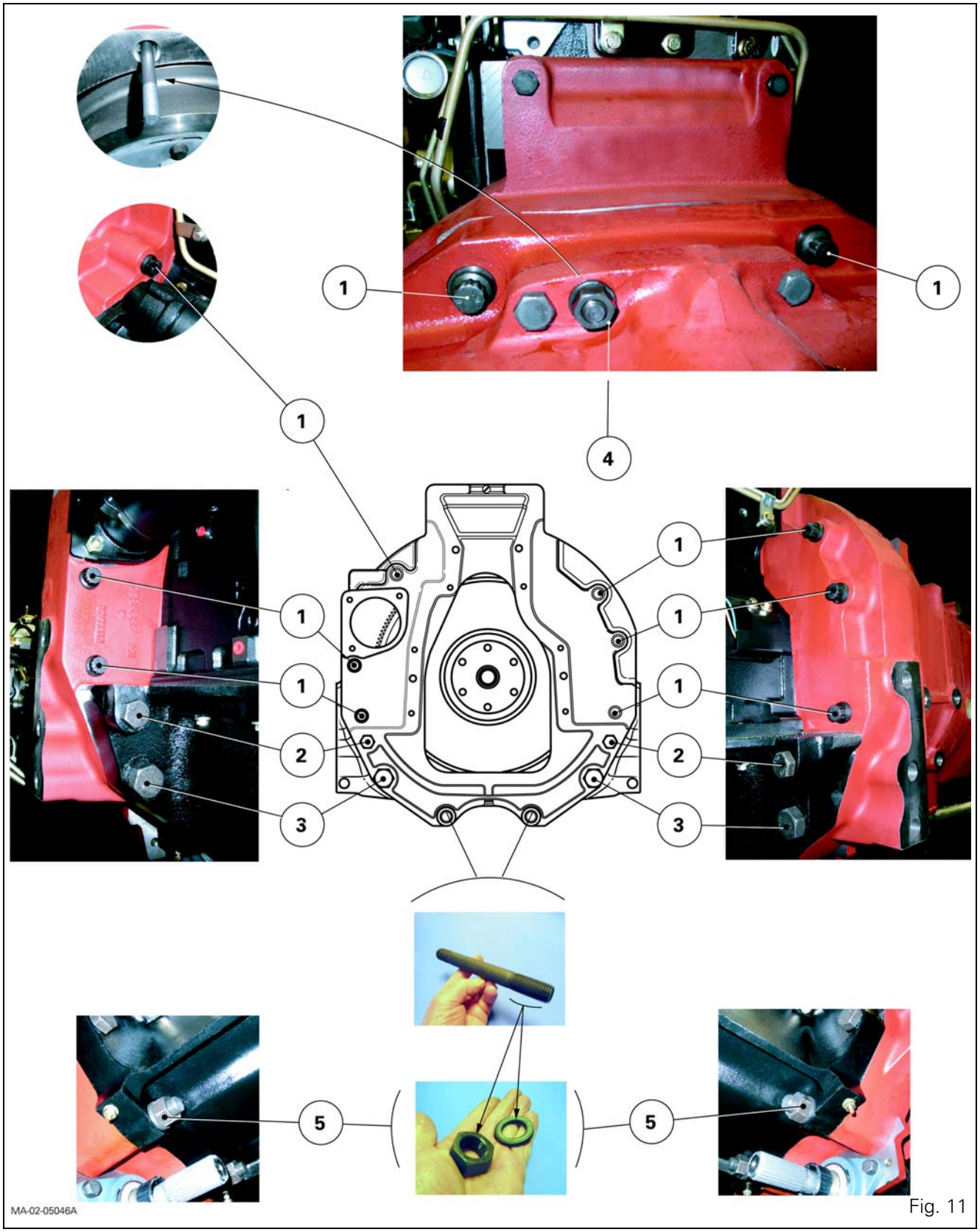

Fig. 11

Final operations

Remark

Final operations are not especially difficult. They should be carried out in the reverse order to preliminary operations. However, it will be necessary during reassembly to carry out the tightening torques, adjustments and tests described below.

Tightening torques

As required:

- Front cab attachment screw (see chapter 12).
- Screw (2) of connector (1) on main wiring harness (Fig. 5 and Fig. 12) 2.82 to 3.15 Nm

Topping-up

of coolant to the maximum level marked (radiator, expansion tank. Fig. 13).

Tests

- air conditioning system (if fitted – see chapter 12).
- Cab suspension (if fitted, see chapter 12).
- All mechanical, hydraulic, electrical and electronic functions concerned by servicing.

Checking tightness

- Hydraulic unions.
- Bleed screw on control unit of suspended front axle (if fitted).

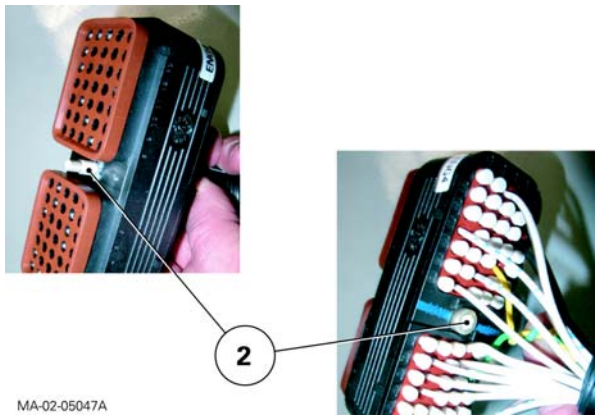

Fig. 12

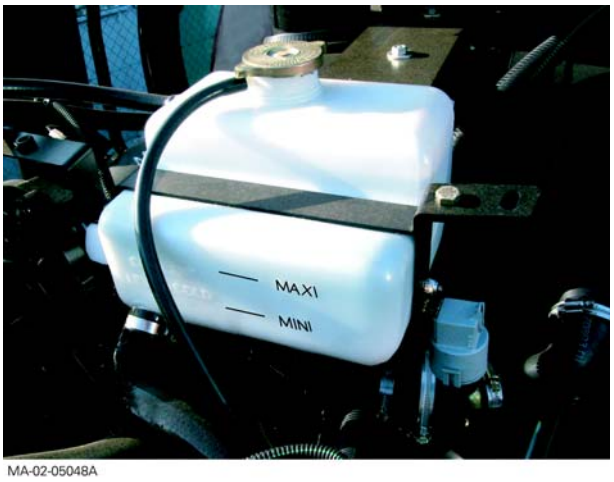

Fig. 13

C . Disassembling and reassembling (Perkins 4-cylinder engine)

Preliminary operations

29. Apply the handbrake.

30. Remove the side panels, prefilter (Perkins EEM engine) and bonnet.

Servicing under the tractor

31. Take off the guard, shaft and differential lock supply pipe (4 WD tractors).

Servicing at the front of the tractor

32. Remove front the weights (if fitted).

33. Disconnect the batteries.

Tractors with...	Battery location
Perkins engine with mechanical injection	in the grille compartment
Perkins EEM engine	behind the right-hand footstep

Location of batteries (Fig. 14)

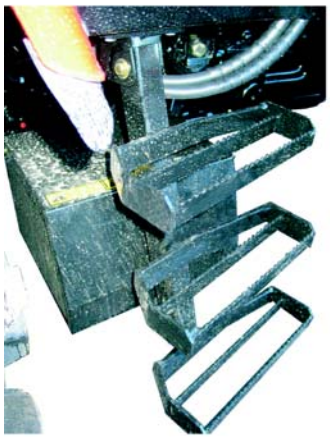

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Fig. 14

Servicing on the right-hand side of the tractor

34. Take off the front right-hand mudguard.

35. Disconnect the flexible sleeve (1) (Fig. 15) fitted to the suction port.

If necessary, remove the vertical exhaust assembly (including support) (Fig. 15).

36. Mark then disconnect:

- the hose on the steering ram or on the spool valve (Orbitrol), depending on the tractor type;
- the lubricating hoses (running to and from the cooler) (Perkins EEM engine) (Fig. 16).

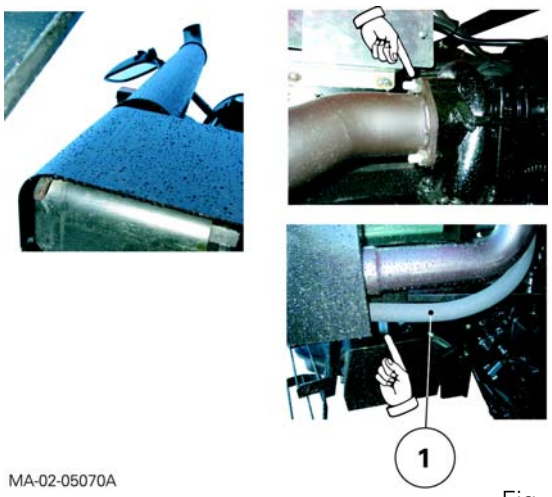

Fig. 15

Servicing on the left-hand side of the tractor

37. Take off the front left-hand mudguard.

38. Mark then disconnect:

- the hose on the steering ram or on the spool valve (Orbitrol), depending on the tractor type;
- the gas-oil supply and return hoses on the engine. Immediately block the ports.

39. Disconnect the cables connected to the starter positive terminal (Fig. 17).

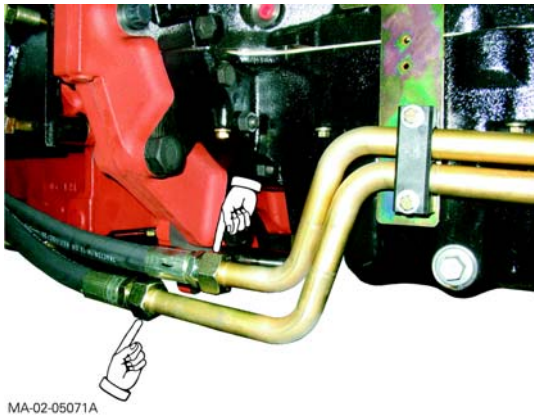

Fig. 16

Fig. 17

Servicing under the cab

If the engine is still hot, allow it to cool.

Reminder

To work on heating hoses, it is not necessary to drain the engine block cooling circuit.

40. Toe-in each heating hose using a clamp fitted with plastic jaws (Fig. 18).

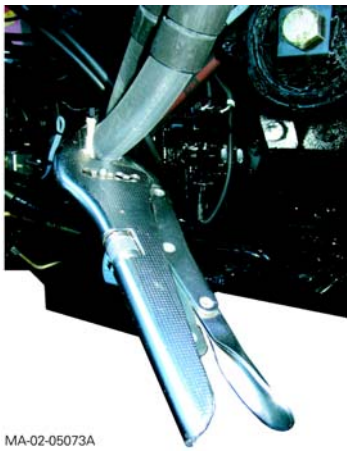

Fig. 18

Servicing the engine

41. Mark and disconnect the heating hoses on the engine block and water pump.

Immediately block the ports using suitable plugs.

42. Disconnect the negative cables on the block at the rear left-hand side of the engine (Fig. 19).

43. If necessary disconnect the connector (1) of the main wiring harness (Perkins EEM engine) (Fig. 19).

44. Detach the air conditioning compressor, condensor and filter from their respective supports (if fitted).

Place the assembly beside the tractor without disconnecting the pipes and hoses (see chapter 12).

Note: Carry out this procedure with care.

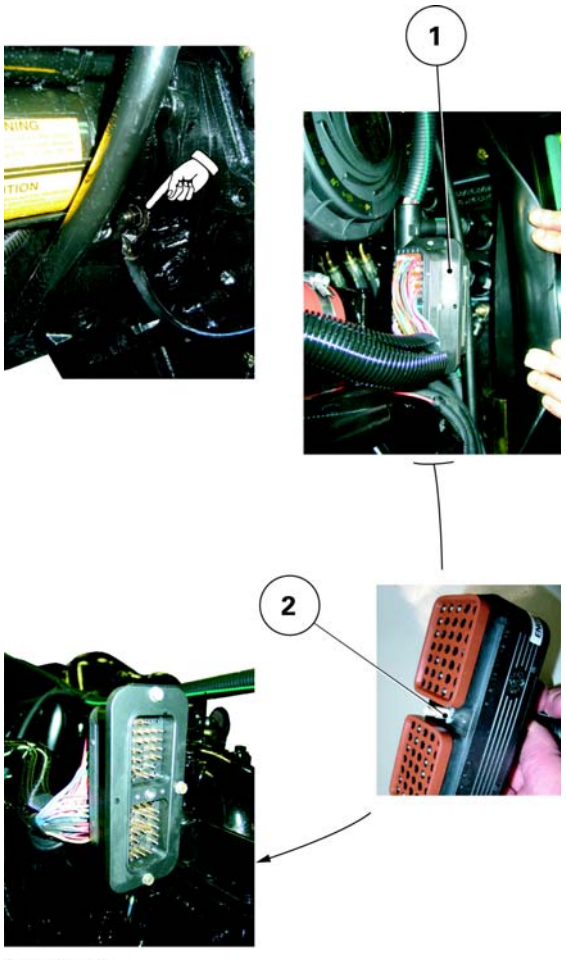

Fig. 19

Servicing at the front of the cab

45. Disconnect the connectors (2) and the ground terminals (1) on the left-hand side of the cab wall (Fig. 20).

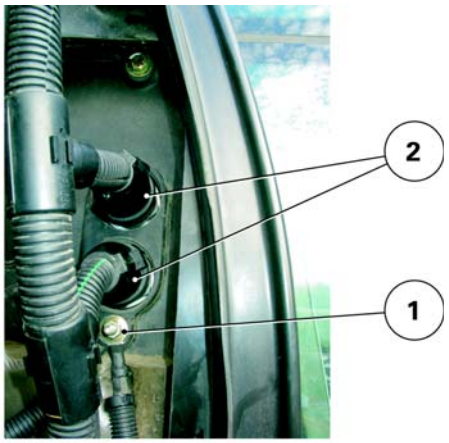

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Fig. 20

Preparing for disassembling

46. Stop the front axle oscillation by sliding a suitable wooden chock either side of the support (1) (Fig. 21).

47. Chock the rear wheels.

48. Install (Fig. 22):

- a fixed stand at the front of the gearbox,
- a mobile stand at the back of the engine.

49. If necessary, separate the cab from the front right- and left-hand supports.

Gently lift the cab front using two straps fitted to the lateral handles.

Fix the cab in a raised position

Momentarily place a wooden chock between each support and the cab right- and left-hand attachments.

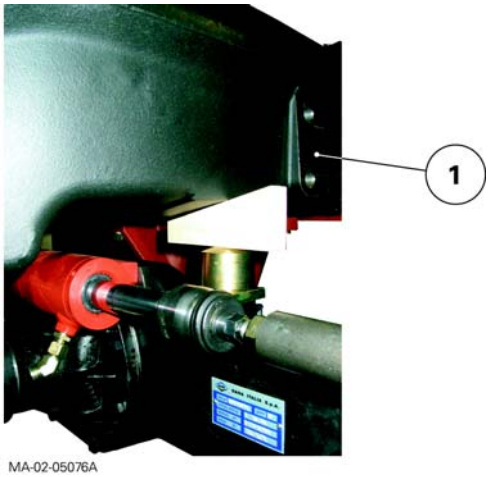

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Fig. 21

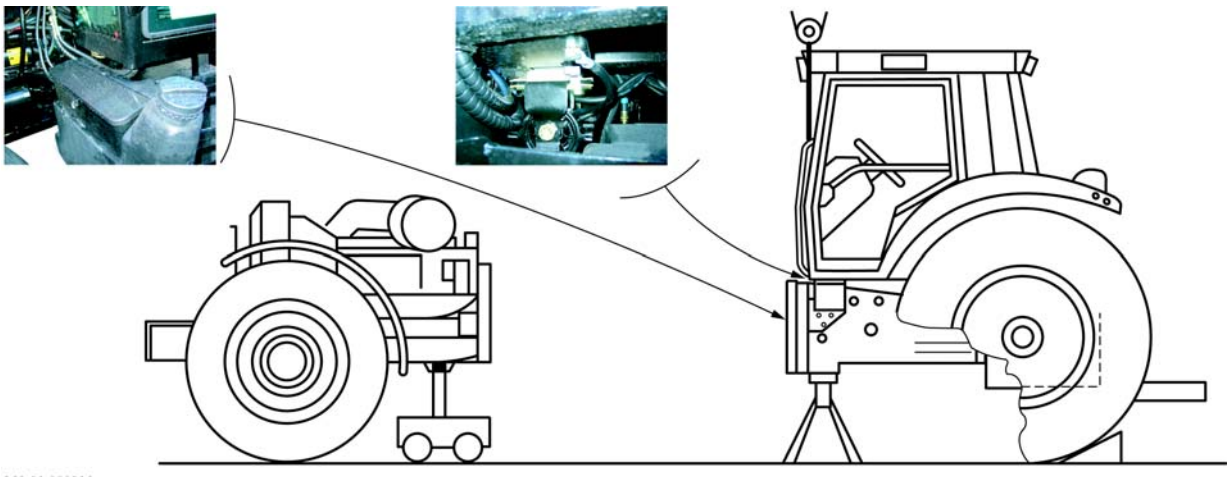
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Fig. 22

Disassembly

50. Remove the screws attaching the engine to the gearbox (Fig. 23).
Mark their position and length.

51. Assisted by an operator, separate the assemblies (Fig. 22).

Screw dimensions

Screws
M16 x 50 mm
M16 x 60 mm
M16 x 80 mm
M22 x 80 mm

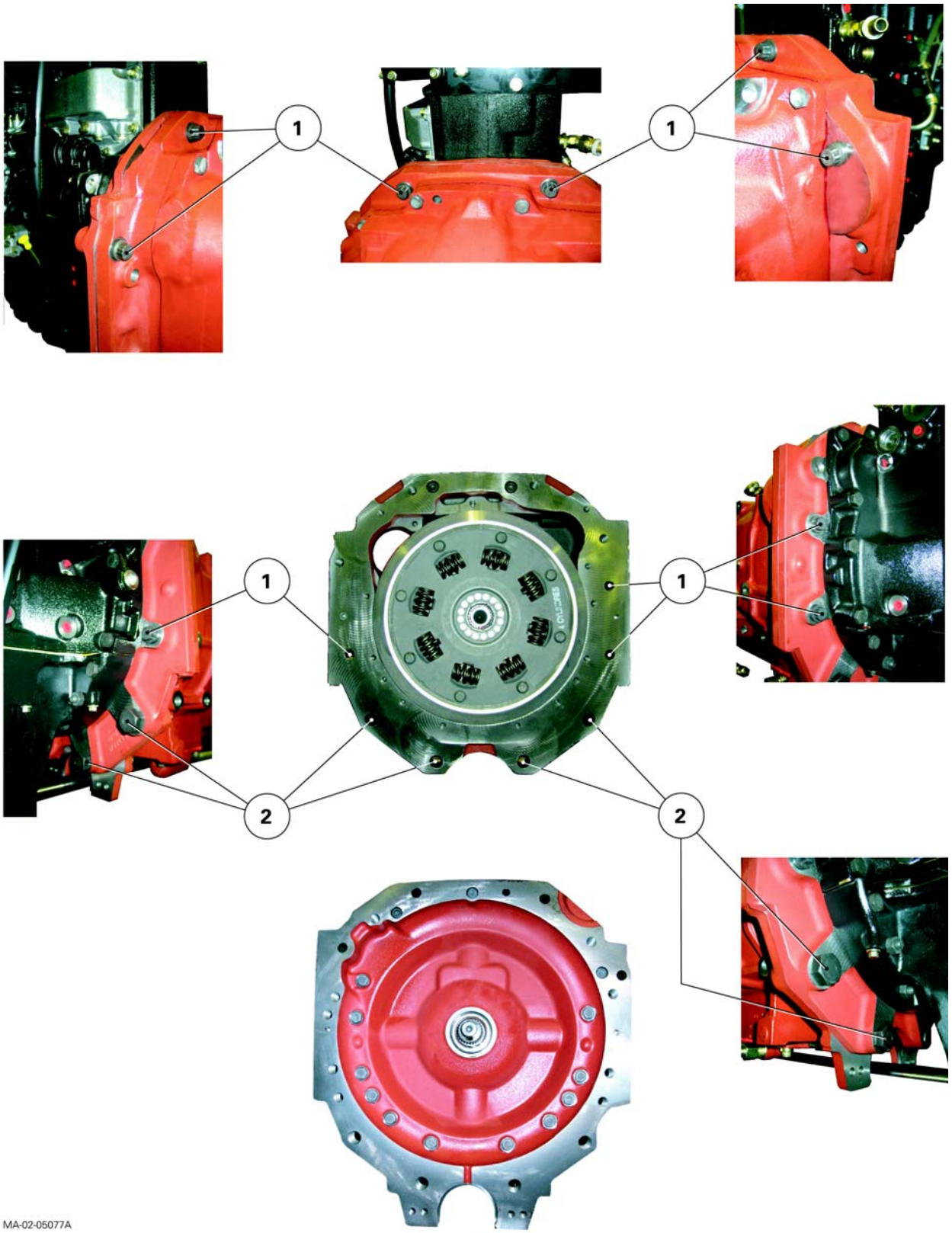

Fig. 23

Reassembly

Advice for use

Use guide studs to assist reassembly of the engine and gearbox.

52. Clean the mating face of the engine adapter plate and gearbox spacer.

53. Check for the presence of locating pins (1) on the engine adapter plate (Fig. 24).

54. Lightly smear the splines of main shaft (1) (Fig. 25) with AS767 grease or equivalent.

55. Screw two diametrically opposed guide studs to the engine adapter plate or to the gearbox spacer.

56. Assemble the engine onto the gearbox spacer.

Reminder

If necessary, remove the starter and slowly turn the flywheel ring gear using a suitable tool.

This will ease the engagement of the vibration damper splines with those of the gearbox main shaft.

If there is resistance, do not force it and find the cause of the problem.

57. When the two assemblies are joined, remove the guide studs (if fitted).

Lightly smear the thread of each of the screws (1) and (2) with Loctite 270 or equivalent. Fit them as marked at disassembly.

Tighten (Fig. 26):

- screws (1) to a torque of 240 - 320 Nm;
- screws (2) to a torque of 630 - 840 Nm.

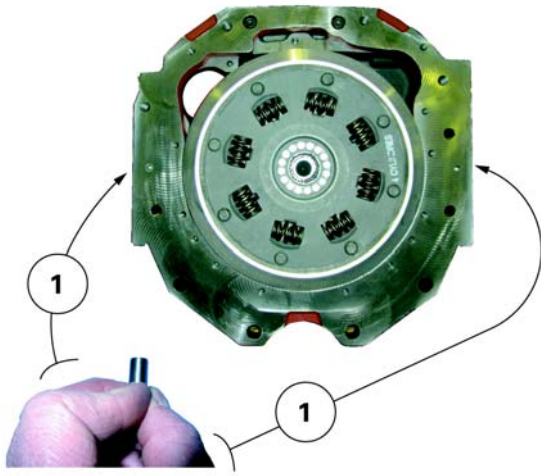

Fig. 24

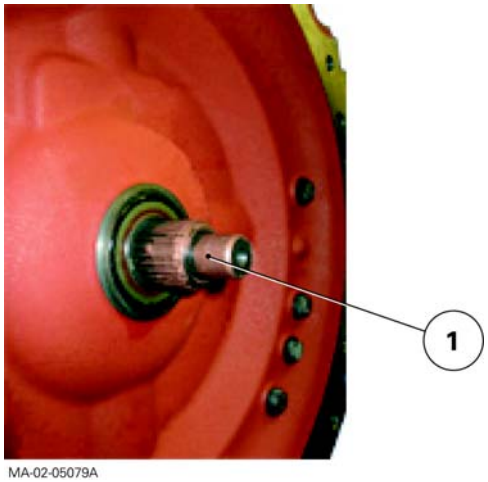

Fig. 25

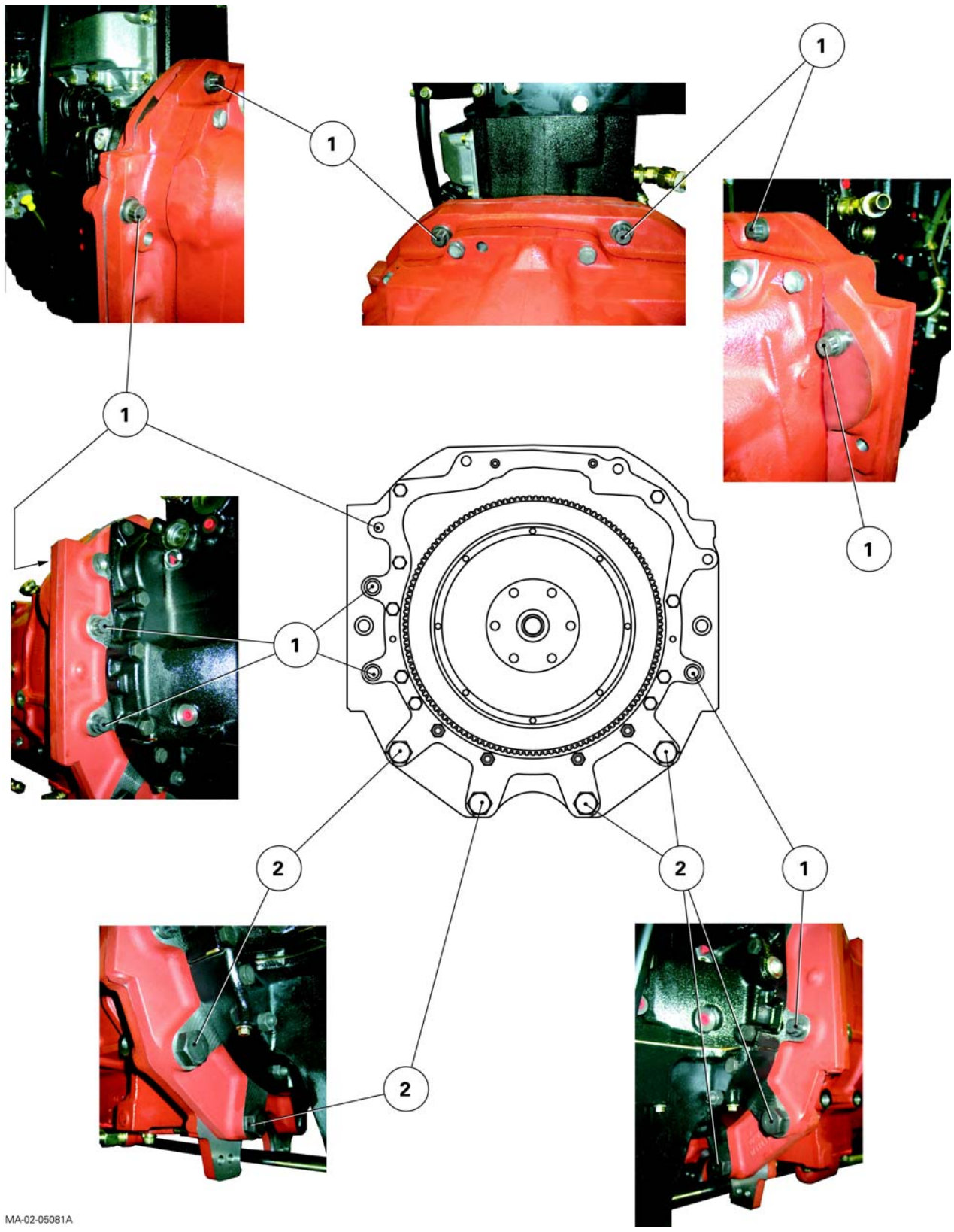

Fig. 26

Final operations

Remark

Final operations are not especially difficult.

They should be carried out in the reverse order to preliminary operations. However, it will be necessary during reassembly to carry out the tightening torques, adjustments and tests described below.

Tightening torques

As required:

- front cab attachment screw (see chapter 12),
- screw (2) of the connector (1) on the main harness (Perkins EEM engine) (Fig. 19 and Fig. 27) to a torque of 2.82 to 3.15 Nm.

Topping-up:

- of coolant, to the maximum level marked on the radiator and expansion tank (Fig. 28).

Tests:

- air conditioning system (if fitted) (see chapter 12),
- cab suspension (if fitted) (see chapter 12),
- all mechanical, hydraulic, electrical and electronic functions concerned by servicing.

Check tightness:

- of hydraulic unions.

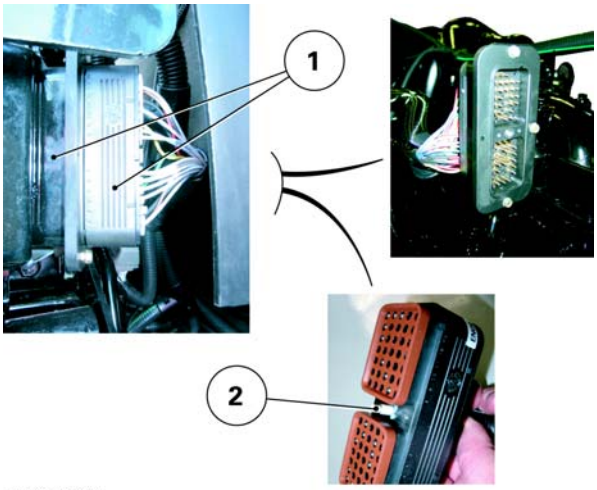

Fig. 27

Fig. 28

2B11 - Perkins/GTA2520 engine separation

CONTENTS

Perkins/GTA2520 engine separation

A . General

On 6400 series tractors fitted with a GBA 25 gearbox, two types of engine can be fitted.

- Perkins six-cylinder engine.
- Perkins four-cylinder engine.

The tractor should be split between the engine and the gearbox when access is necessary to carry out operations on the following main elements:

Engine interface

- Transmission damper
- Engine flywheel
- Engine adapter plate

Gearbox interface

- Spacer and sealing ring
- The Powershuttle, Step-up unit and Powershuttle module

***NOTE**: This section presents a general disassembly procedure. Before and during disassembly, check that all connections between the fixed assembly and mobile assembly have been disconnected.*

The cab remains attached to the centre housing.

B . Disassembling and reassembling (six-cylinder Perkins engine)

Implementation

1. Apply the handbrake.
2. Check that the suspended front axle (if fitted) is in low position and unscrew the control unit bleed screw (see chapter 9).
3. Remove the lateral panels from each side of the engine and bonnet (if necessary).

Operations underneath the tractor

4. Dismantle the front linkage reinforcements (if mounted).
5. Remove the guard and the shafts (4 WD tractors).

Operations at the front of the tractor

6. Remove the front weights (if fitted).

Operations on the right-hand side of the tractor

7. Remove the footplate.
8. Disconnect and remove the batteries then the support.
9. Disconnect the flexible sleeve (1) (Fig. 1) fitted to the suction port. Remove the vertical exhaust assembly (including support Fig. 2).
10. Mark then disconnect:
    - the cables (positive and negative) on the starter
    - the front differential lock hose
    - the hose on the steering ram
    - the lubricating hoses (running to and from the cooler) (Fig. 3)

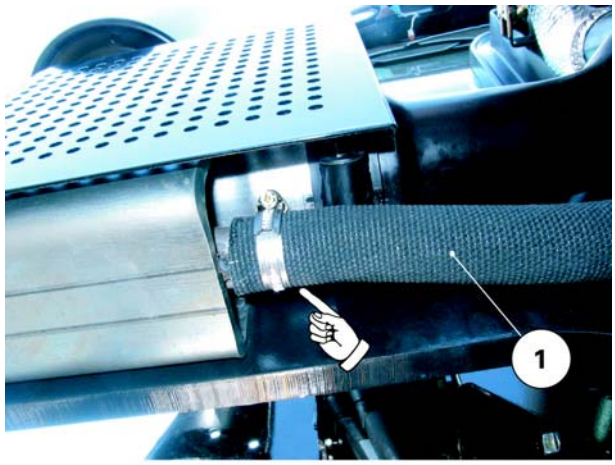

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Fig. 1

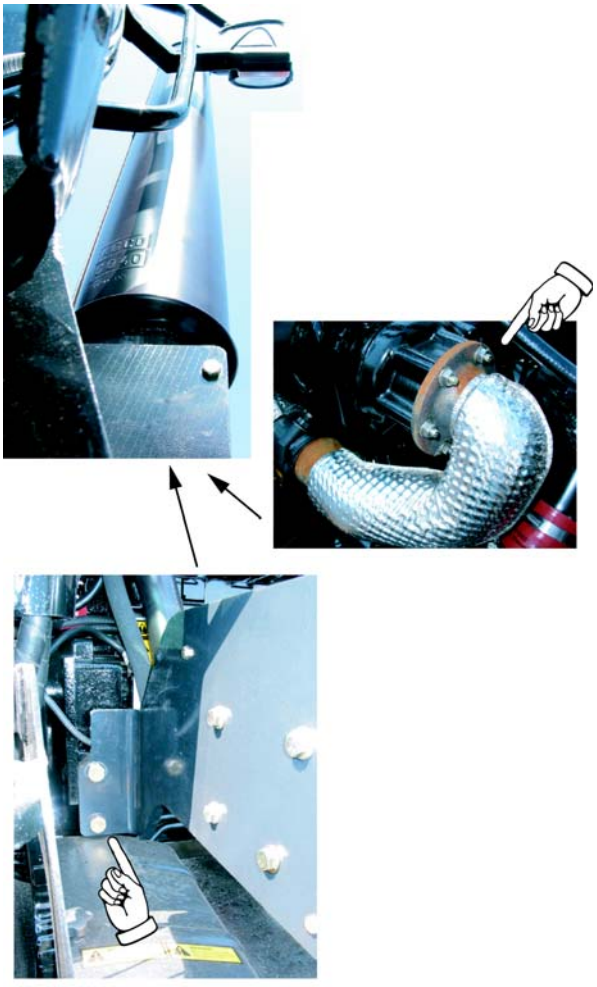

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Fig. 2

Operations on the left-hand side of the tractor

11. Remove the footplate.

12. Mark then disconnect:

- the hose on the steering ram
- the hoses (pressure-return and LS) on the rigid pipes (Fig. 4) of the suspended front axle (if fitted)

13. Mark and disconnect the fuel feed and return hoses on the engine (block ports immediately).

***NOTE**: If the fuel tank is not removed it obstructs access to the engine screws on the spacer but does not prevent access. However, if there is a problem, remove the fuel tank having previously marked and disconnected:*

- *the gauge harness*
- *the vent hose on the fuel tank*

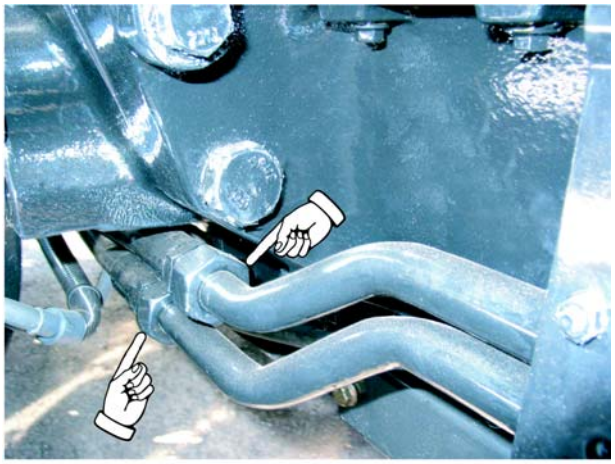

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Fig. 3

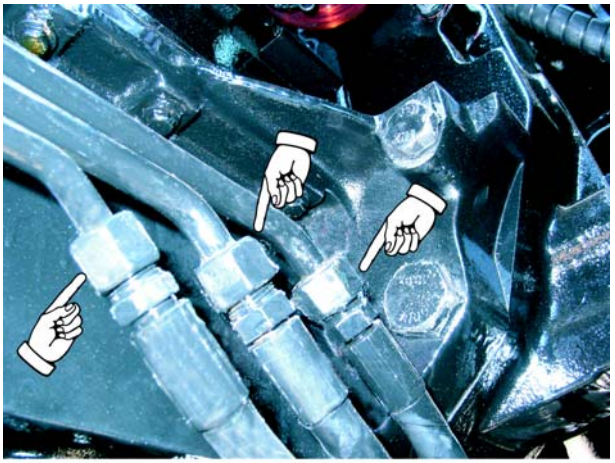

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Fig. 4

Operations under the cab

CAUTION: If the engine is still hot, allow it to cool.

***NOTE**: To work on heating hoses, it is not necessary to drain the engine block cooling circuit.*

14. Pinch out each heating hose using a clamp fitted with plastic jaws (Fig. 5).

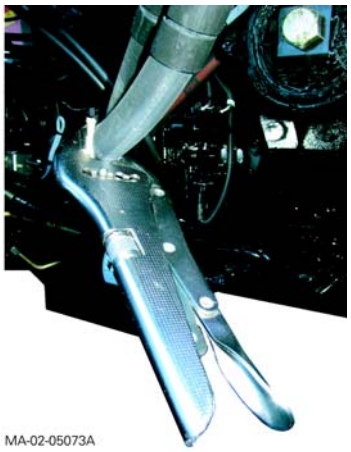

Fig. 5

Operations on the engine

15. If necessary, disconnect the connector (1) of the main wiring harness (Fig. 6).

16. Separate the compressor, the condenser and the filter from their respective holders, and remove them without breaking the circuit (see chapter 12).

***NOTE:** Proceed carefully.*

Operations at the front of the cab

17. Disconnect the connectors (2) on the left-hand face of the bulkhead (Fig. 6).

Preparing for disassembly

18. Stop the front axle swinging (all versions) by sliding a suitable chock in at each side of the support (1) (Fig. 7).

19. Chock the rear wheels.

20. Install (Fig. 8):

- a fixed stand at the front of the gearbox
- a mobile stand at the rear of the engine

21. If necessary, separate the cab from the front right- and left-hand supports. Gently lift it using two straps fitted to the lateral handles. Temporarily place a wooden chock between the cab and the supports.

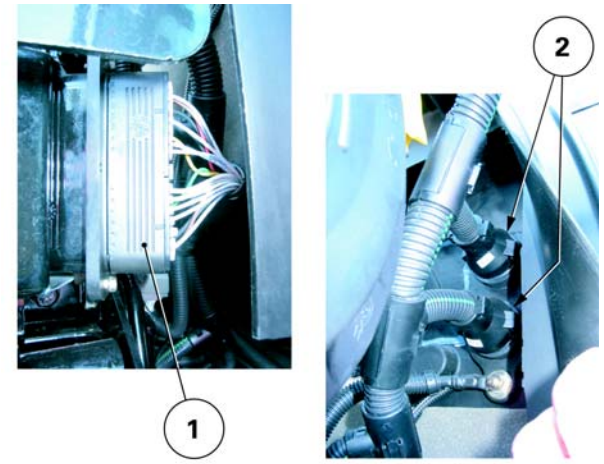

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Fig. 6

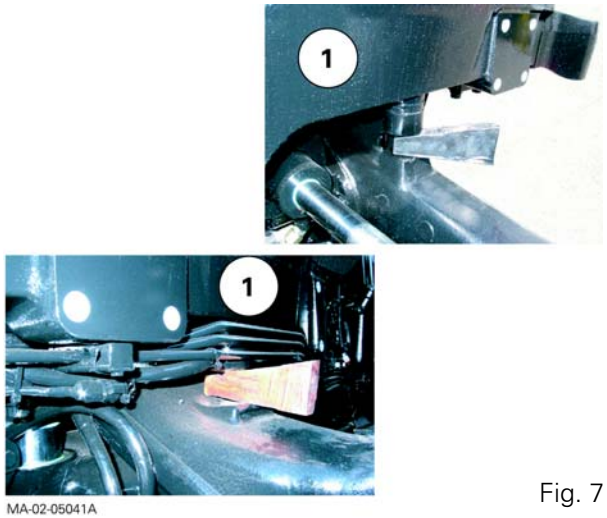

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Fig. 7

Disassembly

22. Remove the screws and nuts attaching the engine to the gearbox (Fig. 9). Mark their lengths and positionings.

23. With the help of an operator, separate the assemblies (Fig. 8).

***NOTE**: When disassembling, check that all connections (hoses, pipes and harnesses) are disconnected.*

Dimensions of the screws, studs and nuts

Screws

- M16 x 60 mm
- M16 x 115 mm
- M16 x 185 mm
- M22 x 160 mm

Studs

- M22 x 160 mm

Nuts

- M22

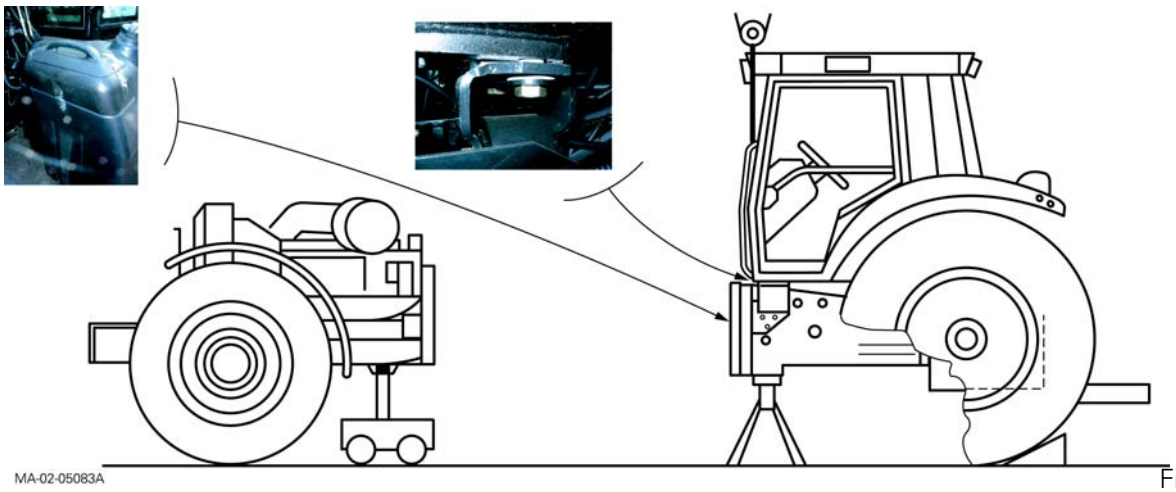

Fig. 8

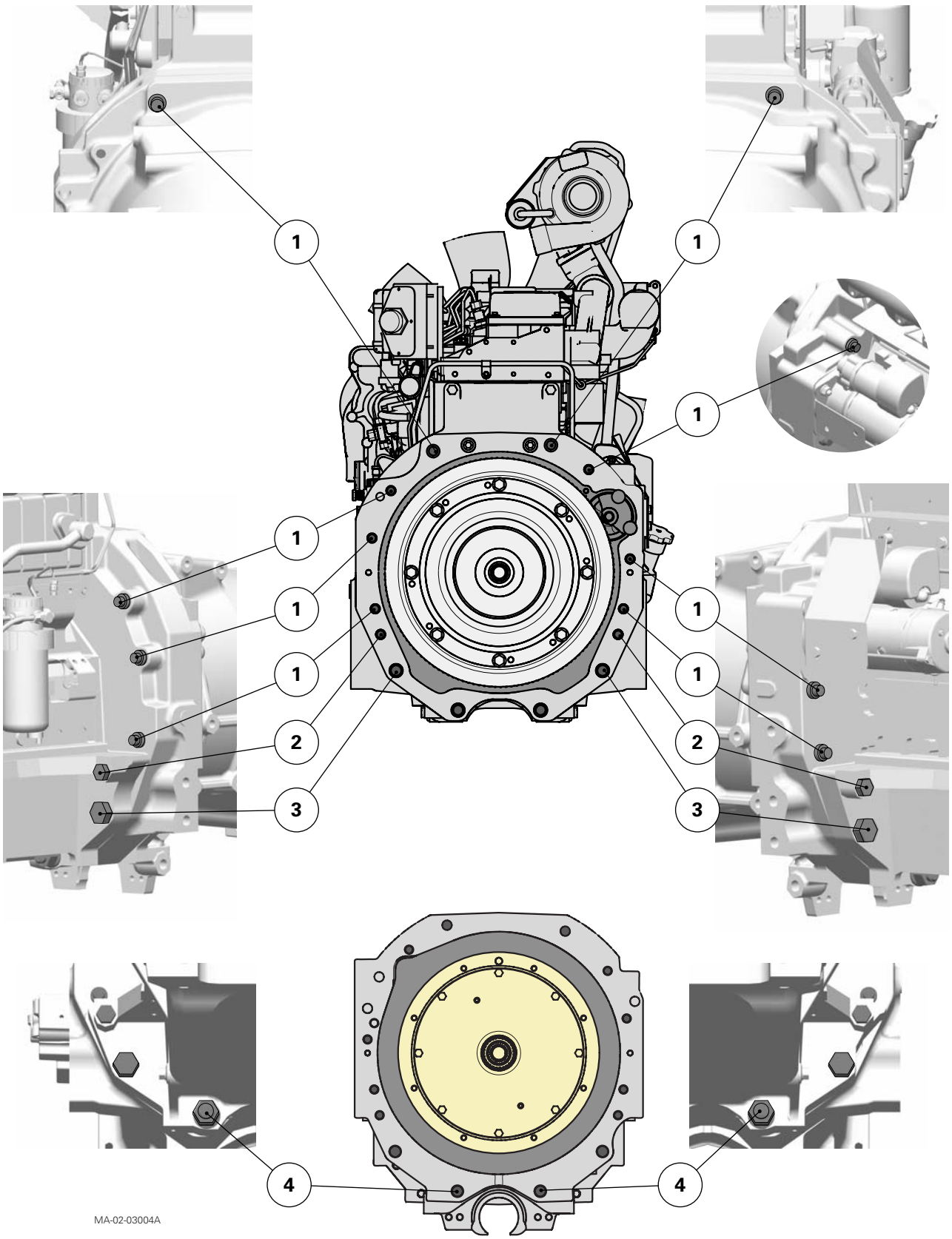

Fig. 9

Reassembly

24. Clean the mating faces of the engine and the gearbox spacer.

25. Check:
- the presence of dowels (1) on the engine (Fig. 10),
- the tightness of the lower studs (M22) on the gearbox spacer (Loctite 270).

26. Coat the input shaft splines of the gearbox lightly with grease (GN+molykote type) or equivalent.

27. If necessary, screw two supplementary, diametrically opposed guide studs into the gearbox.

28. Assemble the engine onto the gearbox spacer.

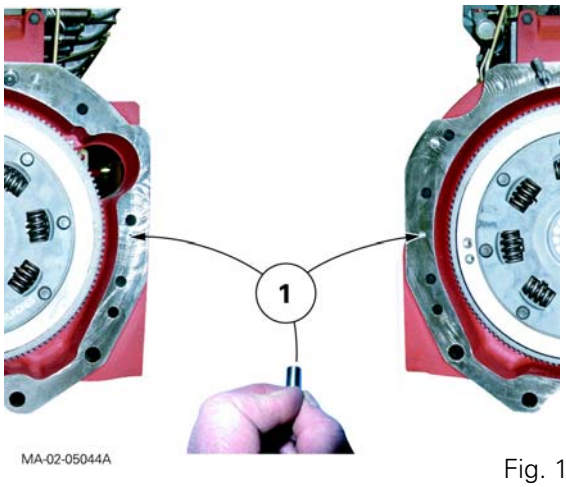

Fig. 10

***NOTE**: If necessary, remove the starter and turn the flywheel ring gear using a suitable tool. This will ease engaging the vibration damper splines with those of the main shaft. If there is resistance, do not force it and find the cause of the problem.*

29. When the elements are joined, remove the guide studs (if fitted). Lightly smear the thread of the screws and nuts with Loctite 270 or equivalent and refit according to the marks made during disassembly. Tighten to the required torques (Fig. 11)
- Screws (1): 115 Nm
- Screws (2): 280 Nm
- Screws (3): 735 Nm
- Nuts (4): 735 Nm

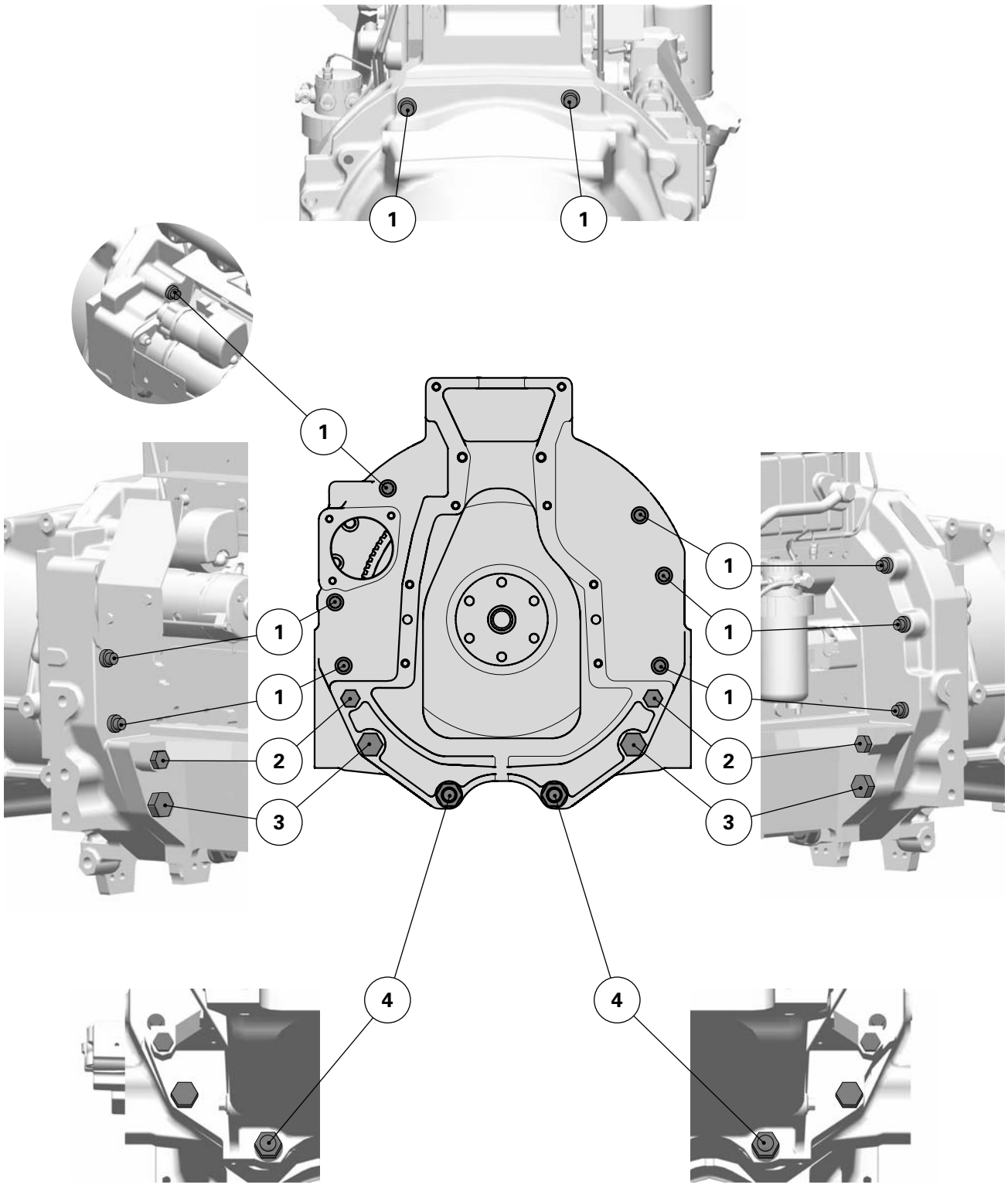

Fig. 11

Final steps

***NOTE**: Final steps are not especially difficult. They should be carried out in the reverse order to preliminary steps. However, it will be necessary during reassembly to carry out the tightening torques, checks, adjustments and tests described below.*

Tightening torques

As required:

- front cab screws (see chapter 12)
- screw (2) of connector (1) on main wiring harness (Fig. 6 and Fig. 12) 2.82 to 3.15 Nm

Topping-up

of coolant to the maximum level marked (radiator, expansion tank Fig. 13).

Tests

- air conditioning system (if fitted—see chapter 12)
- cab suspension (if fitted—see chapter 12)
- all mechanical, hydraulic, electrical and electronic functions subject to operations

Checking tightness

- of hydraulic unions
- of bleed screw on control unit of suspended front axle (if fitted)

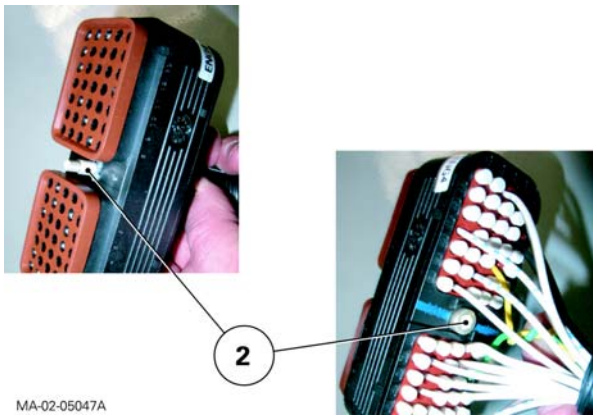

Fig. 12

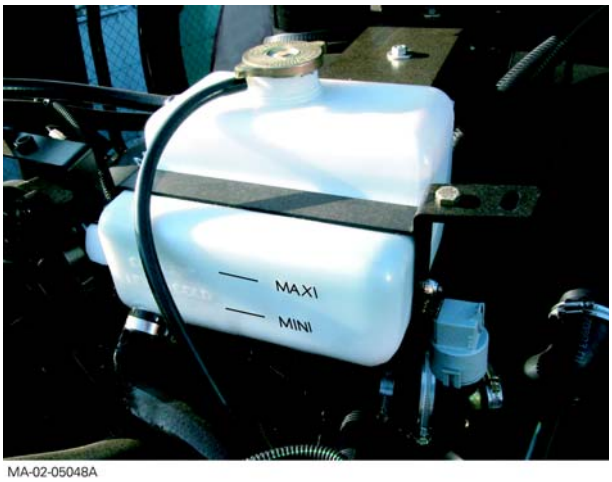

Fig. 13

C . Disassembling and reassembling (four-cylinder Perkins engine)

Implementation

30. Apply the handbrake.

31. Remove the side panels, prefilter (Perkins EEM engine) and bonnet.

Operations underneath the tractor

32. Take off the guard, shaft and differential lock supply pipe (4 WD tractors).

Operations at the front of the tractor

33. Remove the front weights (if fitted).

34. Disconnect the batteries.

Tractors with...	Battery location
Perkins engine with mechanical injection	in the grille compartment
Perkins EEM engine	behind the right-hand footstep

Location of batteries (Fig. 14)

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Fig. 14

Operations on the right-hand side of the tractor

35. Take off the front right-hand mudguard.

36. Disconnect the flexible sleeve (1) (Fig. 15) fitted to the suction port.

If necessary, remove the vertical exhaust assembly (including support) (Fig. 15).

37. Mark then disconnect:

- the hose on the steering ram or on the spool valve (Orbitrol), depending on the tractor type
- the lubricating hoses (running to and from the cooler) (Fig. 16)

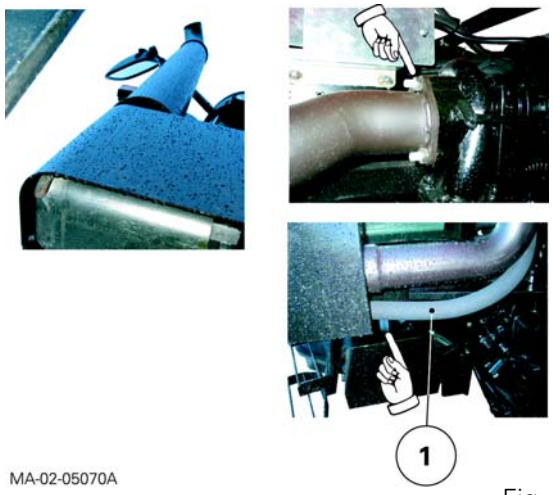

Fig. 15

Operations on the left-hand side of the tractor

38. Take off the front left-hand mudguard.

39. Mark then disconnect:

- the hose on the steering ram or on the spool valve (Orbitrol), depending on the tractor type
- the fuel feed and return hoses on the engine. Immediately block the ports.

40. Disconnect the cables connected to the starter positive terminal (Fig. 17).

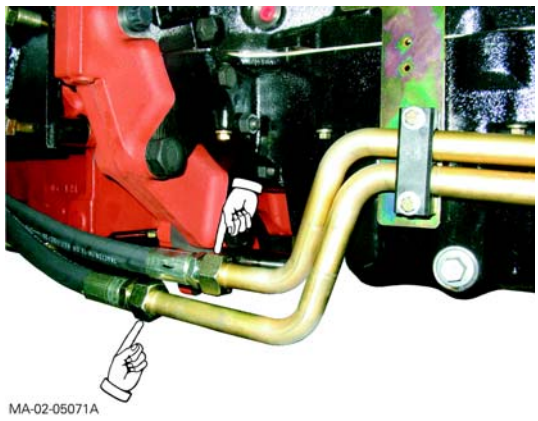

Fig. 16

Fig. 17

Operations under the cab

CAUTION: If the engine is still hot, allow it to cool.

***NOTE**: To work on heating hoses, it is not necessary to drain the engine block cooling circuit.*

41. Pinch out each heating hose using a clamp fitted with plastic jaws (Fig. 18).

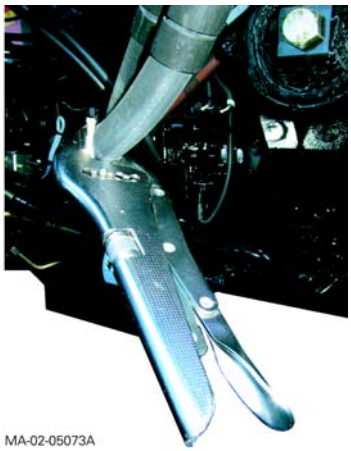

Fig. 18

Operations on the engine

42. Mark and disconnect the heating hoses on the engine block and water pump.

Block the ports immediately using suitable plugs.

43. Disconnect the negative cables on the block at the rear left-hand side of the engine (Fig. 19).

44. If necessary, disconnect the connector (1) of the main wiring harness (Perkins EEM engine) (Fig. 19).

45. Detach the air conditioning compressor, condenser and filter from their respective supports (if fitted).

Place the assembly beside the tractor without disconnecting the pipes and hoses (see chapter 12).

NOTE: *Carry out this action carefully.*

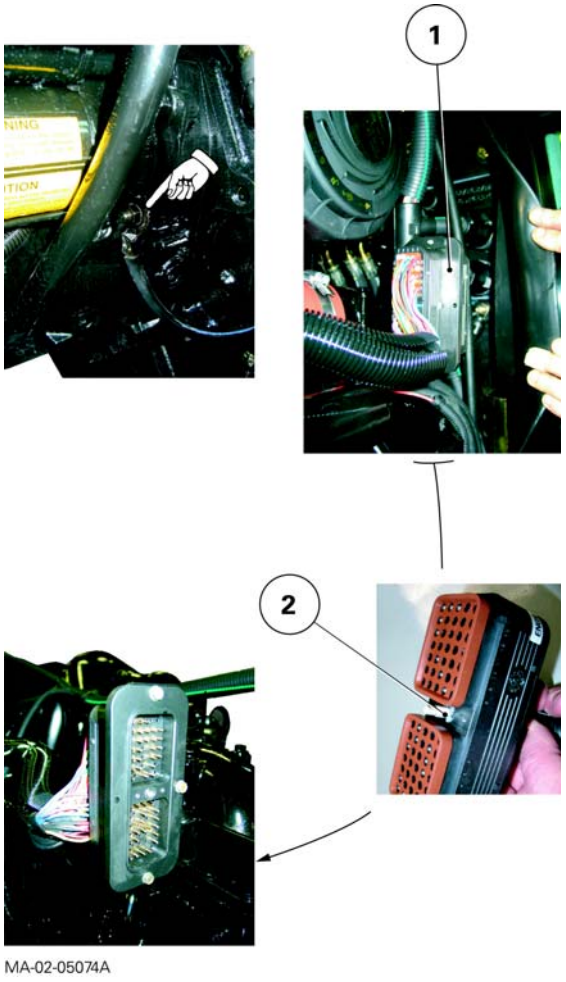

Fig. 19

Operations at the front of the cab

46. Disconnect the connectors (2) and the ground terminals (1) on the left-hand side of the cab bulkhead (Fig. 20).

Preparing for disassembly

47. Stop the front axle swinging by sliding a suitable wooden chock at each side of the support (1) (Fig. 21).

48. Chock the rear wheels.

49. Install (Fig. 22):

- a fixed stand at the front of the gearbox
- a mobile stand at the rear of the engine

50. If necessary, separate the cab from the front right- and left-hand supports.

Gently lift the cab front using two straps fitted to the lateral handles.

Fix the cab in a raised position

Temporarily place a wooden chock between each support and the cab right- and left-hand attachments.

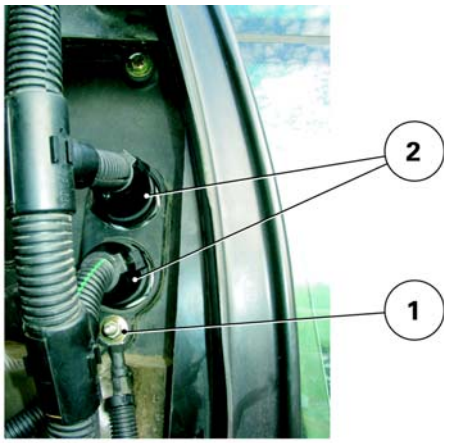

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Fig. 20

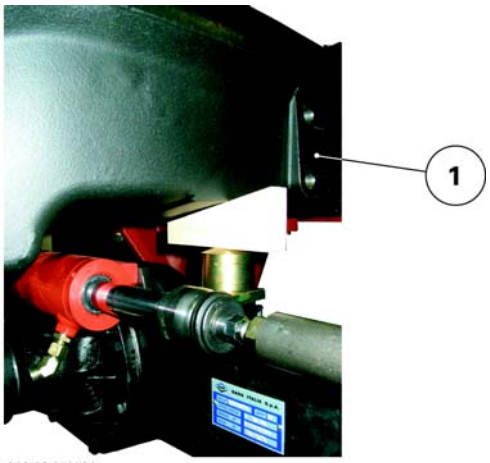

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Fig. 21

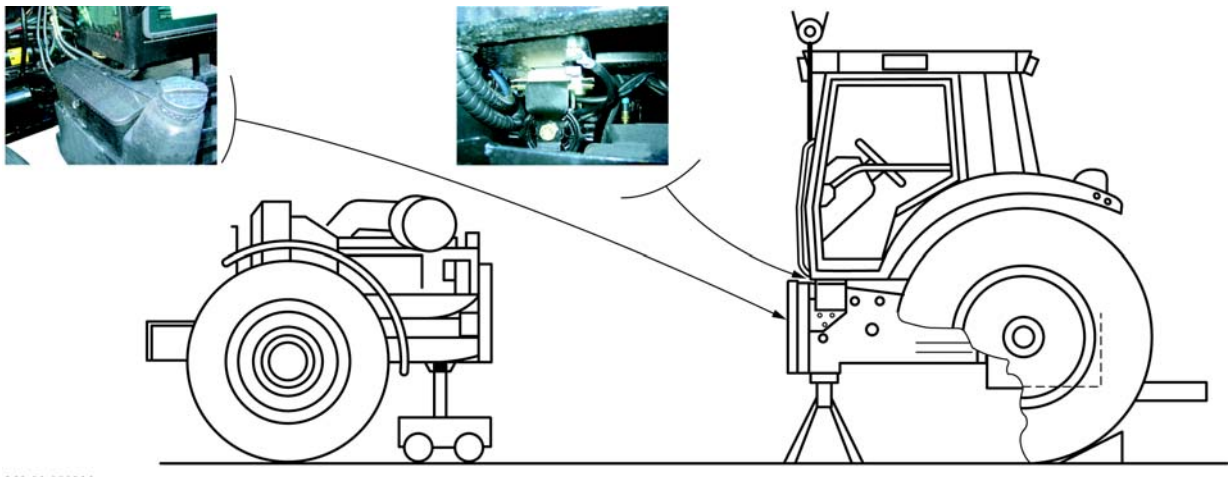

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Fig. 22

Disassembly

51. Remove the screws attaching the engine to the gearbox (Fig. 23).
Mark their position and length.

52. Assisted by an operator, separate the assemblies (Fig. 22).

Dimensions of the screws, studs and nuts

Screws

- M16 x 60 mm
- M22 x 80 mm

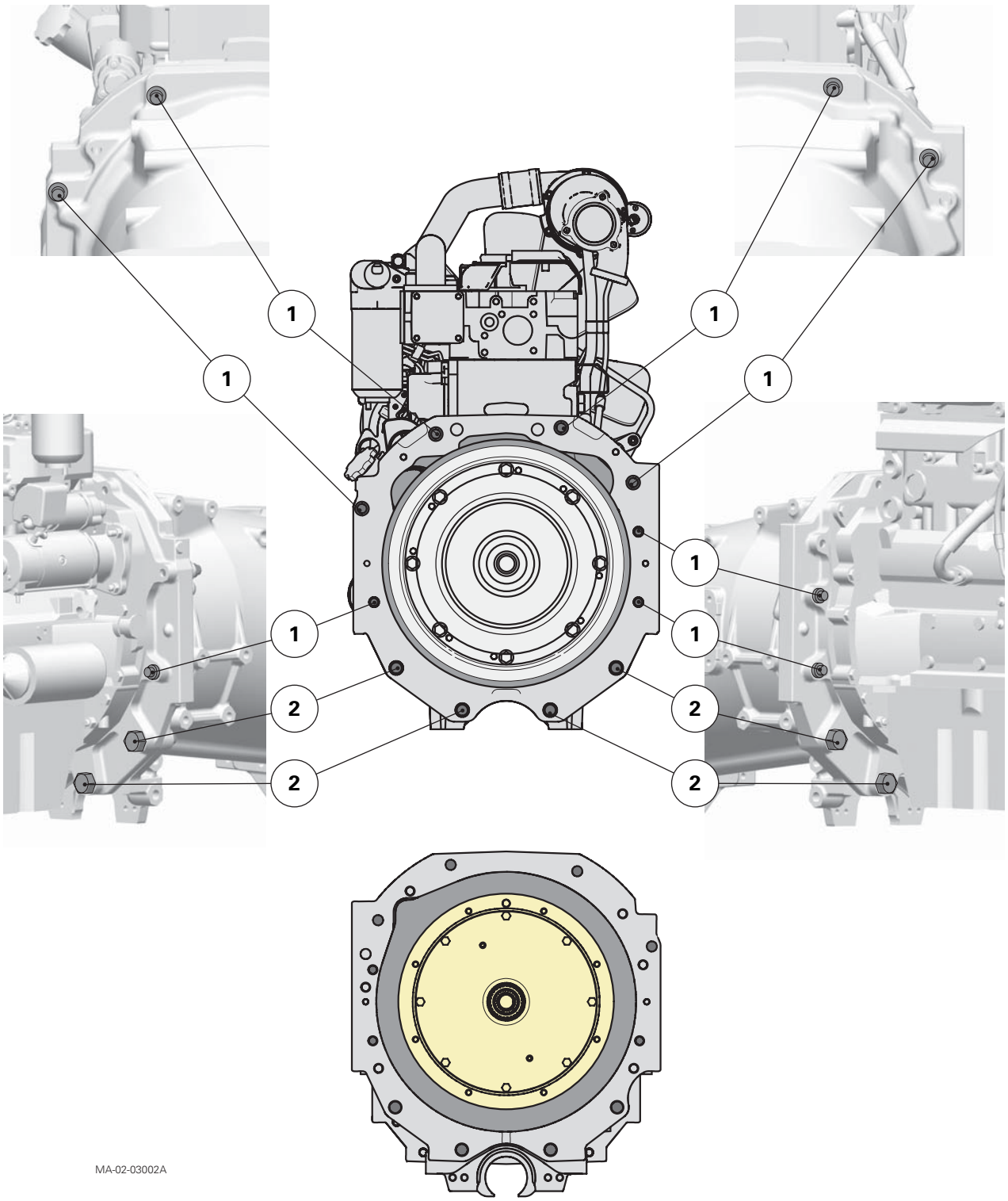

Fig. 23

Reassembly

Advice for use

Use guide studs to assist reassembly of the engine and gearbox.

53. Clean the mating face of the engine adapter plate and gearbox spacer.

54. Check for the presence of dowels (1) on the engine adapter plate (Fig. 24).

55. Coat the input shaft splines of the gearbox lightly with AS767 grease or equivalent.

56. Screw two diametrically opposed guide studs to the engine adapter plate or to the gearbox spacer.

57. Connect the engine to the gearbox spacer.

Reminder

If necessary, remove the starter and slowly turn the flywheel ring gear using a suitable tool.

This will ease engaging the vibration damper splines with those of the gearbox main shaft.

If there is resistance, do not force it and find the cause of the problem.

58. When the two assemblies are joined, remove the guide studs (if fitted).

Lightly smear the thread of each of the screws (1) and (2) with Loctite 270 or equivalent. Position them according to the marks made during disassembly.

Tighten (Fig. 25):

- screws (1) to a torque of 120 Nm
- screws (2) to a torque of 735 Nm

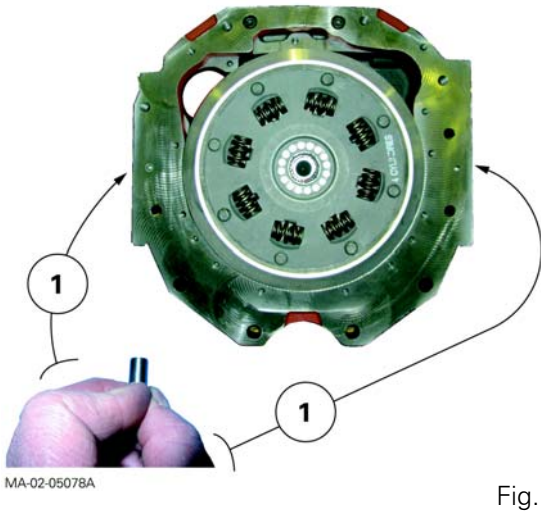

Fig. 24

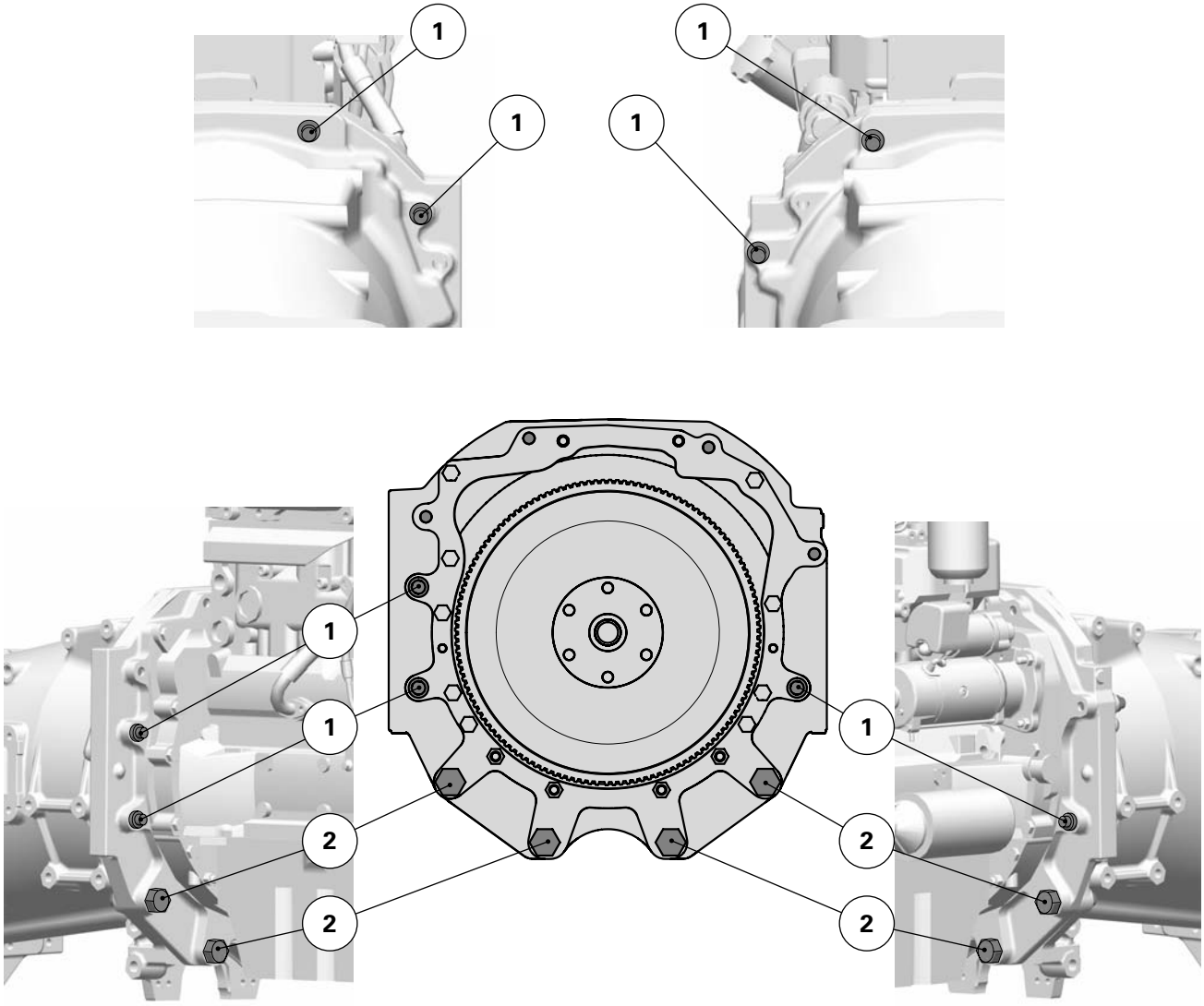

Fig. 25

Final steps

Note

Final steps are not especially difficult.

They should be carried out in the reverse order to preliminary steps. However, it will be necessary during reassembly to carry out the tightening torques, adjustments and tests described below.

Tightening torques

As required:

- front cab screws (see chapter 12)
- screw (2) of the connector (1) on the main harness (Perkins EEM engine) (Fig. 19 and Fig. 26) to a torque of 2.82–3.15 Nm.

Topping-up

- of coolant to the maximum level marked on the radiator and expansion tank (Fig. 27).

Tests

- air conditioning system (if fitted—see chapter 12)
- cab suspension (if fitted—see chapter 12)
- all mechanical, hydraulic, electrical and electronic functions subject to operations

Checking tightness

- of hydraulic unions

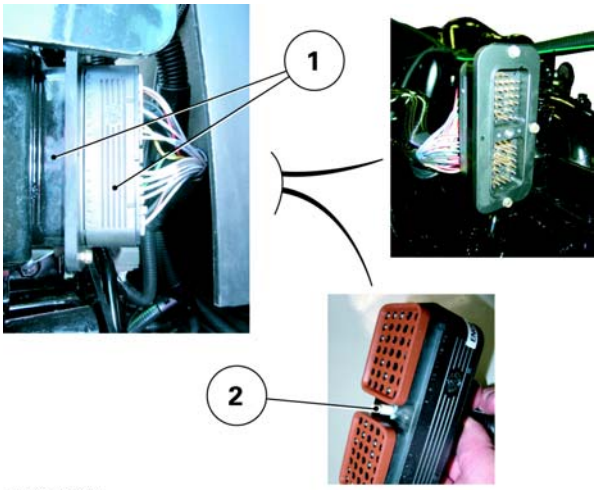

Fig. 26

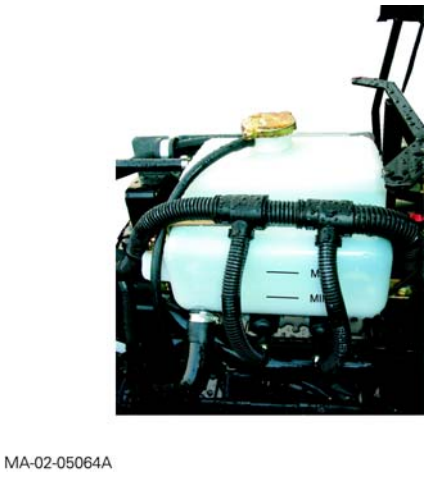

Fig. 27

02B02 - Splitting – Sisu Engine / GBA10 Gearbox

CONTENTS

A . General

It is required to disassemble the tractor between the engine and the gearbox when access is necessary to carry out servicing on the following elements:

Engine interface

- Transmission damper
- Engine flywheel
- Engine adaptor plate

Gearbox interface

- Spacer, cover and sealing ring
- Internal hydraulic pipes
- Reverse shuttle and Dynashift

Remark

- This section presents a general disassembly procedure. Before and during disassembly, check that all connections have been properly separated between the fixed assembly and mobile assembly.
- The cab remains attached to the centre housing.

B . Disassembly

Preliminary operations

1. Put on the handbrake if necessary.

Remark

Putting on the handbrake is optional because the Park Lock mechanism (option) automatically immobilises the tractor when stationary.

2. Check that the suspended front axle (if fitted) is in low position and remove the control unit bleed screw (see chapter 9).

3. Remove the side panels either side of the engine and the bonnet (if necessary).

Servicing under the tractor

4. Remove the chassis reinforcements (if fitted, see chapter 2).

5. Remove the guard and the 4WD shafts.

Servicing at the front of the tractor

6. Remove the front weights (if fitted).

Servicing on the right-hand side of the tractor

7. Remove the footstep.

8. Disconnect and remove first the batteries and then the support.

9. Disconnect the flexible sleeve (1) (Fig. 1) joined to the air filter, and remove the vertical exhaust assembly (including support Fig. 2).

10. Mark then disconnect:

- the cables (positive and negative) on the starter,
- The front differential lock hose at both ends,
- the hose on the steering ram,
- the lubricating hoses (running to and from the cooler) (Fig. 3).

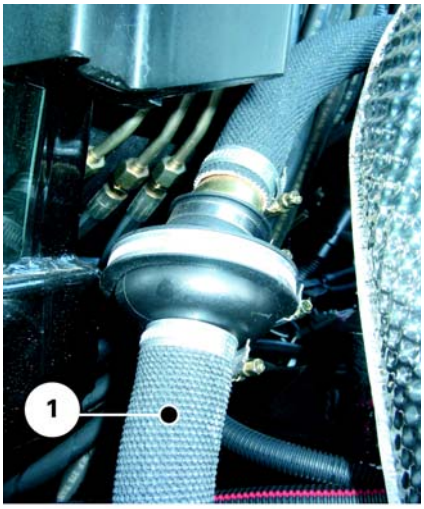

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Fig. 1

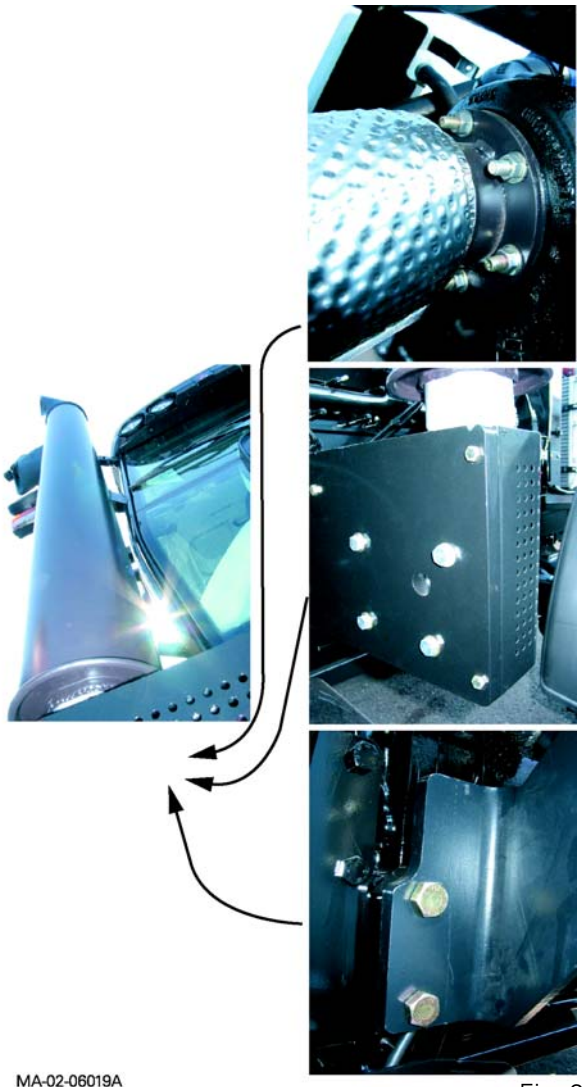

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Fig. 2

Servicing on the left-hand side of the tractor

11. Remove the footstep.

12. Mark then disconnect:
- the hose on the steering ram,
- the hoses (pressure-return and LS) on the rigid pipes (Fig. 4) of the suspended front axle (if fitted).

13. Mark and disconnect the fuel feed and return hoses on the engine (block ports immediately).

Remark

If the fuel tank is not removed it obstructs access to the engine attachment screw on the spacer, but does not prevent access. However, if there is a problem, remove the tank after marking and disconnecting it:
- the gauge harness,
- the vent hose on the tank.

Servicing under the cab

14. Mark, toe-in and disconnect the heating hoses, immediately blocking the ports.

Servicing the engine

15. Disconnect the connector (1) of the main wiring harness (Fig. 5).

16. Separate the compressor, the condenser and the filter from their respective holders, and remove them carefully, without breaking the circuit (see chapter 12).

Remark
- Work carefully.

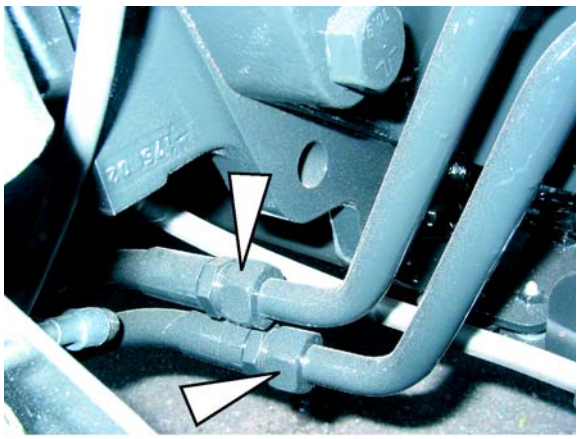

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Fig. 3

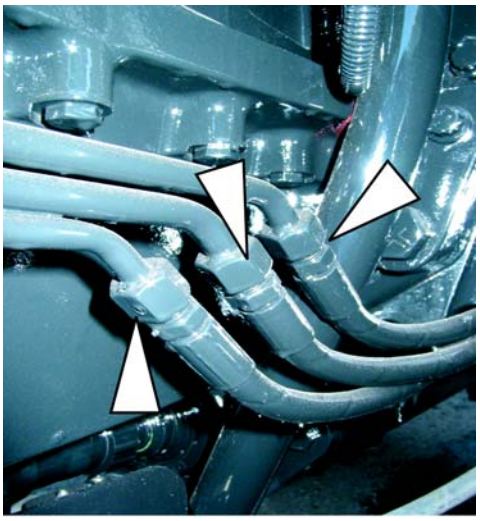

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Fig. 4

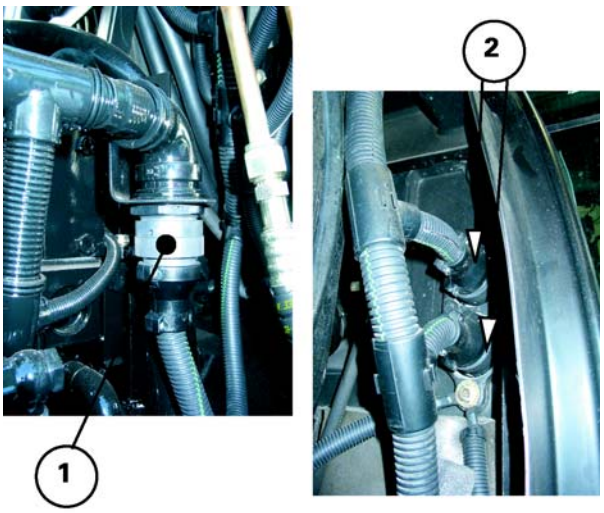

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Fig. 5

Servicing at the front of the cab

17. Disconnect the connectors (2) on the left-hand face of the fire wall (Fig. 5).

18. If necessary, mark and disconnect the steering ram hoses on the spool valve (orbitrol) (Fig. 6).

Preparing for disassembling

19. Stop the front axle oscillation (all versions) by sliding a suitable chock in either side of the support (1) (Fig. 7).

20. Chock the rear wheels.

21. Install (Fig. 9):

- a fixed stand at the front of the gearbox,
- a mobile stand at the back of the engine.

22. If necessary, separate the cab from the front right- and left-hand supports. Gently lift it using two straps fitted to the lateral handles. Place a block temporarily between the cab and the supports.

Disassembly

23. Remove the screws and nuts attaching the engine to the gearbox (Fig. 8). Mark their lengths and positionings.

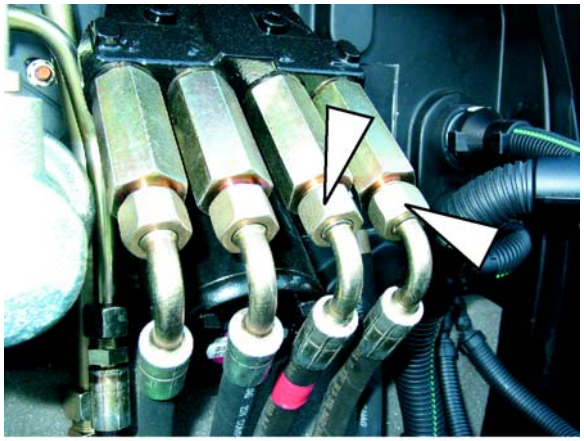

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Fig. 6

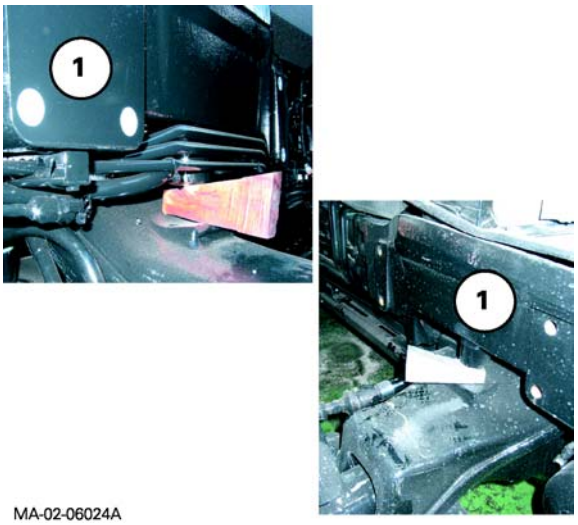

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Fig. 7

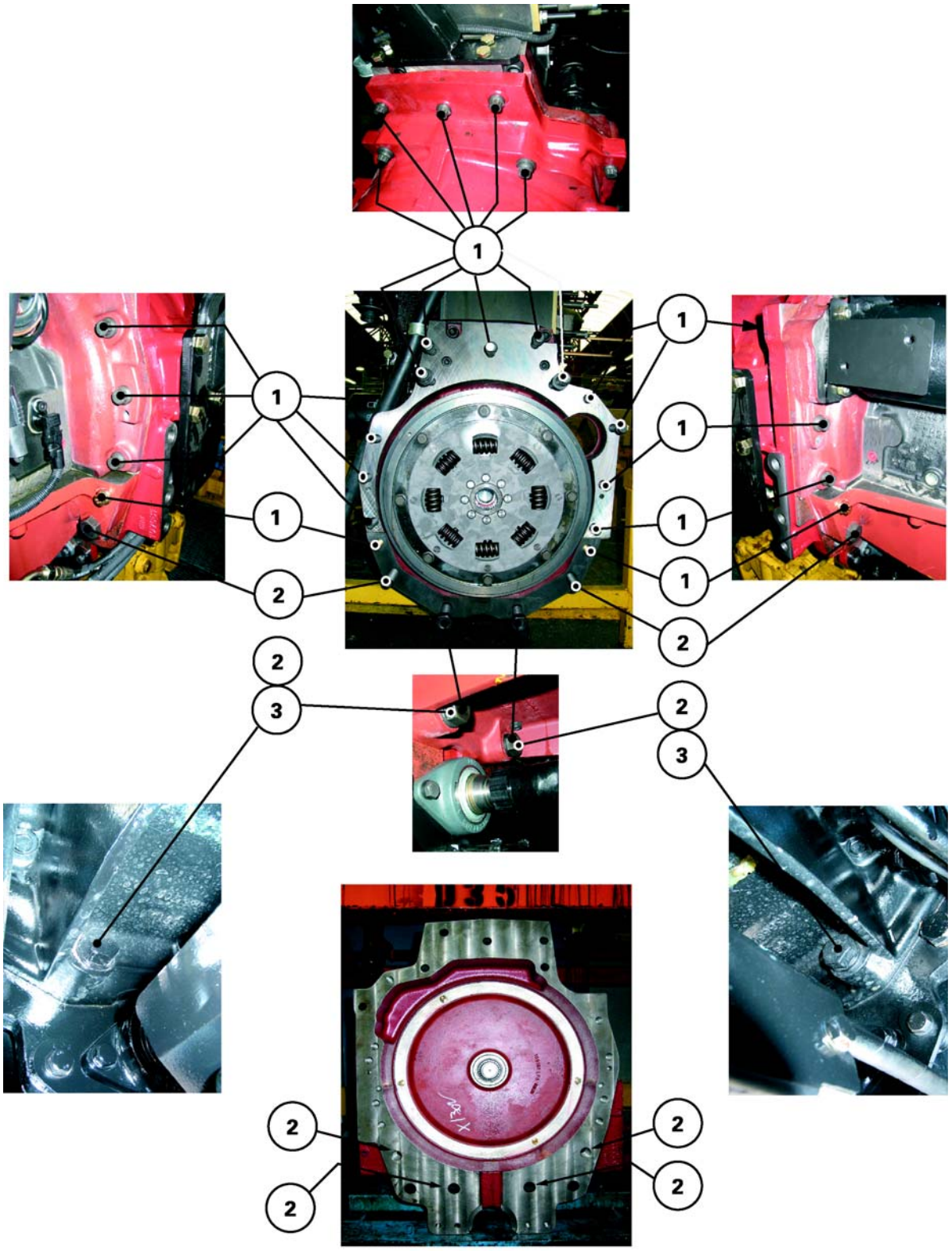

Fig. 8

Dimensions of the screws and nuts

Screws

- M16 x 60 mm
- M16 x 80 mm
- M16 x 110 mm
- M22 x 100 mm
- M22 x 120 mm

Nuts

- M22 x 2.5

24. With the help of an operator, separate the assemblies (Fig. 9).

Reminder

When disassembling, check that connections (hoses, pipes and harnesses) are all disconnected.

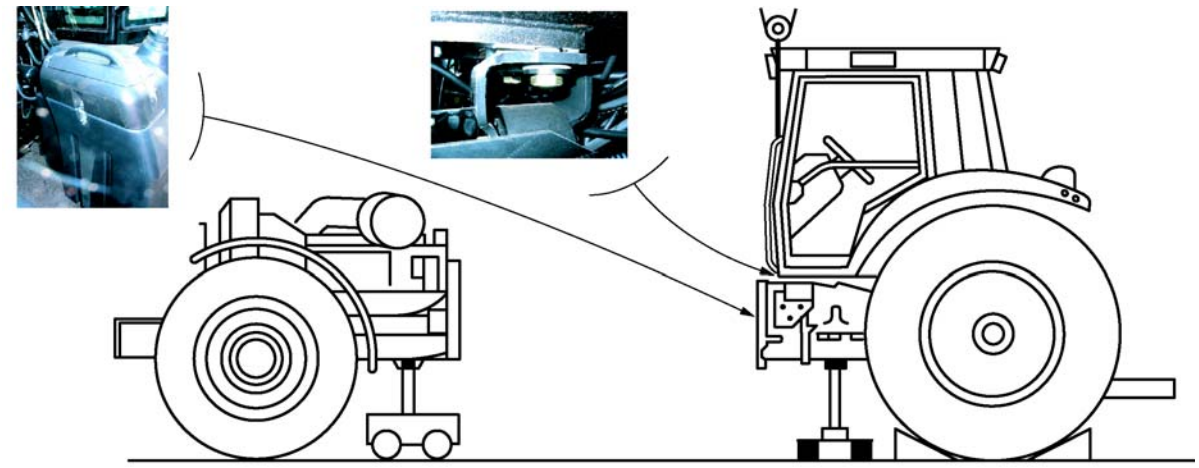

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Fig. 9

C . Reassembly

25. Clean the mating faces of the engine and the gearbox spacer.

26. Check the presence of locating pins (1) on the engine (Fig. 10).

27. Lightly lubricate the splines of main shaft (1) (Fig. 11) with grease (type GN + Molykote) or equivalent.

28. Grease the mating face of the spacer with Loctite 5206 or equivalent.

29. Screw two diametrically opposed guide studs on to the spacer.

30. Assemble the engine onto the gearbox spacer.

Reminder

- If necessary, manually turn the flywheel ring gear using the port provided to fit the starter, using a suitable tool. This will ease the engagement of the vibration damper splines with those of the main shaft. If there is resistance, do not force it and find the cause of the problem.

31. When the elements are assembled, remove the guide studs. Lightly grease the thread of the screws with Loctite 270 or equivalent and refit according to the marks made at disassembly. Carry out tightening torques (Fig. 12).
  - Screw (1): 240 - 320 Nm
  - Screw (2): 630 - 840 Nm
  - Nuts (3): 630 - 840 Nm

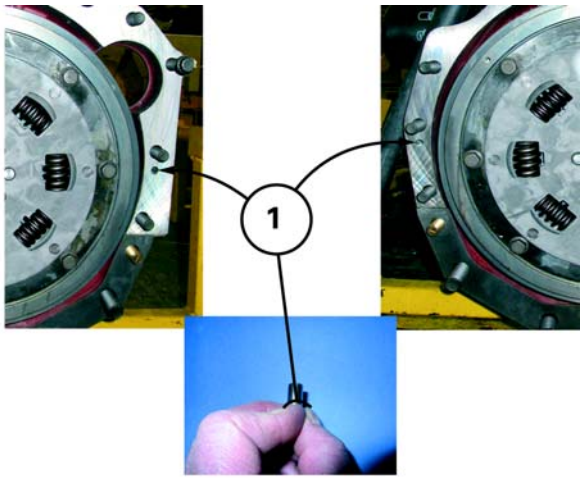

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Fig. 10

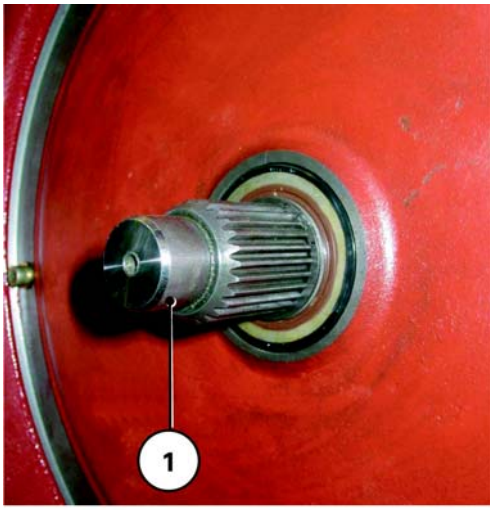

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Fig. 11

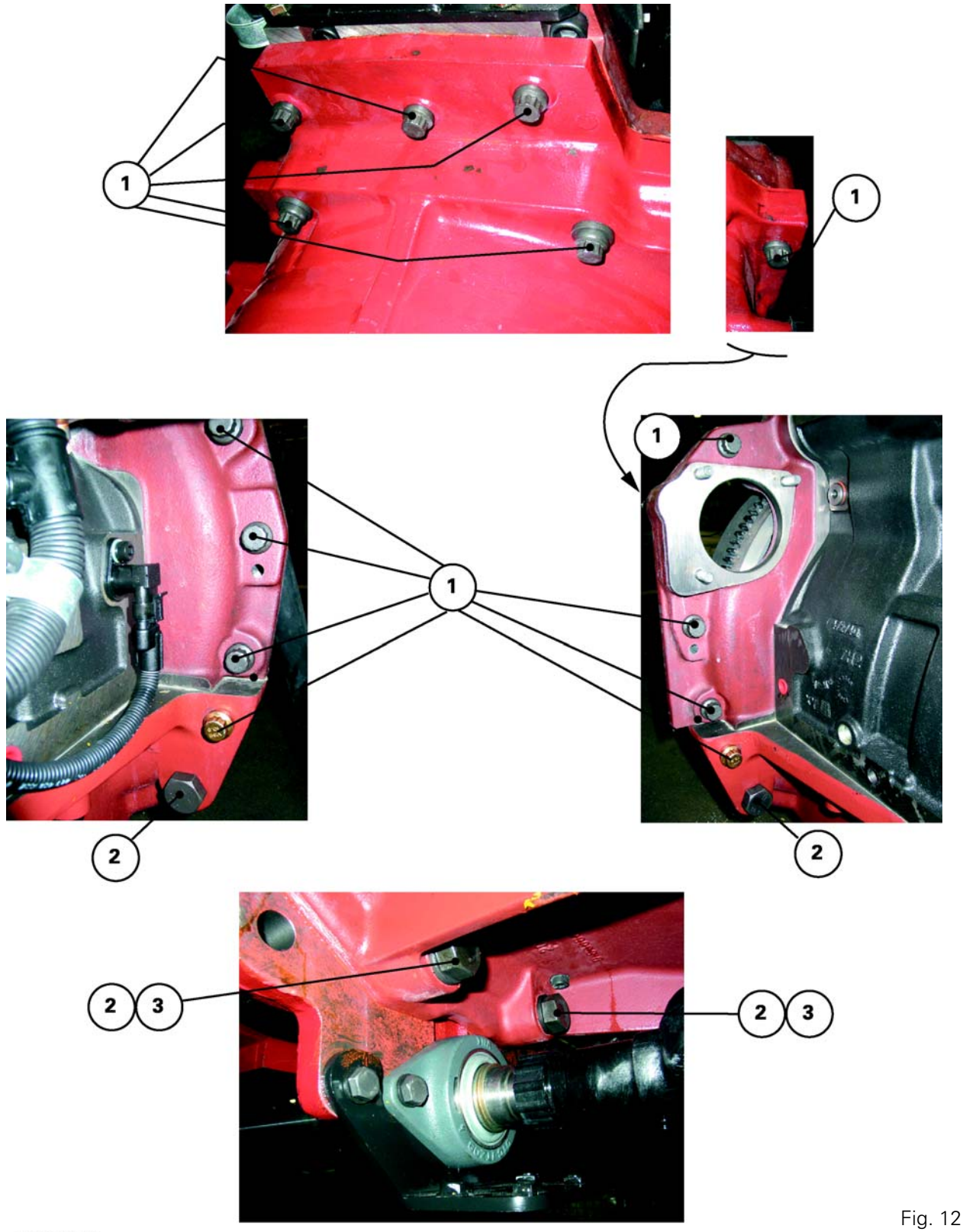

Fig. 12

Final operations

Remarks

Final operations are quite simple and should therefore be carried out in the reverse order to preliminary operations. However, it will be necessary during reassembly to carry out the tightening torques, adjustments and tests described below.

Tightening torque

- Front cab attachment screw, if necessary. See chapter 12.

Topping-up

- of coolant to the maximum level marked (radiator, expansion tank. Fig. 13).

Adjustments

- Chassis reinforcements (if fitted, see chapter 2).

Tests

- air conditioning system (if fitted – see chapter 12),
- cab suspension (if fitted, see chapter 12),
- All mechanical, hydraulic, electrical and electronic functions concerned by servicing.

Checking tightness

- of hydraulic unions,
- of bleed screw on control unit of suspended front axle (if fitted).

MA-02-06030A

Fig. 13

2B21 - Splitting the Sisu engine/GTA1030

CONTENTS

Splitting the Sisu engine/GTA1030

A . General

Engine/GBA 10 gearbox splitting is to be carried out while maintaining the cab integral with the rear axle.

This operation is needed when access to the following main elements is required for servicing:

- **Engine interface :**
  - vibration damper,
  - engine flywheel,
  - engine adapter plate;
- **Gearbox interface :**
  - spacer, cover and sealing ring,
  - hydraulic pipes internal to the spacer,
  - PowerShuttle and Dynashift.

IMPORTANT: *This section presents a general disassembly procedure. Before and during disassembly, check that all connections have been properly separated between the fixed assembly and mobile assembly.*

B . Disassembly

Preliminary operations

1. Apply the handbrake.
2. Check that the suspended front axle is in lowered position (if fitted).
3. Remove the bleed screw from the control unit (if fitted, see chapter 9).
4. Take off:
   - the side panels either side of the engine,
   - the bonnet.

Servicing under the tractor

5. Mark then disconnect the two ends of the hoses fixed to the 4 WD transmission shaft guards (front and rear). Block their openings.
6. Remove the guards and 4 WD transmission shaft.

Servicing at the front of the tractor

7. Remove the front weights (if fitted).

Servicing on the right-hand side of the tractor

8. Disconnect the batteries.
9. Take off:
   - the front mudguard;
   - the vertical exhaust assembly (including support) (Fig. 1);
   - the side engine reinforcement;
   - the footstep (if necessary).
10. Disconnect the flexible particle suction sleeve (1) (Fig. 2) between the air filter and the exhaust.
11. Mark and disconnect the starter electrical harness.
12. Remove the starter (if necessary).

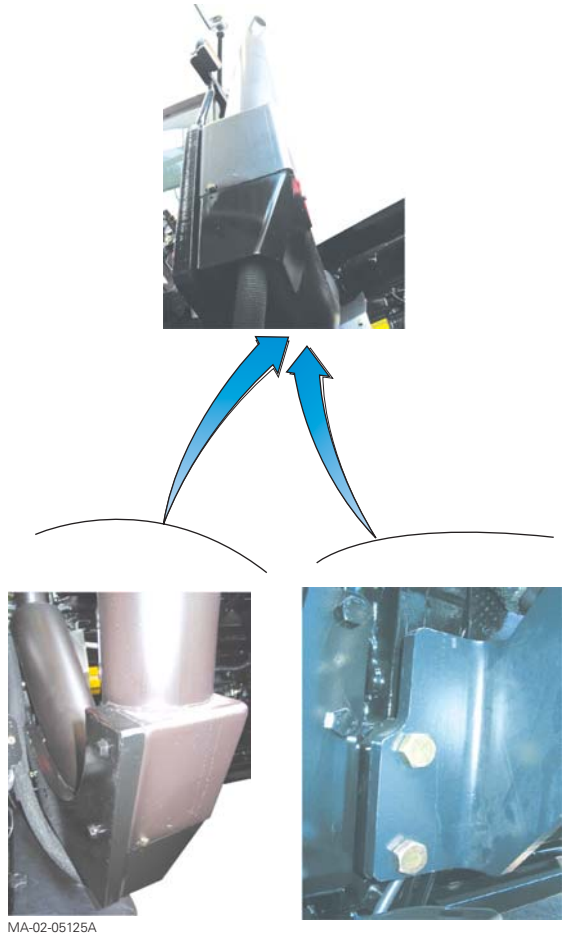

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Fig. 1

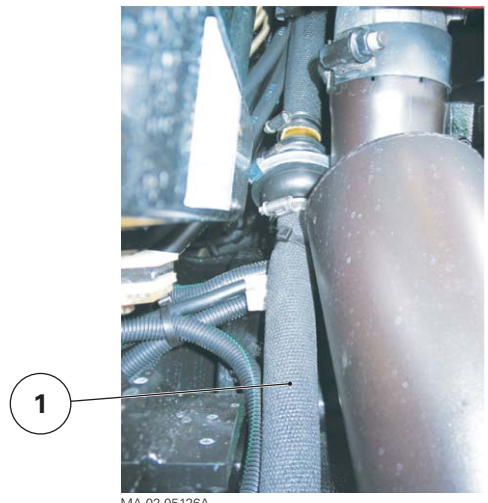

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Fig. 2

Servicing on the left-hand side of the tractor

13. Remove the front mudguard.

14. Depending on the case:

- either move the fuel tank apart;
- or, if necessary, remove the fuel tank in the following manner:
  - previously drain it partially of its fuel,
  - mark and disconnect its fuel gauge harness and vent hose,
  - Remove the tank.

15. Remove the side engine reinforcement.

16. Mark then disconnect:

- The lubrication pipes/hoses (1) located on the cab front firewall (Fig. 3). These pipes/hoses allow for oil flowing between the cooler and the rear axle right-hand hydraulic cover;
- the rigid pipes (1) (Fig. 4) (pressure, return and LS) to the suspended front axle (if fitted);
- the rigid pipes (2) (Fig. 4) to the front linkage (if fitted).
- the gas-oil supply and return hoses on the engine. Block their openings.

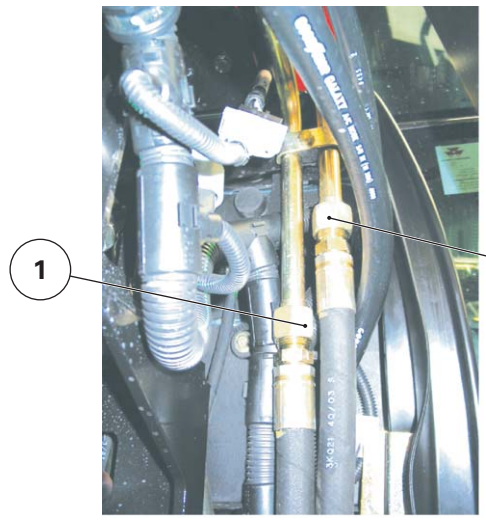

Fig. 3

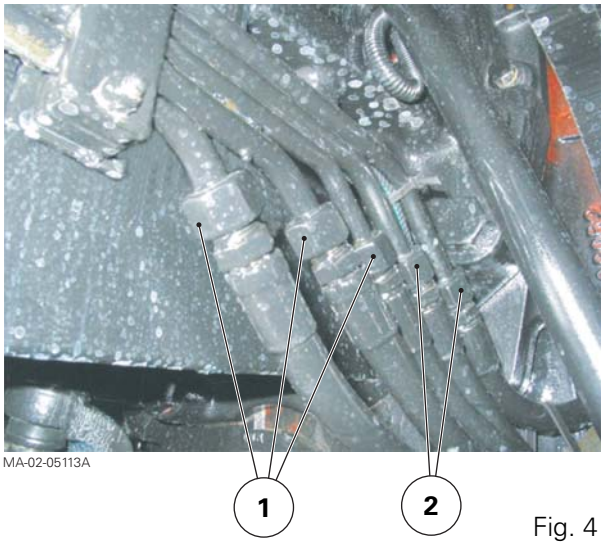

Fig. 4

Servicing under the cab

17. Mark the heating hoses (1) (Fig. 5) at the base of the cab right-hand pillar.

Pinch them both upstream and downstream of the square unions (2) (Fig. 5) in order to keep fluid loss to a minimum.

18. ***DANGER: To perform the following operation, the engine must be cold. Opening the pressurised cooling circuit can lead to splashing of hot fluid and cause serious burns.***

If you need to perform servicing immediately (on a hot engine), ensure you are wearing appropriate protective clothing (goggles and gloves) and loosen the expansion tank plug progressively.

Disconnect the heating hoses. Block the openings.

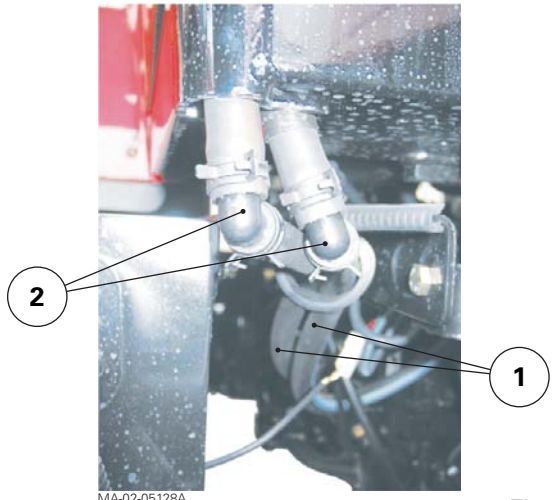

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Fig. 5

Servicing the engine

19. Mark and disconnect the ENG4 connector from the main harness at the rear of the engine (Fig. 6).

20. Detach the air conditioning compressor, condenser and filter from their respective supports. Carefully keep them apart without opening the circuit (see chapter 12).

IMPORTANT: *If the air conditioning circuit should be open, see chapter 12 before any action.*

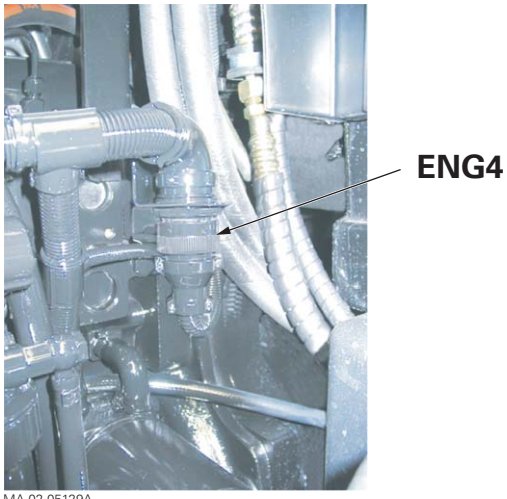

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Fig. 6

Servicing at the front of the cab

21. Disconnect the ENG1 and ENG2 connectors located on the left-hand side of the cab firewall (Fig. 7).

22. If necessary, mark and disconnect (Fig. 8):

- the hose on the steering unit (Orbitol) to the left-hand steering ram union. Block its opening;
- the hose on the steering unit (Orbitol) to the right-hand steering ram union. Block its opening.

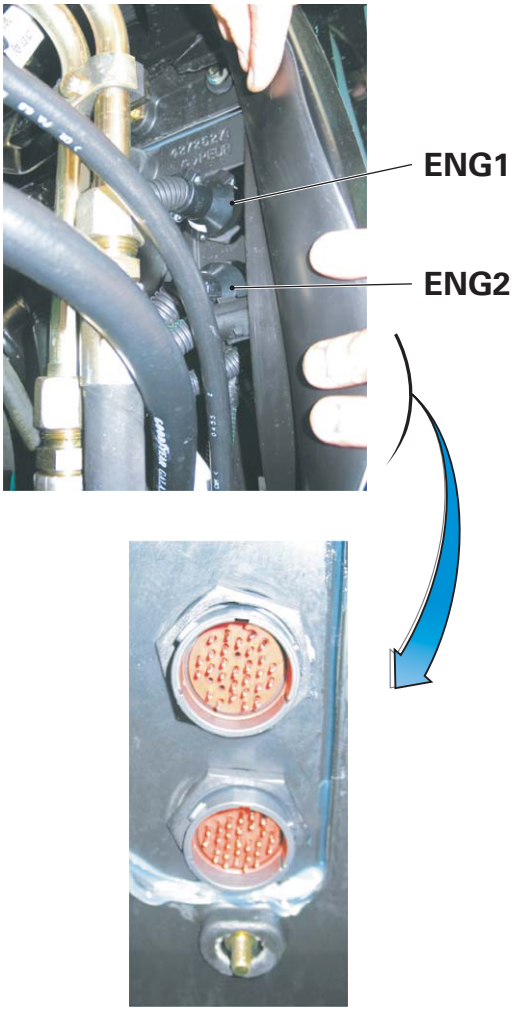

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Fig. 7

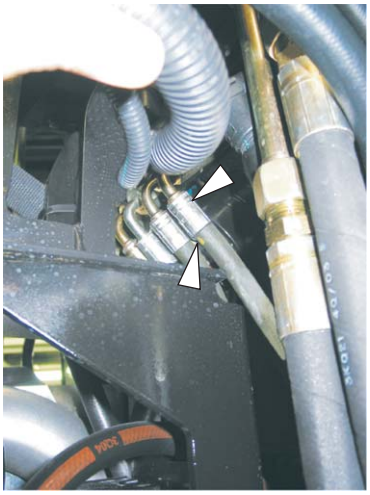

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Fig. 8

Preparing for disassembling

23. Cancel the front axle oscillation (all versions) by sliding a suitable chock in at each side of the front frame (1) (Fig. 9).

24. Chock the rear wheels.

25. Install (Fig. 11):

- a fixed stand at the front of the gearbox,
- a mobile stand at the back of the engine.

26. If necessary, split the cab from the front right- and left-hand supports. Gently lift it using two straps fitted to the lateral handles. Temporarily chock the cab by sliding a suitable chock under each of its supports.

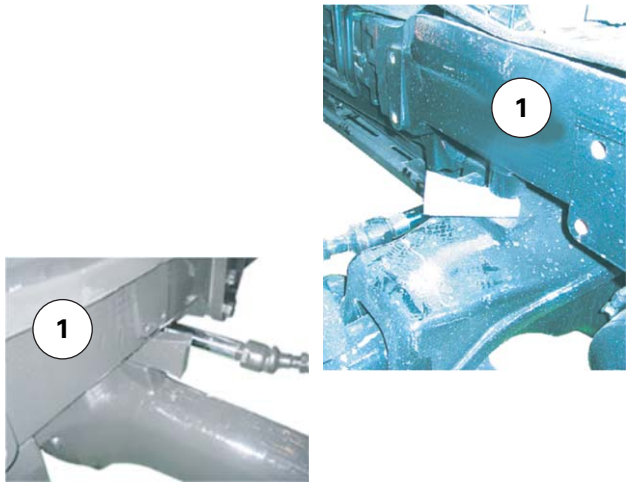

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Fig. 9

Disassembly

27. Release the screws and nuts attaching the engine to the gearbox (Fig. 10).

Mark:

- screw length and position;
- nut position.

Dimensions of the screws and nuts (Fig. 10)

Screw	Nuts
M16x60 M16x80 M16x110 M22x80 M22x160	M22x2,5

28. Split the assemblies with the help of an operator (Fig. 11). When disassembling, check that connections (hoses, pipes and harnesses) are all disconnected.

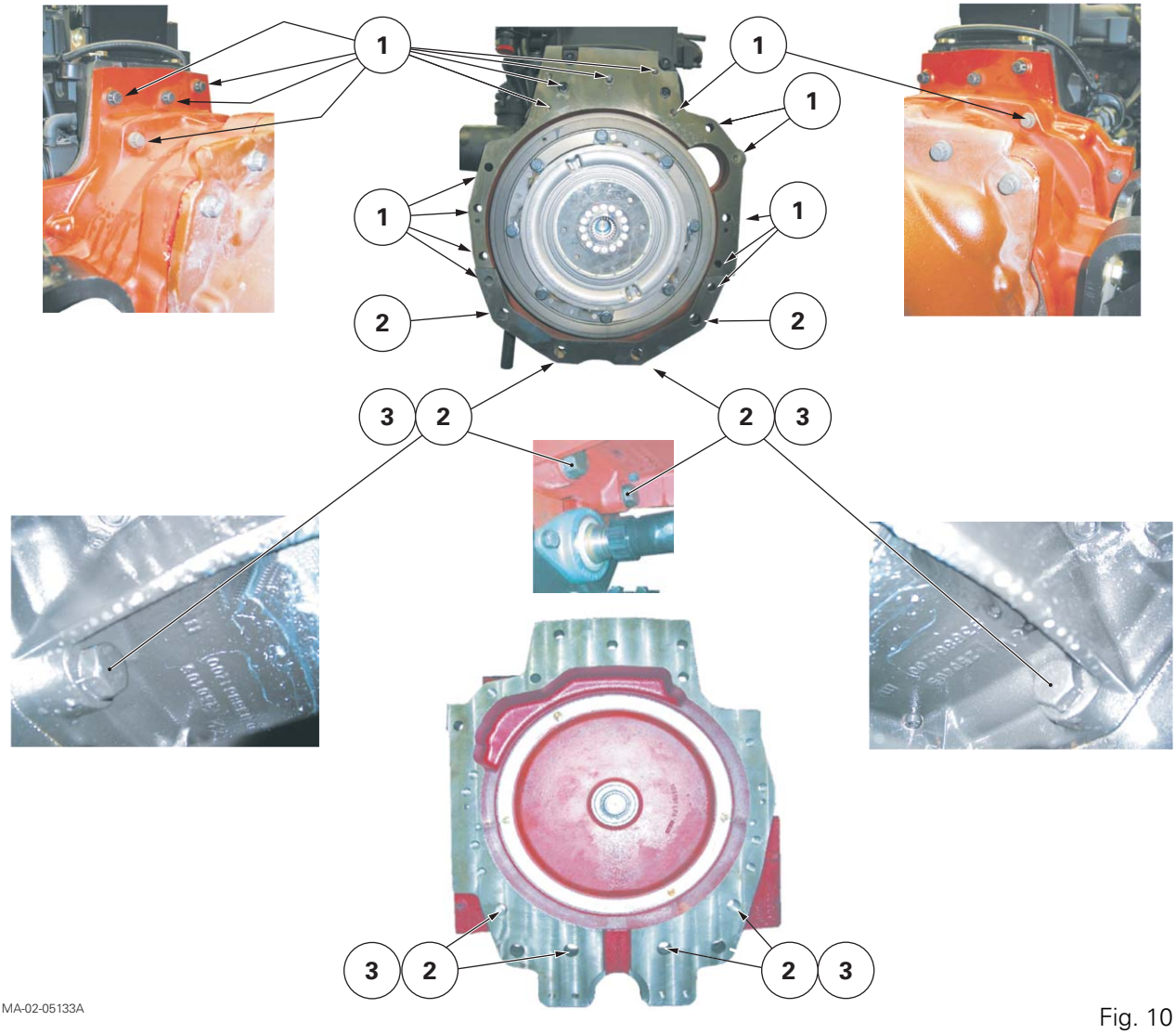

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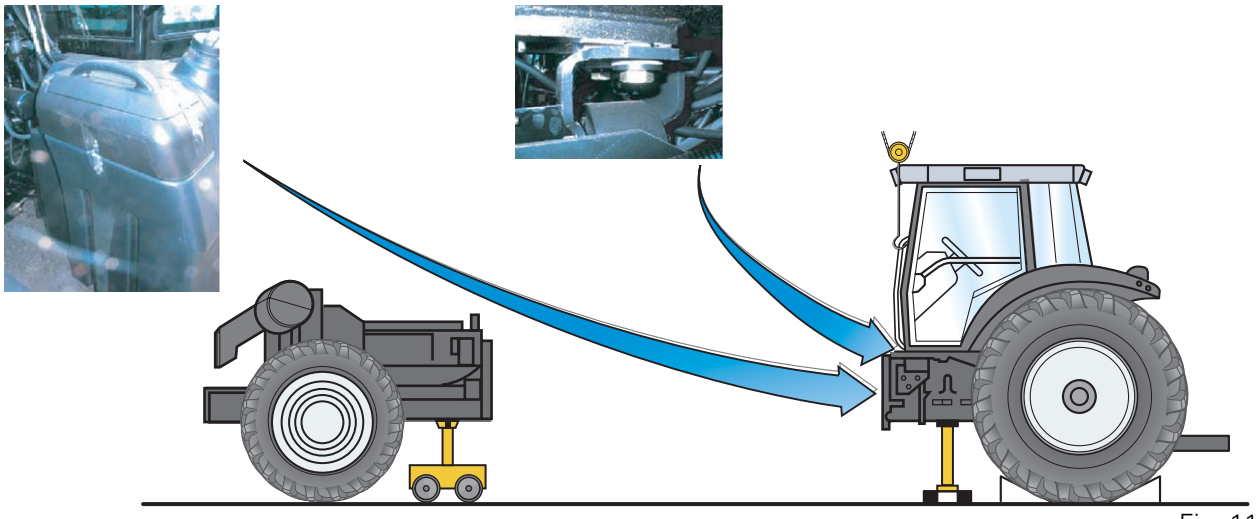
Fig. 10



MA-02-05134A

Fig. 11

C . Reassembly

29. Clean the mating faces of the engine and the gearbox spacer.

30. Check the presence of locating pins on the gearbox spacer.

NOTA: *During assembly, these pins fit into the drill holes (1) on the engine adapter plate (Fig. 12).*

31. Lightly smear the splines of mainshaft (1) (Fig. 13) with AS767 graphite grease or equivalent.

32. Grease the mating face of the spacer with Loctite 5206 or equivalent.

33. Screw two diametrically opposed guide studs on to the spacer.

34. Assemble the engine onto the gearbox spacer.

If necessary, manually turn the flywheel ring gear using the port provided to fit the starter, using a suitable locally made tool. This eases the engagement of the vibration damper splines with those of the gearbox mainshaft. If there is resistance, do not force it and find the cause of the problem.

35. Once the engine and gearbox are assembled, remove the guide studs.

Lightly smear the thread of the screws (1) (2) with Loctite 270 or equivalent.

Fit the screws and nuts as marked during removal (Fig. 10). Tighten them to a torque of:

- screws (1): 240 - 320 Nm;
- screws (2): 630 - 840 Nm;
- nuts (3) with washers: 630 - 840 Nm.

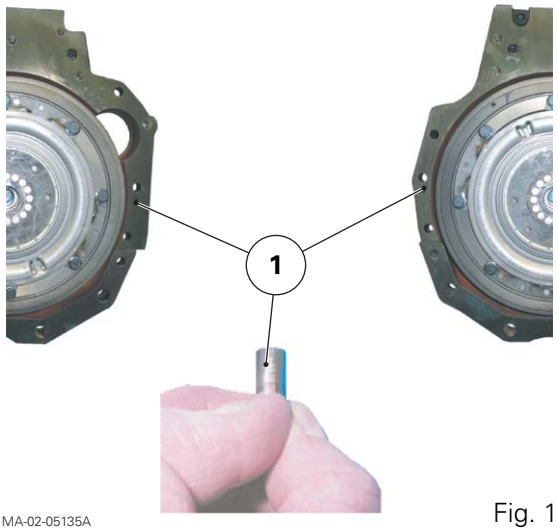


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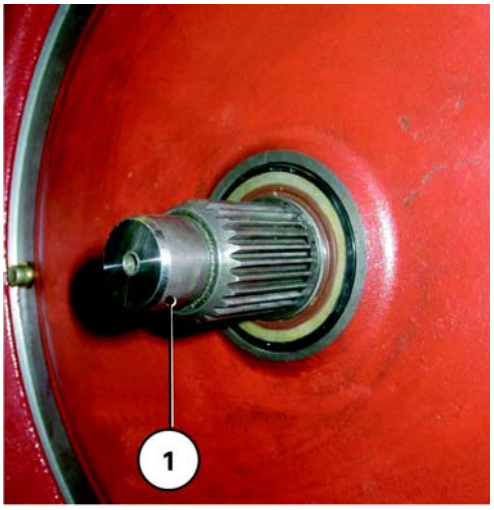
Fig. 12



MA-02-06028A

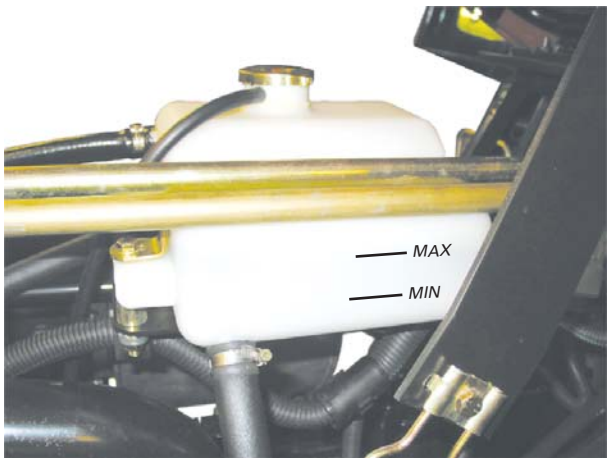
Fig. 13

Final operations

Final operations are not especially difficult. They therefore will be carried out in the reverse order of the preliminary operations.

However, the following operations need to be performed during refitting:

- if necessary, tighten the cab front silent block screws at the require **tightening torque** (see chapter 12);
- top up the **level of coolant**, to the maximum level marked on the expansion tank (Fig. 14);
- **test:**
  - the air conditioning system (if fitted - see chapter 12);
  - the suspended front axle (if fitted, see chapter 8),
  - all mechanical, hydraulic, electrical and electronic functions concerned by servicing;
- **check the tightness**:
  - of the hydraulic unions,
  - of water hoses,
  - of the bleed screw on control unit of suspended front axle (if fitted).



MA-02-05124A

Fig. 14

Splitting the Sisu engine/GTA1030

02C01 - Splitting - GBA20 gearbox / Centre housing

CONTENTS

A . General

There are two procedures for disassembling the gearbox and the centre housing, depending on the type of operation to be carried out on the tractor.

Disassembling with the cab fixed to the centre housing

Accessible elements:

- Gearbox output shaft
- Creeper unit and creeper gear selection mechanism (depending on option)
- Power take-off clutch
- Handbrake mechanism (only on tractors with no creeper gears)

Disassembling with the cab fixed to the gearbox

Accessible element:

- Bevel gear

Remark

Due to the different hydraulic equipment that may be fitted on the tractor, this section describes the general disassembly procedure. Before and during disassembly, check that all connections have been properly separated between the fixed assembly and mobile assembly.

B . Disassembling and reassembling with the cab fixed to the centre housing

Disassembling

Preliminary operations

1. Engage the handbrake.
2. Check that the suspended front axle (if fitted) is in low position and unscrew the control unit bleed screw (see chapter 9).
3. Remove the lateral panels from each side of the engine and bonnet (if necessary).
4. Place the rear wheels in the wide track position.
5. Remove the footsteps.

Servicing under the tractor

6. Remove the guards and the 4WD shafts.
7. Drain the oil from the gearbox and centre housing.
8. Remove the reverse shuttle lubricating pipe (1) located between the centre housing and gearbox (Fig. 1).

Servicing on the right-hand side of the tractor

9. Disconnect and remove the batteries.
10. Remove the battery support.
11. Mark then disconnect:
    - the hose on the steering ram
    - the main pipe (17 bar) at the selection cover
    - the front differential lock hose on the right-hand hydraulic cover
    - the return hoses on the selector cover
    - the power brake on the accumulator 17 bar supply line (depending on equipment)
    - the lubricating hoses (running to and from the cooler)
    - the gear cables on the selector cover
    - creeper gear cables (optional)

Special point (Fig. 2)

On tractors fitted with creeper gears:

- Remove screw (1)
- Pull the pin (2) outwards in order to free the "D" finger of the fork.

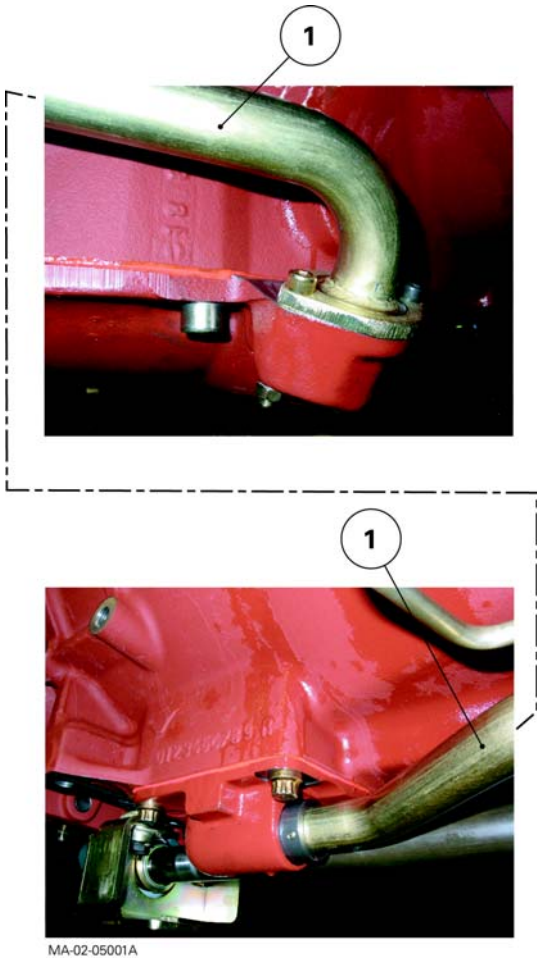


Fig. 1

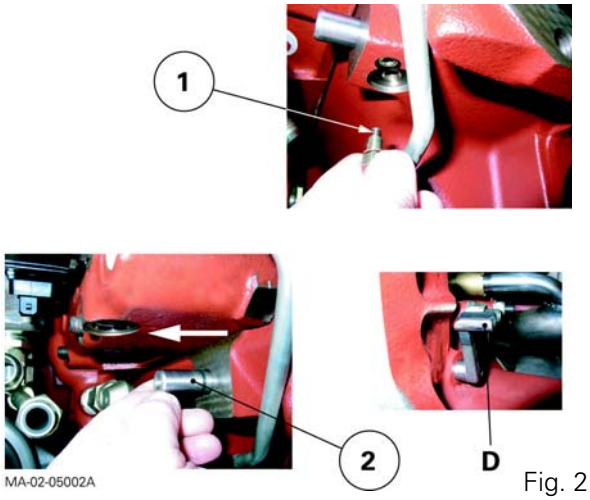


Fig. 2

12. Mark then disconnect:
- the electrical connectors on the selector cover, the control unit (Dynashift – reverse shuttle) and the right-hand hydraulic cover.
- the radar (if fitted).

Servicing on the left-hand side of the tractor

13. Mark then disconnect:
- the hose on the steering ram
- the harness of the fuel gauge on the tank
- the gas oil feed and return hoses on the engine (block ports immediately)
- the vent hose on the tank

14. Drain the tank (if necessary) and remove it.

15. Disconnect the transmission lubricating pipe or hose located at the front left-hand side of the gearbox.

Servicing under the cab

16. Mark, toe-in and disconnect the heating hoses, immediately blocking the ports.

Servicing on the engine

17. Disconnect the connector of the main engine wiring harness.

18. Disconnect the throttle control cable on the injection pump (4-cylinder engine only).

19. Separate the compressor, the condenser and the filter from their respective holders, and remove them carefully, without breaking the circuit.

Remark

Work carefully.

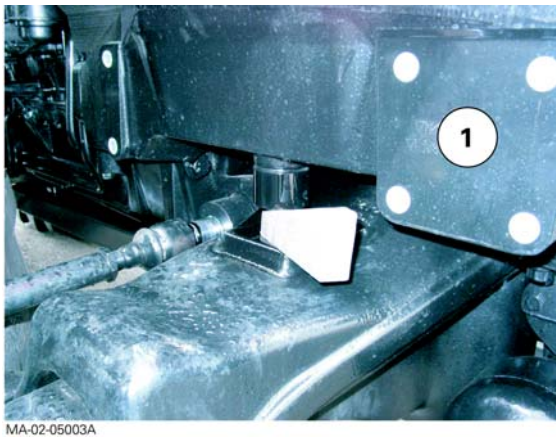


Fig. 3

Preparing for disassembling

20. Cancel the front axle oscillation (all versions) by sliding an suitable chock in at each side of the support (1) (Fig. 3).

21. Chock the rear wheels.

22. Place fixed stands (Fig. 5):
- At the front of the centre housing.
- To the rear of the hitch hook.

23. Position a mobile stand at the back of the gearbox (Fig. 5).

24. Separate the cab from the supports on the front right- and left-hand sides (fixed or suspended cab versions – see chapter 12).

25. Gently lift it using two straps fitted to the lateral handles.

26. Fit a wooden chock temporarily between the cab and the front supports.

Disassembling

27. Remove each screw (1) fixing the gearbox to the centre housing (Fig. 4), marking its position.

Screw dimensions

- M14 x 45 mm screw
- M14 x 60 mm screw
- M14 x 70 mm screw

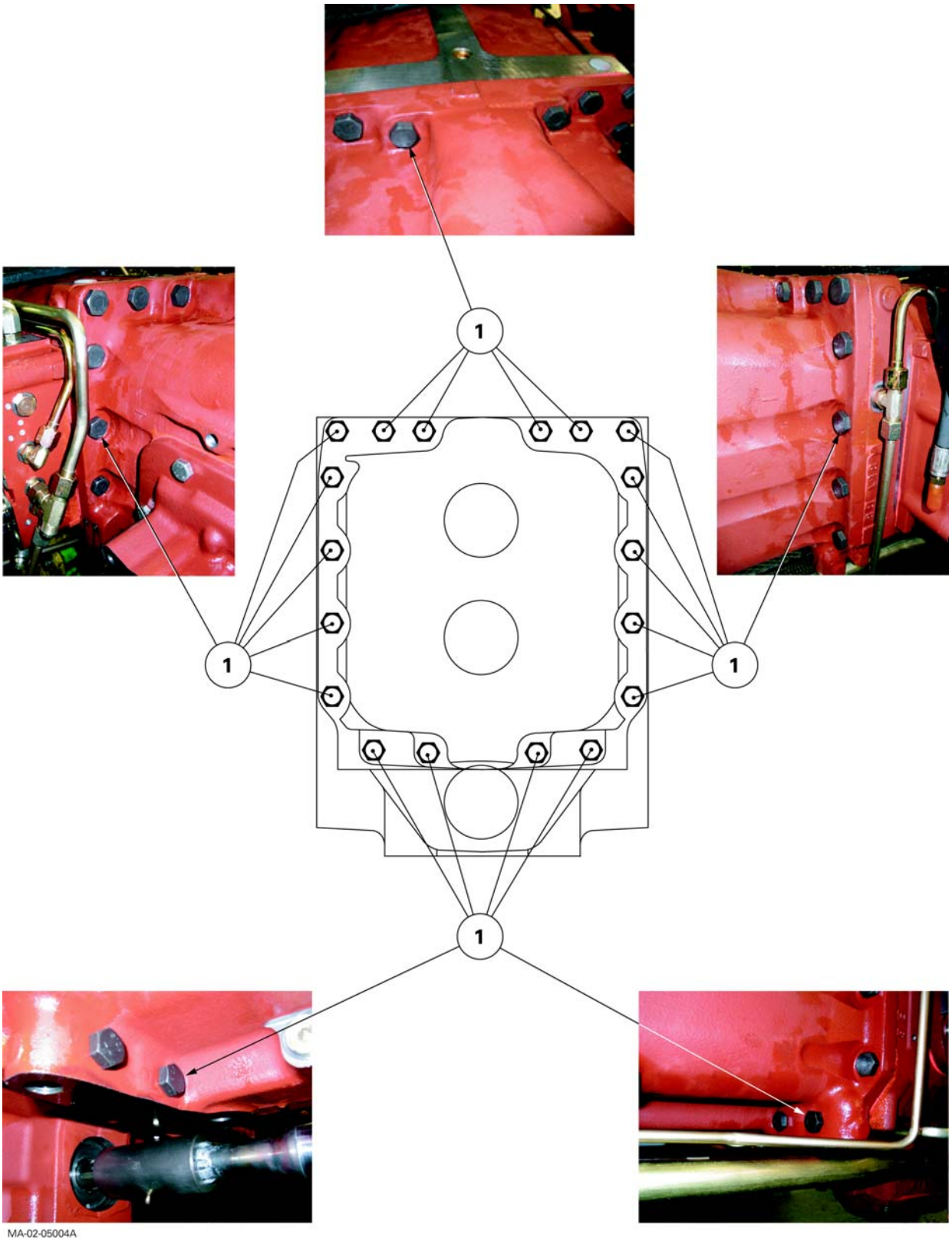


Fig. 4

28. With the help of an operator, separate the assemblies (Fig. 5).

Reminder

- During disassembling, check that connections (hoses and harnesses) are all disconnected.

29. Place the appropriate stands under the cab supports.

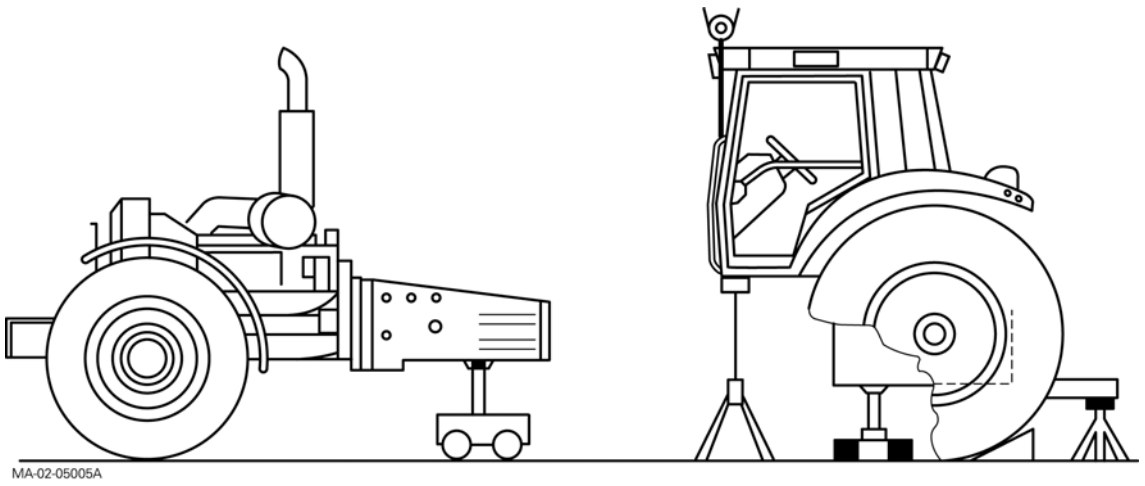


Fig. 5

Reassembling

30. Clean the mating surfaces of the gearbox and the centre housing.

On the centre housing

31. Check the presence of locating pins (4) (Fig. 6).

Remark

The pins are “force” fitted.

32. Position the spring (1) in the PTO clutch (Fig. 7).

33. Smear the mating face of the centre housing with Loctite 5206 or equivalent, avoiding the hare and tortoise ports.

34. Replace the O'rings (2) (Fig. 7).

35. Screw two diametrically opposed guide studs into the centre housing.

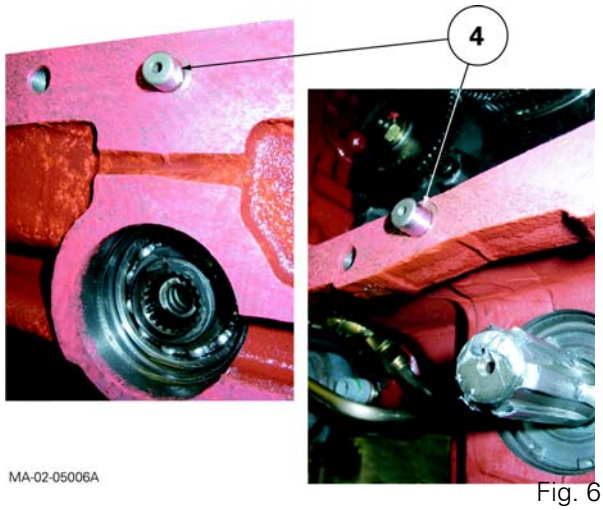


Fig. 6

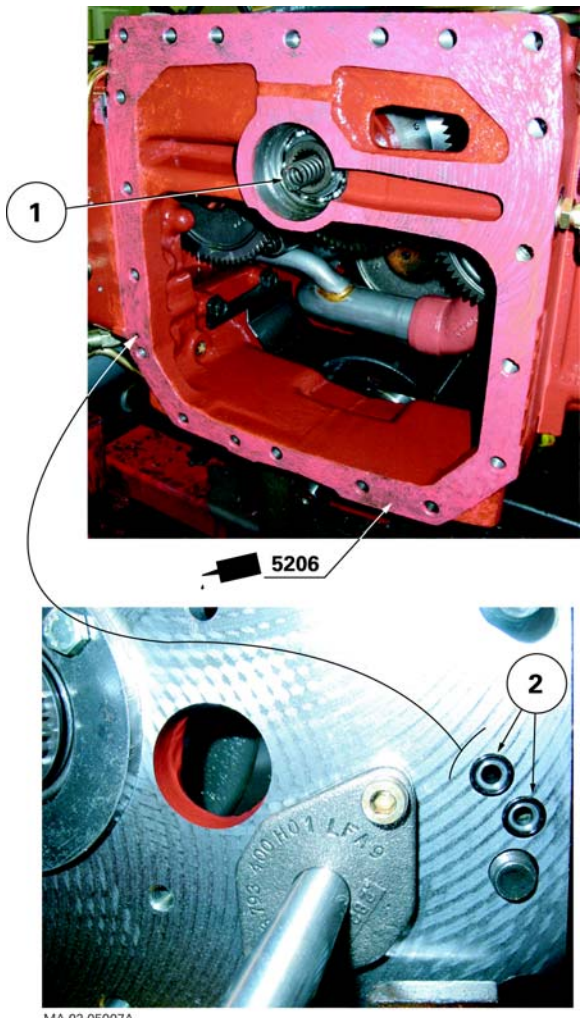


Fig. 7

On the gearbox

36. check the presence and correct positioning of the PTO shaft.

37. Check:

Version with no creeper unit

- Presence of the union shaft (1) composed of the sleeves (2) and double pins (3) (Fig. 8).

Version with creeper unit

- Correct assembly of shaft (1) composed of sleeve (2) and double pin (3) (Fig. 9).
- Correct operation of the control mechanism (fork and coupler) in each position.

38. Push the fork (4) towards the front of the gearbox in direct drive position (Fig. 9).

Remark

The gearbox output shaft supports the shaft (1) via the needle roller bearing (5) (Fig. 9).

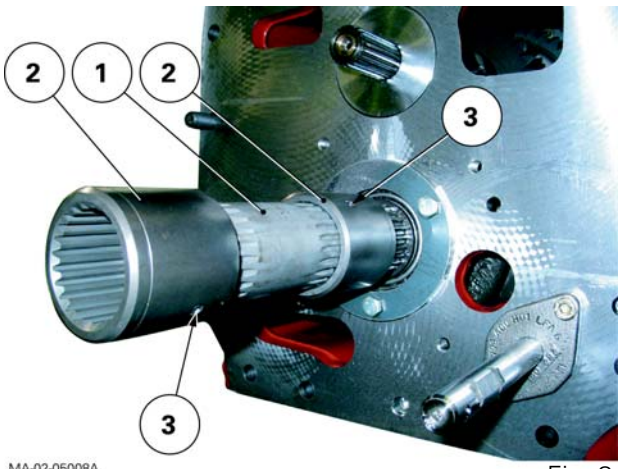


Fig. 8

On the centre housing

Remark

The rotation of the control finger "D" of the creeper gears is limited by the presence of the studs and nuts assembly (1) in the centre housing. (Tractors with closed centre hydraulic equipment - Fig. 10).

39. Pull the pin (2) outwards (Fig. 2) and direct the "D" finger towards the front of the centre housing (Fig. 10).

40. Couple the gearbox to the centre housing.

Reminder

If there is resistance when moving the elements (gearbox, centre housing) together, do not force them, and find the cause of the problem.

41. When the elements are joined, remove the guide studs. Insert the screws (1) according to the markings made at disassembly (Fig. 4) and tighten to a torque of 155 to 195 Nm.

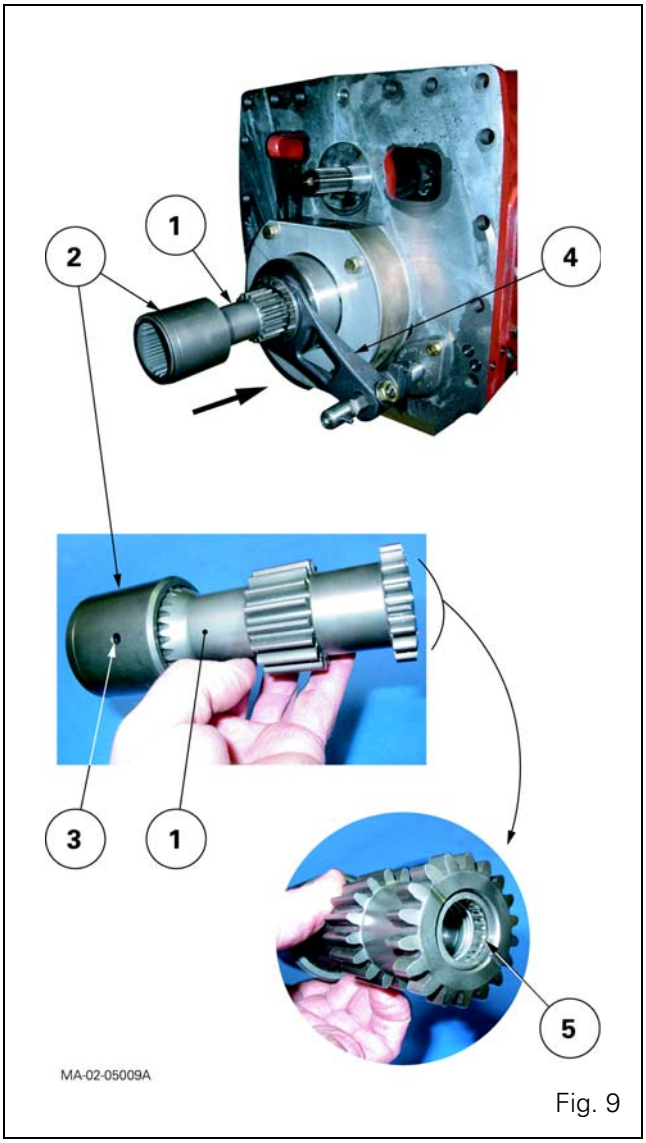


Fig. 9

Final operations

Remarks

Final operations are quite simple, and should therefore be carried out in the reverse order to preliminary operations. However, it will be necessary during reassembly to carry out the tightening torques, adjustments and tests described below.

Reminder

Engage the "D" finger (Fig. 10) in the creeper gear fork and position the seal on the screw (2) (Fig. 10) after lightly smearing it with Loctite 242 or equivalent. Moderately tighten the screw.

Tightening torques

- Front cab attachment (see chapter 12).
- Rear wheels screws or nuts (see chapter 6).

Topping-up

- of transmission oil in the housings (check using the gauge located at the back of the centre housing).
- of coolant (radiator – expansion tank).

Adjustments

- Creeper cables (if fitted).
- Gear cables 1 to 4 on the selector cover.
- Throttle control cable on the injection pump (4-cylinder engine only).

Tests:

- Air conditioning mechanism (if fitted – see chapter 12)
- Suspended front axle (if fitted)
- Cab suspension (if fitted, see chapter 12)
- Reverse shuttle
- Gears 1 to 4
- Hare/Tortoise range
- Dynashift
- Creeper gears (optional)

Checking tightness

- Mating faces
- Hydraulic unions
- Bleed screw on control unit of suspended front axle (if fitted)

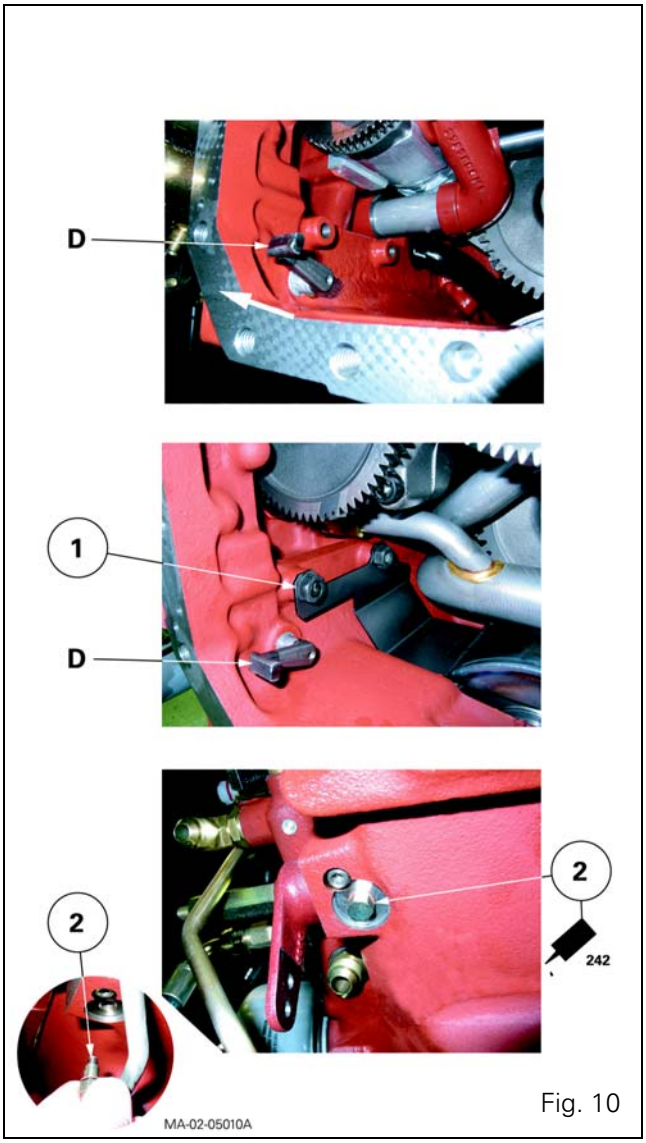


Fig. 10

C . Disassembling and reassembling with the cab fixed to the gearbox

Disassembling

Remark

The disassembly procedure with cab fixed to gearbox is almost identical to that described at § B.

However, it is necessary to add all disassembly operations concerning the centre housing in order to make the rear axle mobile and carry out disassembly in the correct conditions.

Preliminary operations

42. Engage the handbrake.

43. Check that the suspended front axle (if fitted) is in low position and unscrew the control unit bleed screw (see chapter 9).

44. Remove the lateral panels from each side of the engine and bonnet (if necessary).

45. Place the rear wheels in the wide track position.

46. Remove the footsteps.

Servicing under the tractor

47. Remove the guards and the 4WD shafts.

48. Drain the oil from the gearbox and centre housing.

49. Remove the reverse shuttle lubricating pipe (1) located between the centre housing and gearbox (Fig. 11).

Servicing on the right-hand side of the tractor

50. Disconnect and remove the batteries.

51. Remove the battery support.

52. Mark then disconnect:

- the cooler lubricant hose on the right-hand hydraulic cover
- the main pipe (17 bar) at the selector cover
- the front differential lock hose on the right-hand hydraulic cover
- the hoses joined to the cab on the right-hand hydraulic cover
- the speed sensor connector
- the linkage sensor connector
- the return hoses on the selector cover
- the creeper gear cables (optional)

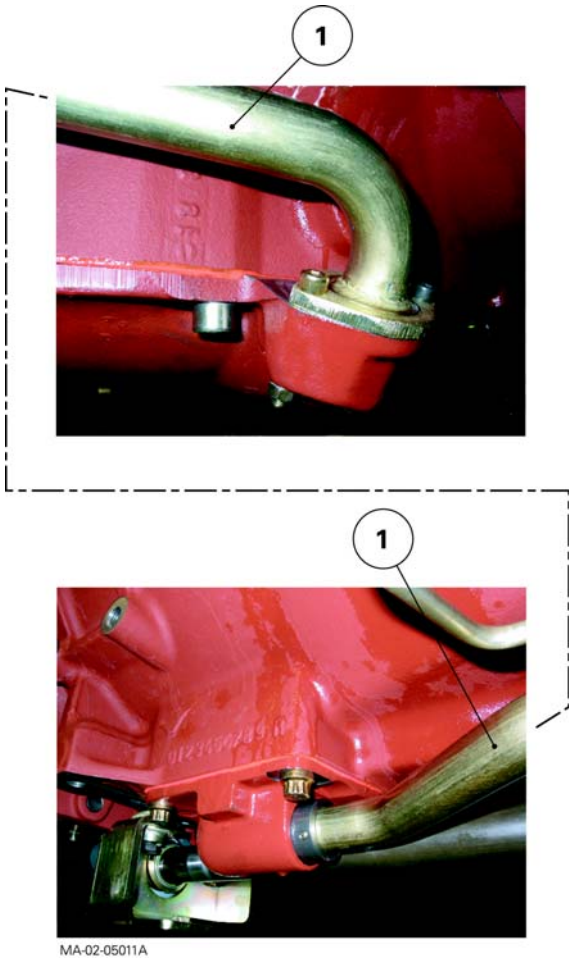


Fig. 11

Special point (Fig. 12)

On tractors fitted with creeper gears:

- Remove screw (1).
- Pull the pin (2) outwards in order to free the "D" finger of the fork.

53. Mark then disconnect:

- the electrical connectors on the selector cover, the control unit (Dynashift – reverse shuttle) and the right-hand hydraulic cover

Servicing on the left-hand side of the tractor

Mark then disconnect:

- the harness of the fuel gauge on the tank
- the gas oil feed and return hoses on the engine (block ports immediately)
- the vent hose on the tank

54. Drain the tank (if necessary) and remove it.

55. Disconnect the transmission lubricating pipe or hose located at the front left-hand side of the gearbox.

Servicing under the cab

56. Mark then disconnect:

- the right- and left-hand brake cables (block ports immediately)
- the steering hose of the trailer brake valve, if fitted (block ports immediately)
- the handbrake cable
- the speed sensor connectors (PTO and ground speed).

Servicing at the rear of the tractor

57. Mark and disconnect cables:

- of the auxiliary spool valves (optional)
- of the power take-off (all versions)

58. Mark and disconnect the connectors:

- on the electrohydraulic spool valves
- on the lift control valve
- on the power take-off
- on the effort sensors

Preparing for disassembling

59. Cancel the front axle oscillation (all versions) by sliding a suitable chock in either side of the support (1) (Fig. 13).

60. Chock the front wheels.

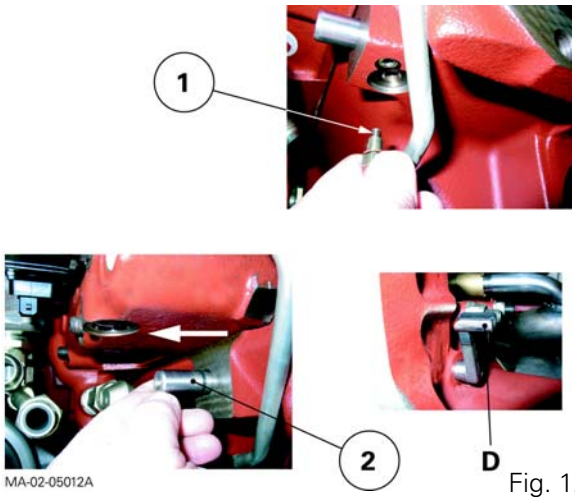


Fig. 12

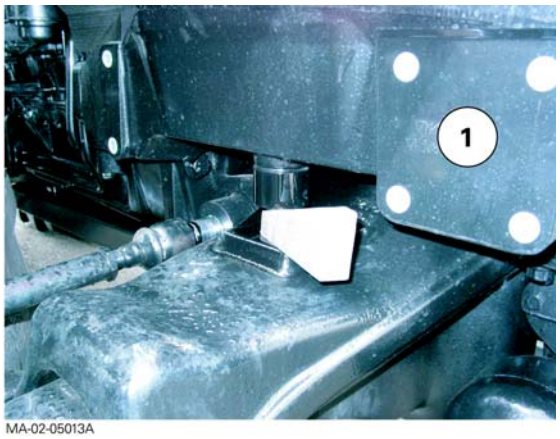


Fig. 13

61. Position a fixed stand at the back of the gearbox (Fig. 15).

62. Position a mobile stand at the front of the centre housing and another at the back (Fig. 15).

63. Separate the cab from the supports on the rear right- and left-hand sides (fixed or suspended cab versions – see chapter 12).

64. Using two straps with hooks, gently lift the cab with the rear pillars (Fig. 15).

65. Fit a wooden chock temporarily between the cab and the pillars.

Splitting - GBA20 gearbox / Centre housing

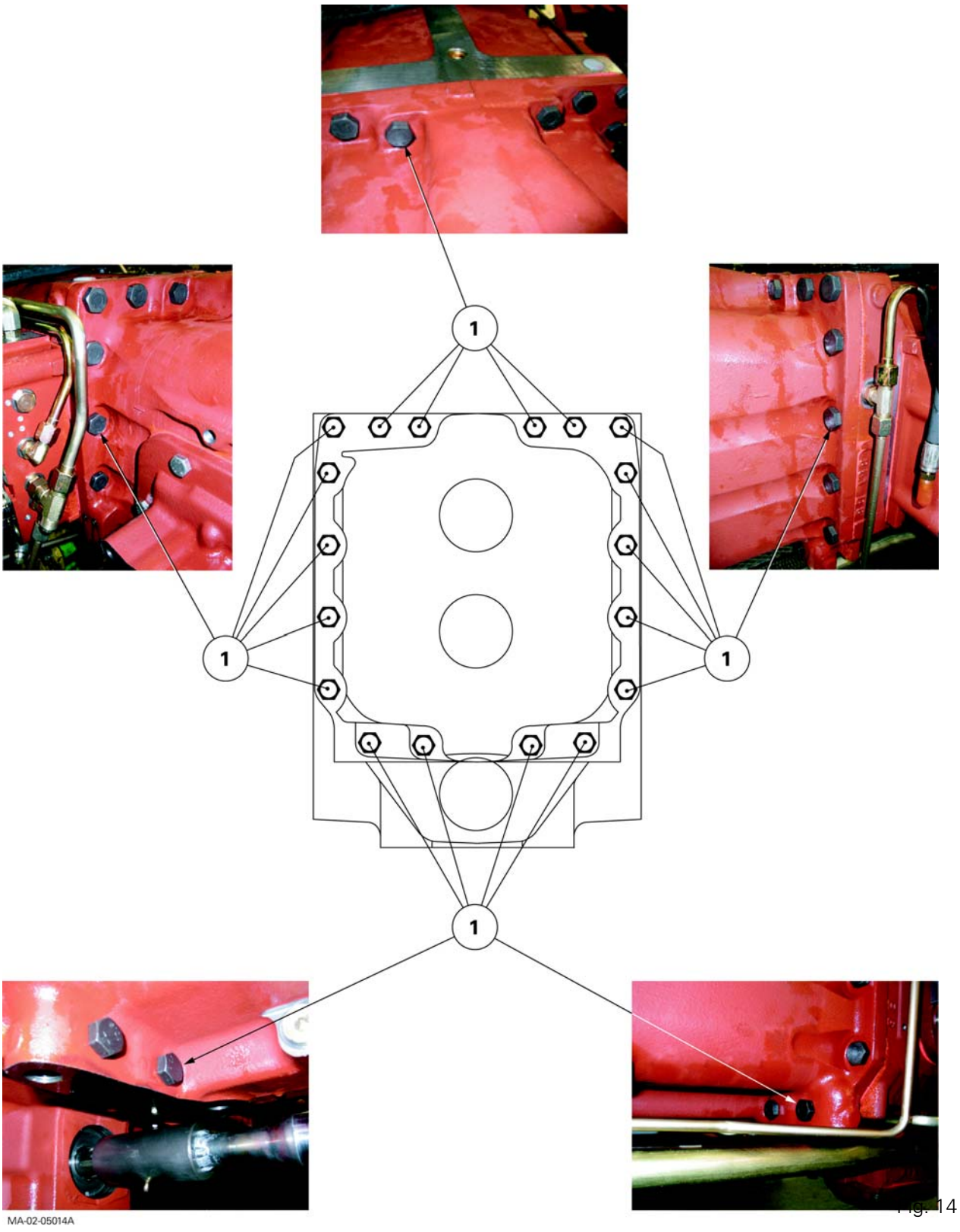


Fig. 14

Disassembling

66. Remove each screw (1) fixing the gearbox to the centre housing (Fig. 14), marking its position.

Screw dimensions

Screws

- M14 x 45 mm screw
- M14 x 60 mm screw
- M14 x 70 mm screw

67. With the help of an operator, separate the assemblies (Fig. 15)

Reminder

- During disassembly, check that connections (hoses and harnesses) are all disconnected.

68. Place the appropriate stands under the cab pillars.

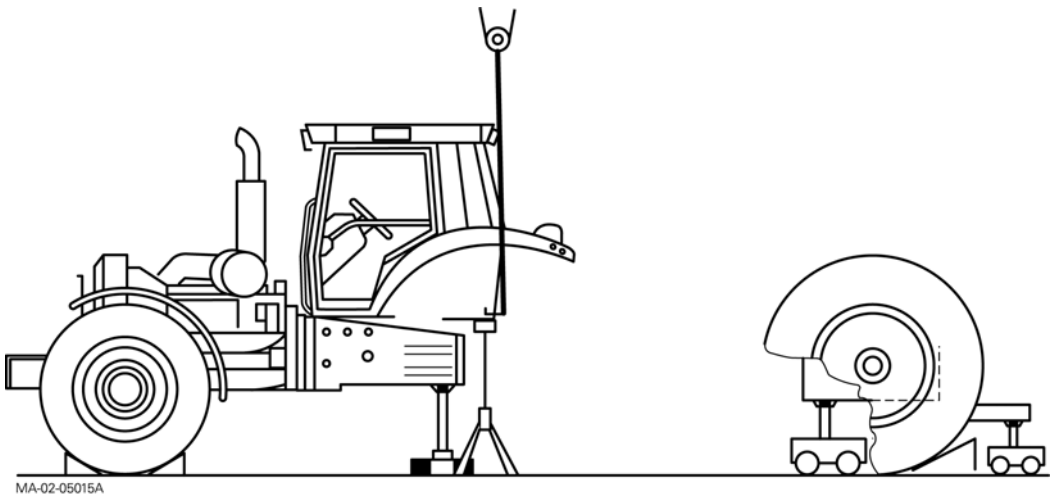


Fig. 15

Reassembling

69. Clean the mating surfaces of the gearbox and the centre housing.

On the centre housing

70. Check the presence of locating pins (4) (Fig. 16).

Remark

The pins are "force" fitted.

71. Position the spring (1) in the PTO clutch. (Fig. 17).

72. Smear the mating face of the centre housing with Loctite 5206 or equivalent, avoiding the hare and tortoise ports.

73. Replace the O'rings (2) (Fig. 17).

74. Screw two diametrically opposed guide studs into the centre housing.

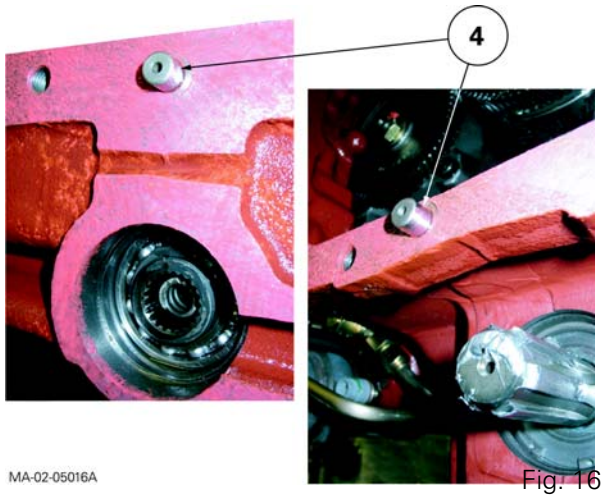


Fig. 16

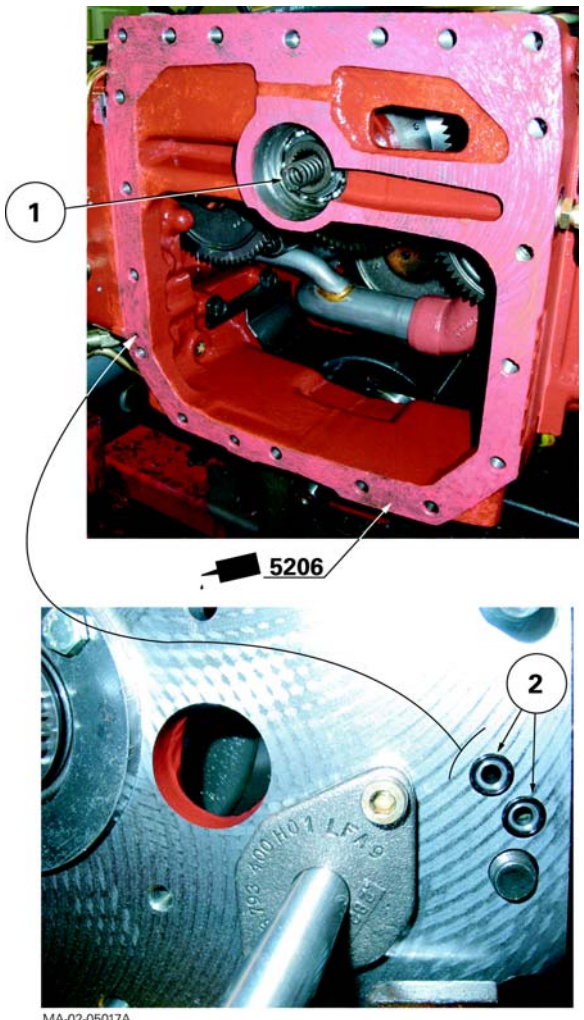


Fig. 17

On the gearbox

75. Check the presence and correct positioning of the PTO shaft.

76. Check:

Version with no creeper unit

- Presence of the union shaft (1) composed of the sleeves (2) and double pins (3) (Fig. 18).

Version with creeper unit.

- Correct assembly of shaft (1) composed of sleeve (2) and double pin (3) (Fig. 19).
- Correct operation of the control mechanism (fork and coupler) in each position.

77. Push the fork (4) towards the front of the gearbox in direct drive position (Fig. 19).

Remark

The gearbox output shaft supports the shaft (1) via the needle roller bearing (5) (Fig. 19).

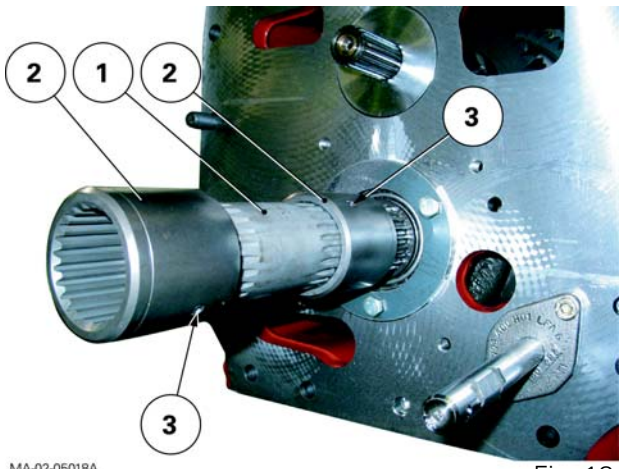


Fig. 18

On the centre housing

Remark

The rotation of the control finger "D" of the creeper gears is limited by the presence of the studs and nuts assembly (1) in the centre housing (tractors with closed centre hydraulics - Fig. 20).

78. Pull the pin (2) outwards (Fig. 12) and direct the "D" finger towards the front of the centre housing (Fig. 20).

79. Couple the gearbox to the centre housing.

Reminder

If there is resistance when moving the elements (gearbox, centre housing) together, do not force them, and find the cause of the problem.

80. When the elements are joined, remove the guide studs. Insert the screws (1) according to the markings made at disassembly (Fig. 14) and tighten to a torque of 155 to 195 Nm.

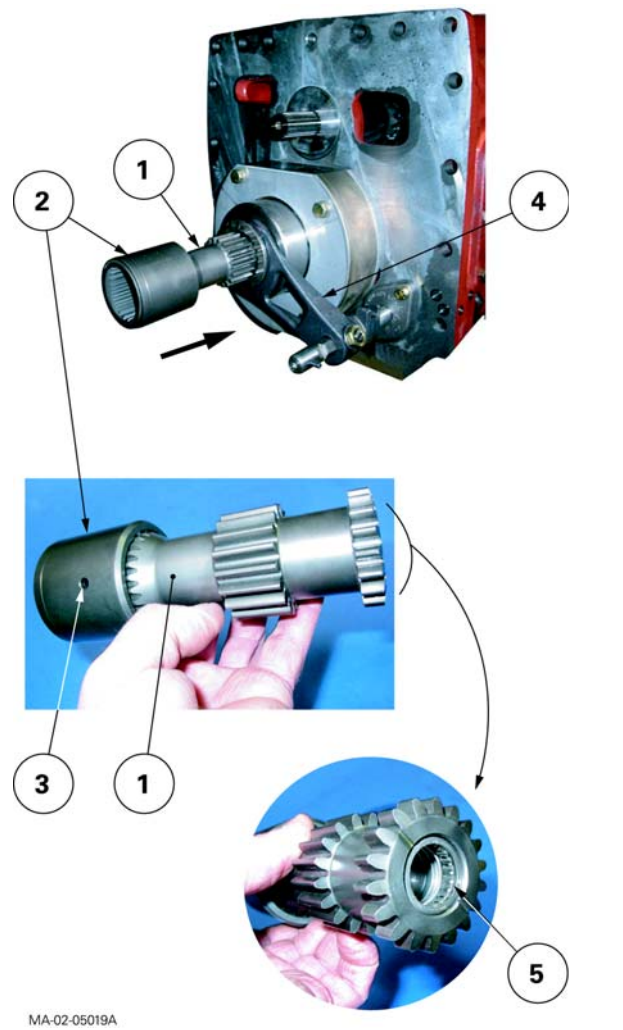


Fig. 19

Final operations

Remarks

Final operations are quite simple, and should therefore be carried out in the reverse order to preliminary operations. However, it will be necessary during reassembly to carry out the tightening torques, adjustments and tests described below.

Reminder

Engage the "D" finger (Fig. 20) in the creeper gear fork and position the seal on the screw (2) (Fig. 20) after lightly smearing it with Loctite 242 or equivalent. Moderately tighten the screw.

Tightening torques

- Rear cab attachment (see chapter 12).
- Rear wheels screws or nuts (see chapter 6).

Topping-up

- Transmission oil in the housings (check using the gauge located at the back of the centre housing).

Adjustments

- Creeper cables (if fitted).
- Gear cables on the selection cover.
- Power take-off cables (all versions).
- Auto-hitch control cables (if fitted).
- Auxiliary spool valves (depending on version).

Return to operation

- Bleeding of main brakes and trailer brake, depending on option (see chapter 9).

Testing

- Suspended front axle (if fitted)
- Cab suspension (if fitted, see chapter 12)
- Gears 1 to 4
- Creeper gears (optional)
- Linkage
- Auxiliary spool valves
- Power take-off (all versions)
- Auto-hitch (if fitted)

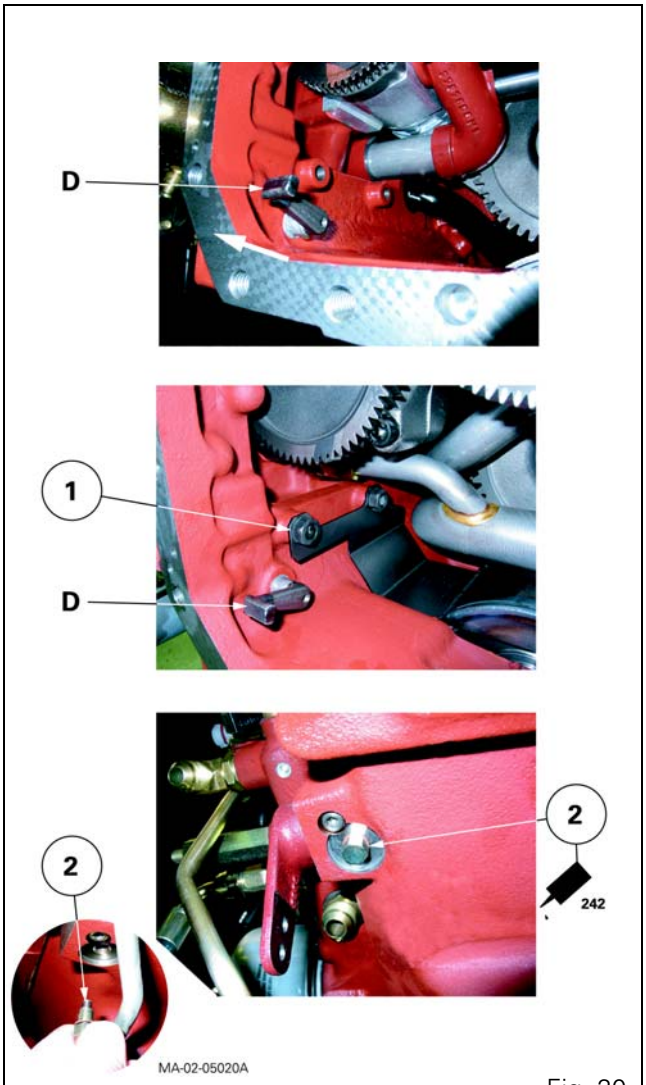


Fig. 20

Checking tightness

- Mating faces
- Hydraulic unions
- Bleed screw on control unit of suspended front axle (if fitted)

02C02 - Splitting - GBA10 gearbox / Centre housing

CONTENTS

A . General

There are two procedures for disassembling the gearbox and the centre housing, depending on the type of operation to be carried out on the tractor.

Disassembling with the cab fixed to the centre housing

Accessible elements

- Gearbox output shaft
- Creeper unit and creeper gear selection mechanism (if fitted)
- Power take-off clutch
- Handbrake mechanism

Disassembling with the cab fixed to the gearbox

Accessible element

- Bevel gear

This section presents a general disassembly procedure. Before and during disassembly, check that all connections have been properly separated between the fixed assembly and mobile assembly.

B . Disassembling and reassembling with the cab fixed to the centre housing

Preliminary operations

1. Manually disengage the Park Lock mechanism (see chapters 9 and 11).
2. Apply the parking brake.
3. Check that the suspended front axle is in low position (if fitted).
4. Remove the side panels either side of the engine and the bonnet (if necessary).
5. Place the rear wheels in the wide track position.
6. Remove the footsteps.

Servicing under the tractor

7. Remove the chassis reinforcements (if fitted, see chapter 2).
8. Remove the guard and the 4WD shafts.
9. Drain the oil from the gearbox and centre housing.
10. Remove:
    - the 4WD cover located at the rear end of the gearbox.
    - the reverse shuttle lubricating pipe (1) located between the centre housing and gearbox (Fig. 1).

Servicing on the right-hand side of the tractor

11. Mark then disconnect:
    - the hose on the steering ram,
    - the battery cables,
    - the lubricating hoses (running to and from the cooler),
    - the main pipe (17 bar) on the selector cover,
    - the front differential lock hose on the right-hand hydraulic cover,
    - the return hoses on the selector cover,
    - the power brake hose on the accumulator 17 bar supply line,
    - the gear cables on the selector cover,
    - the creeper cable (if fitted),
    - the electrical connectors on the selector cover, the control unit (Dynashift - reverse shuttle),
    - the radar (if fitted).

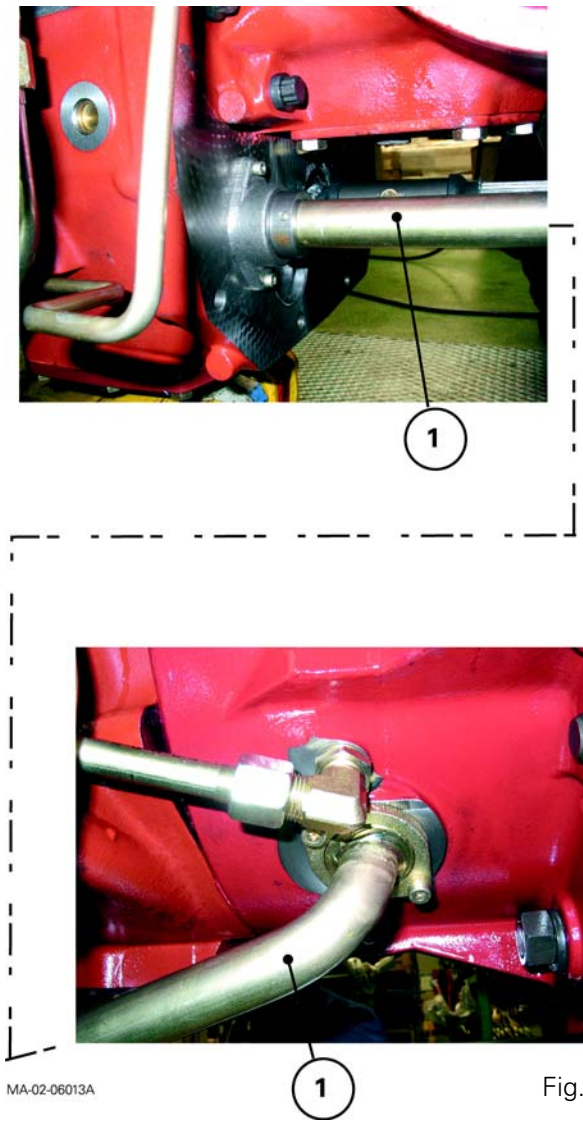


Fig. 1

Servicing on the left-hand side of the tractor

12. Mark then disconnect:
- the hose on the steering ram,
- the harness of the fuel gauge on the tank,
- the fuel feed and return hoses on the engine (block ports),
- the vent hose on the tank.

13. Drain the tank (if necessary) and remove it.

14. Disconnect the lubricating pipe located at the front left-hand side of the gearbox.

Servicing under the cab

15. Mark, toe-in and disconnect the heating hoses, immediately blocking the ports.

Servicing the engine

16. Disconnect the connector of the main engine wiring harness.

17. Separate the compressor, the condenser and the filter from their respective holders, and remove them carefully, without breaking the circuit.

Preparing for disassembling

18. Cancel the front axle oscillation by sliding an suitable chock in at each side of the support (1) (Fig. 2).

19. Chock the rear wheels.

20. Remove the two lower screws (6) (M16) from the 4WD cover opening (Fig. 3).

21. Place fixed stands (Fig. 4):
- at the front of the centre housing.
- to the rear of the hitch hook.

22. Position a mobile stand at the back of the gearbox (Fig. 4).

23. Separate the cab from the supports on the front right- and left-hand sides (see chapter 12).

24. Gently lift it using two straps fitted to the lateral handles.

25. Place a block temporarily between the cab and the front supports.

Disassembly

26. Remove the remaining screws and nuts fixing the gearbox to the centre housing (Fig. 3). Mark their lengths and positionings.

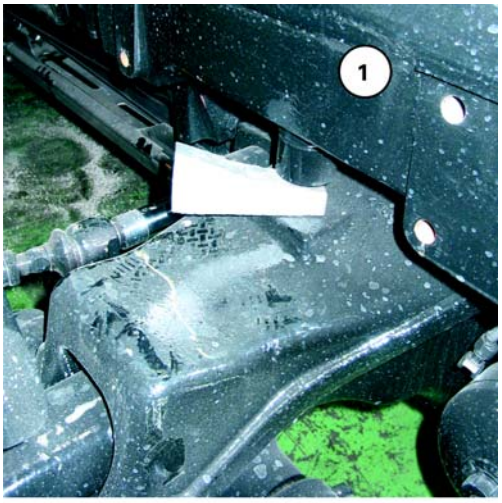


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Fig. 2

Dimensions of the screws and nuts

Screw
- M16 x 35 mm
- M16 x 50 mm
- M16 x 60 mm
- M16 x 70 mm

Nuts
- M16 x 1.5

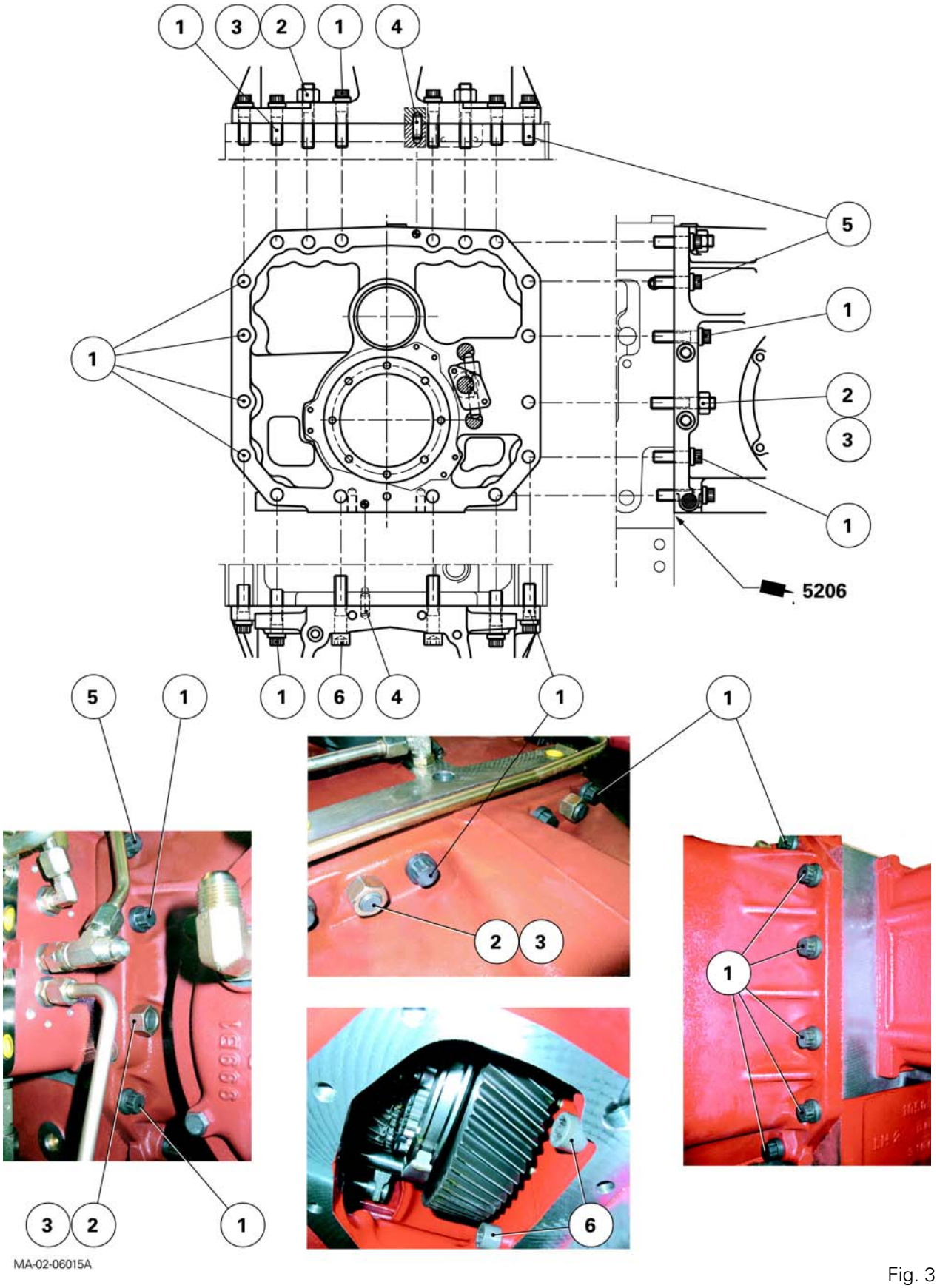

Fig. 3

27. With the help of an operator, separate the assemblies (Fig. 4).

Reminder

During disassembly, check that connections (hoses and harnesses) are all disconnected.

28. Place the suitable stands under the cab supports.

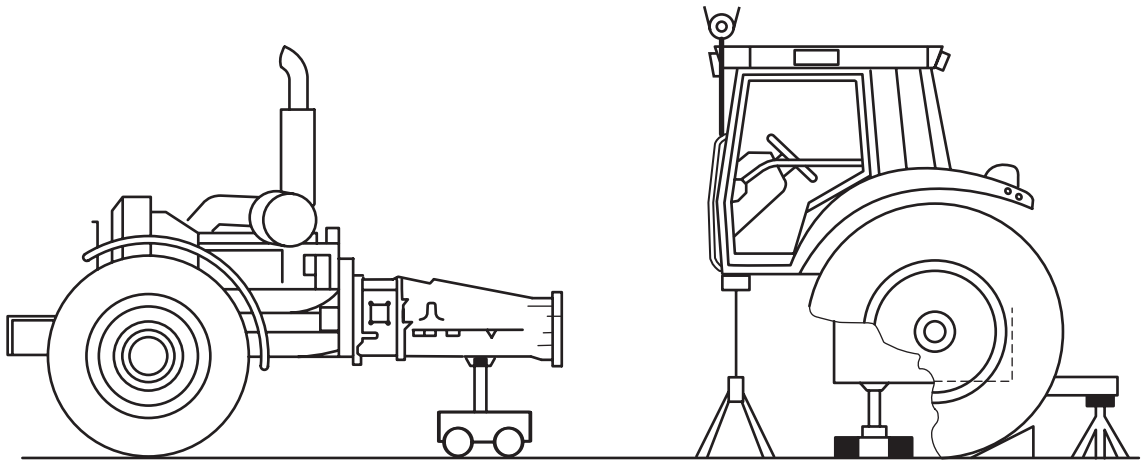

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Fig. 4

Reassembly

29. Clean the mating surfaces of the gearbox and the centre housing.

30. Check the presence of locating pins (4) on the gearbox (Fig. 3).

Remark

The pins are "force" fitted.

31. Check that the studs (2) are in good condition (Fig. 3) and are correctly fitted to the centre housing.

32. Check the presence and correct positioning of the PTO shaft in the gearbox.

33. Smear the spring (1) with miscible grease and fit it on the shaft collar (2) (Fig. 5).

34. Smear the mating face of the centre housing with Loctite 5206 or equivalent (Fig. 3).

35. Screw two diametrically opposed guide studs into the centre housing.

36. Check:

- Version with no creeper unit
  - The presence of the locking ring (1) on the drive pinion (Fig. 6).
  - The correct positioning of the sleeve (2) on the drive pinion (Fig. 6).
- Version with creeper unit
  - The presence of locking rings (1) on the drive pinion and the gearbox output shaft (Fig. 7).
  - The correct operation of the control mechanism (fork, selector rail and coupler) in each position.

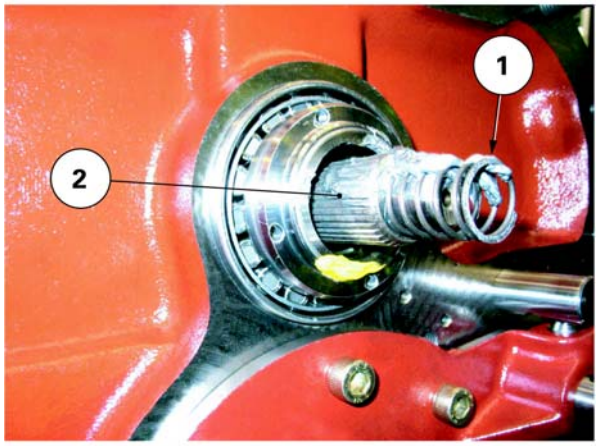

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Fig. 5

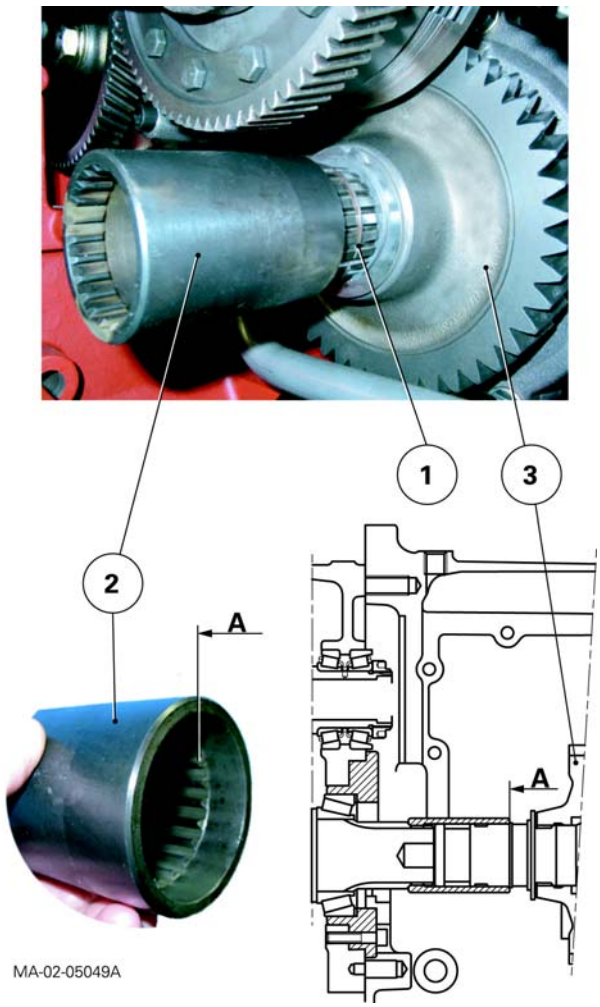

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Fig. 6

37. Couple the gearbox to the centre housing.

Reminder

If there is resistance when moving the elements (gearbox, centre housing) together, do not force them, and find the cause of the problem.

38. When the elements are assembled, remove the guide studs. Position the screws according to the marks made when removed and tighten to a torque of: (Fig. 3)

- Screws (1): 240 - 320 Nm
- Screws (5): 220 - 280 Nm
- Screws (6): 240 - 320 Nm
- Nuts (3): 300 - 400 Nm

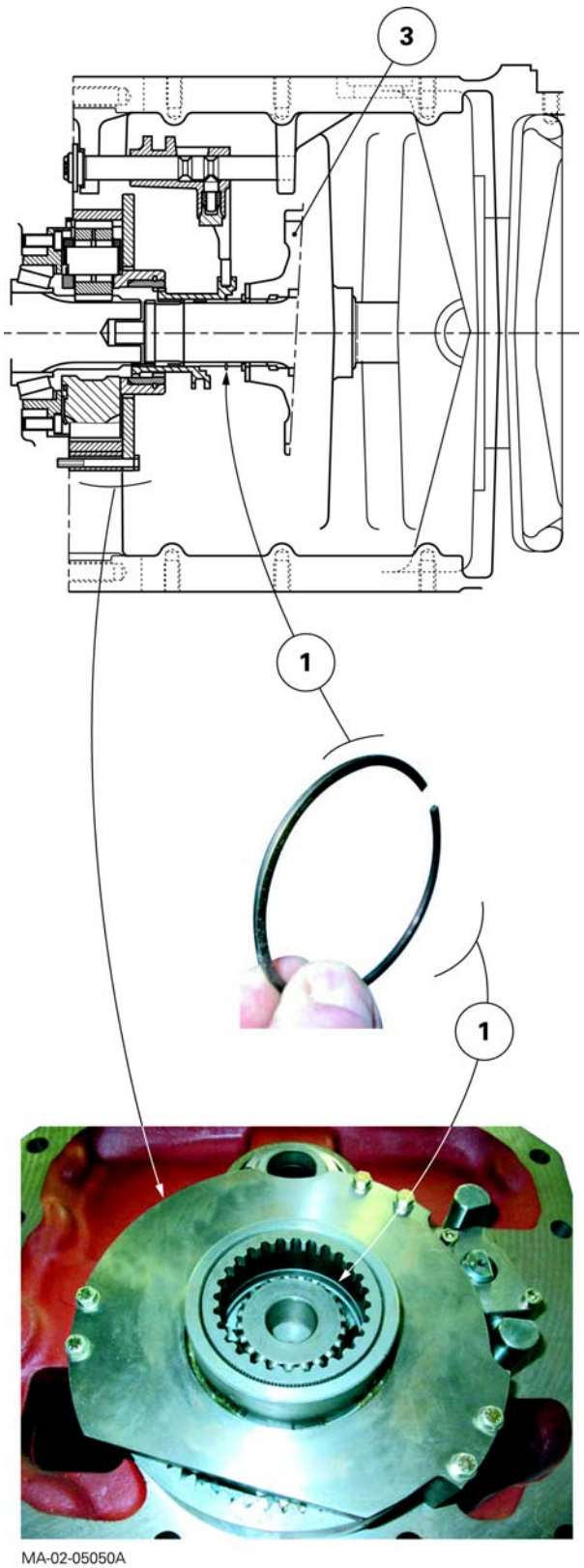

Fig. 7

Final operations

Remarks

Final operations are quite simple, and should therefore be carried out in the reverse order to preliminary operations. However, it will be necessary during reassembly to carry out the tightening torques, adjustments and tests described below.

Tightening torques

- Front cab attachment (see chapter 12).
- 4WD cover screw: 85-120 Nm (mating facing previously smeared with Loctite 510 or equivalent).
- Rear wheels screws or nuts (see chapter 6).

Topping-up

- of transmission oil in the housings (check on transparent tube located to the left of the PTO housing).
- of coolant (radiator – expansion tank).

Adjustments

- Creeper cables (if fitted),
- Gear cables on the selector cover,
- Chassis reinforcements (if fitted, see chapter 2).

Return to operation

- of Park Lock mechanism (optional) (for engagement position see manual intervention, chapter 9).

Tests

- Air conditioning mechanism (if fitted – see chapter 12)
- Suspended front axle (if fitted)
- Cab suspension (if fitted – see chapter 12),
- Reverse shuttle
- Gears 1 to 4
- Hare/Tortoise range
- Dynashift
- Creeper unit (if fitted)
- Park Lock mechanism (optional)

Checking tightness

- of mating faces,
- of hydraulic unions,
- control block bleed screw (suspended front axle).

C . Disassembling and reassembling with the cab fixed to the gearbox

Remark

The disassembly procedure with cab fixed to gearbox is almost identical to that described at § B.

However, it is necessary to add all disassembly operations concerning the centre housing in order to make the rear axle mobile and carry out disassembly in the correct conditions.

Preliminary operations

39. Manually disengage the Park Lock mechanism (optional) (see chapters 9 and 11).

40. Apply the parking brake.

41. Check that the suspended front axle is in lowered position (if fitted).

42. Place the rear wheels in the wide track position.

43. Remove the footstep.

Servicing under the tractor

44. Remove the chassis reinforcements (if fitted, see chapter 2).

45. Remove the guard and the 4WD shaft.

46. Drain the oil from the gearbox and centre housing.

47. Remove:

- the 4WD cover located under the back of the gearbox.
- the reverse shuttle lubricating pipe (1) located between the centre housing and gearbox (Fig. 8).

Servicing on the right-hand side of the tractor

48. Mark then disconnect:

- the battery cables,
- the lubricating hoses (running to and from the cooler),
- the main pipe (17 bar) on the selector cover,
- the front differential lock hose on the right-hand hydraulic cover,
- the creeper cable (if fitted),
- the electrical cables on the right-hand hydraulic cover and the filter,
- the hydraulic hoses joined to the cab on the right-hand hydraulic cover,
- the engine speed sensor connector,
- the linkage sensor connector.

Servicing on the left-hand side of the tractor

49. Mark then disconnect:

- the harness of the fuel gauge on the tank
- the fuel feed and return hoses on the engine (block ports),
- the vent hose on the tank.
- Drain the tank (if necessary) and remove it.
- Disconnect the lubrication tube located at the front left-hand side of the gearbox.

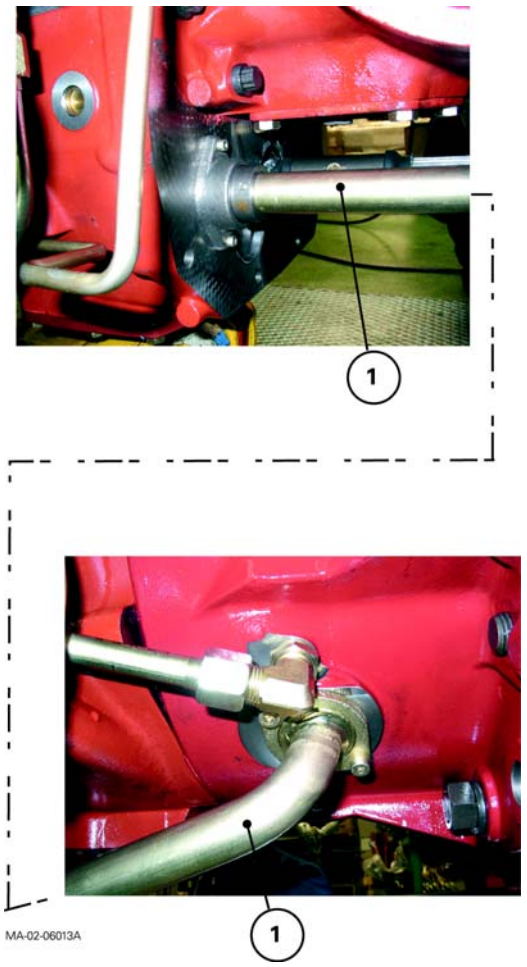

Fig. 8

Servicing under the cab

50. Mark then disconnect:
- the right- and left-hand brake cables (block ports immediately),
- the steering hose of the trailer brake valve, on the priority block (block ports immediately),
- the handbrake cable,
- the electrical connectors on the Park Lock block (optional),
- the speed sensor connectors (PTO clutch output and forward speed).

Servicing at the rear of the tractor

51. Mark then disconnect:
- the auxiliary spool valve control cables (depending on version) and 540 - 1000 rpm PTO control cables,
- the 750 rpm PTO cables and GSPTO cables (if fitted),
- The connectors on the electrohydraulic spool valves, the lift control spool valve and the rear PTO housing,
- the draft sensors.

52. Remove the drawbars, lift rods and stabilisers.

Preparing for disassembling

53. Stop the front axle oscillation by sliding a suitable chock either side of the support (1) (Fig. 9).

54. Chock the front wheels.

55. Remove the two lower screws (6) (M16) from the 4WD cover opening (Fig. 10).

56. Position a fixed stand at the back of the gearbox (Fig. 11).

57. Position a mobile stand at the front of the centre housing and another at the back (Fig. 11).

58. Separate the cab from the supports on the right- and left-hand sides (see chapter 12).

59. Using two straps with hooks, gently lift the cab with the rear pillars (Fig. 11).

60. Place a block temporarily between the cab and the rear supports.

Disassembly

61. Remove the remaining screws and nuts attaching the centre housing to the gearbox (Fig. 10). Mark their lengths and positionings.

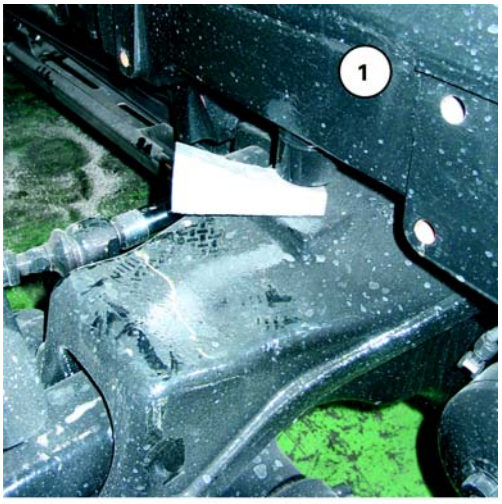

Fig. 9

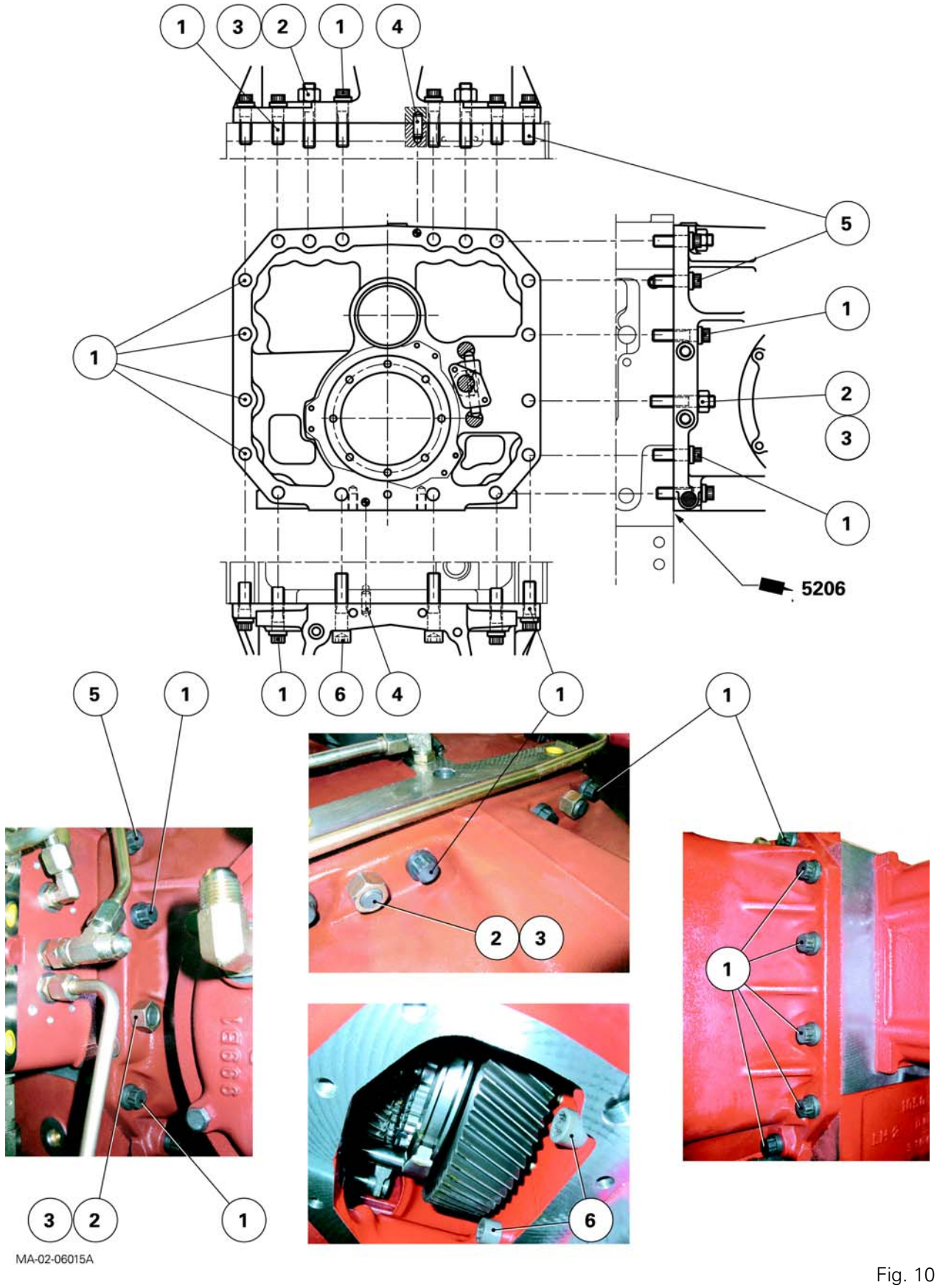

Fig. 10

Dimensions of the screws and nuts

Screws

- M16 x 35 mm
- M16 x 50 mm
- M16 x 60 mm
- M16 x 70 mm

Nuts

- M16 x 1.5

62. With the help of an operator, separate the assemblies (Fig. 11).

Reminder

During disassembly, check that connections (hoses and harnesses) are all disconnected.

63. Place the suitable stands under the cab pillars.

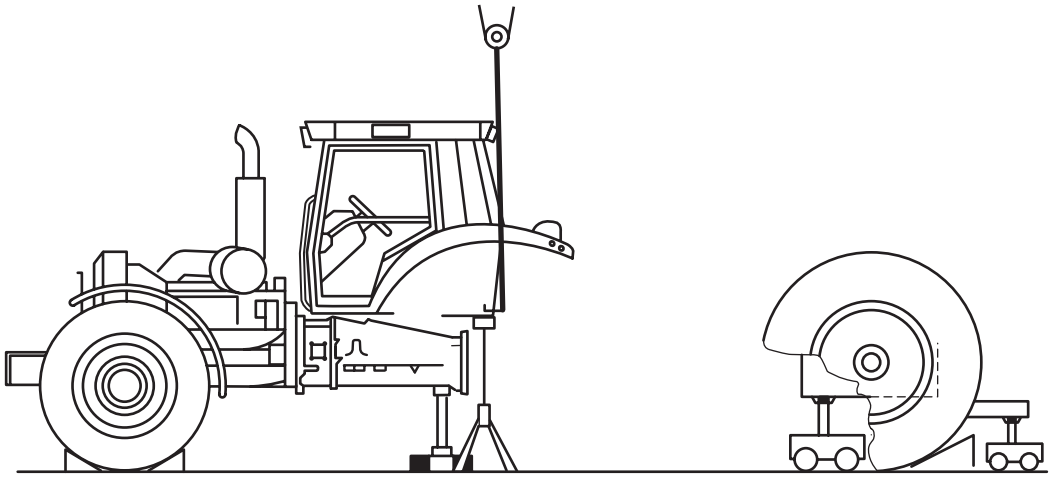

Fig. 11

Reassembly

64. Clean the mating surfaces of the gearbox and the centre housing.

65. Check the presence of locating pins (4) on the gearbox (Fig. 10).

Remark

The pins are "force" fitted.

66. Check that the studs (2) are in good condition (Fig. 10) and are correctly fitted to the centre housing.

67. Check the presence and correct positioning of the PTO shaft in the gearbox.

68. Smear the spring (1) with miscible grease and fit it on the shaft collar (2) (Fig. 12).

69. Smear the mating face of the centre housing with Loctite 5206 or its equivalent (Fig. 10).

70. Screw two diametrically opposed guide studs into the centre housing.

71. Check:

- Version with no creeper unit
  - The presence of the locking ring (1) on the drive pinion (Fig. 13).
  - The correct positioning of the sleeve (2) on the drive pinion (Fig. 13)
- Version with creeper unit
  - The presence of locking rings (1) on the drive pinion and the gearbox output shaft (Fig. 14).
  - The correct operation of the control mechanism (fork, selector rail and coupler) in each position.

72. Couple the centre housing to the gearbox.

Reminder

If there is resistance when moving the elements (gearbox, centre housing) together, do not force them, and find the cause of the problem.

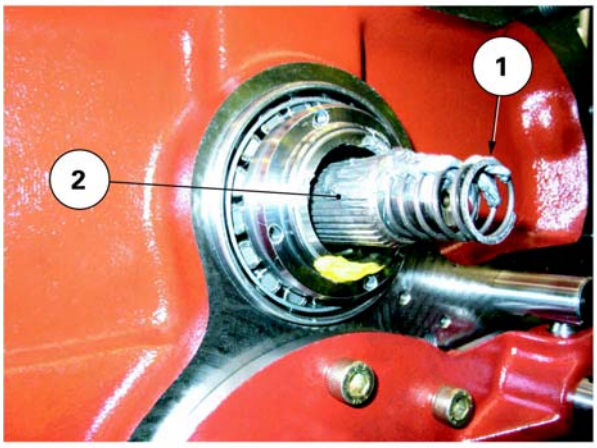

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Fig. 12

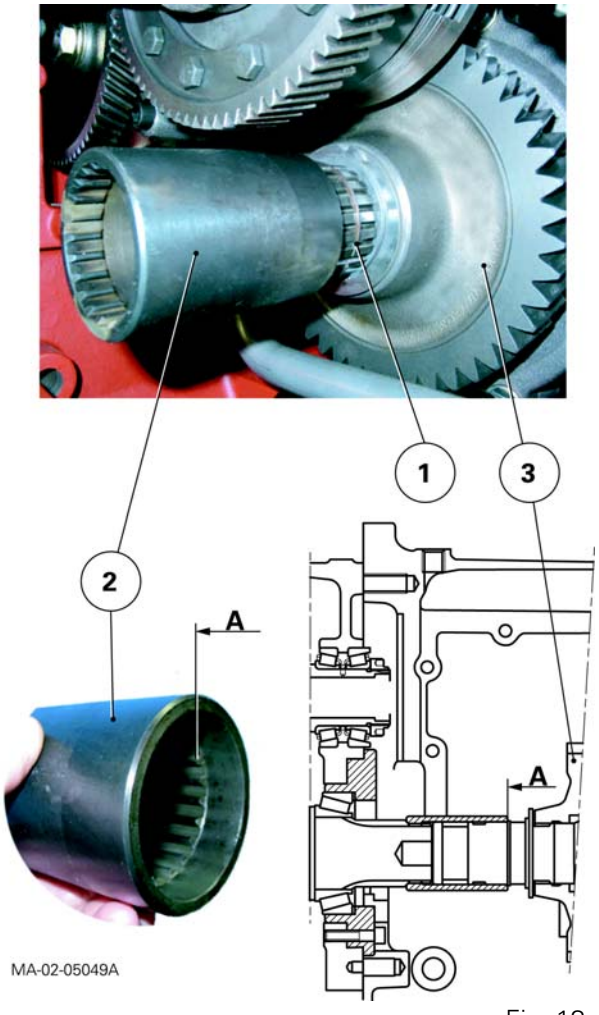

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Fig. 13

73. When the elements are assembled, remove the guide studs. Position the screws according to the marks made when removed and tighten to a torque of: (Fig. 10)

- Screws (1): 240 - 320 Nm
- Screws (5): 220 - 280 Nm
- Screws (6): 240 - 320 Nm
- Nuts (3): 300 - 400 Nm

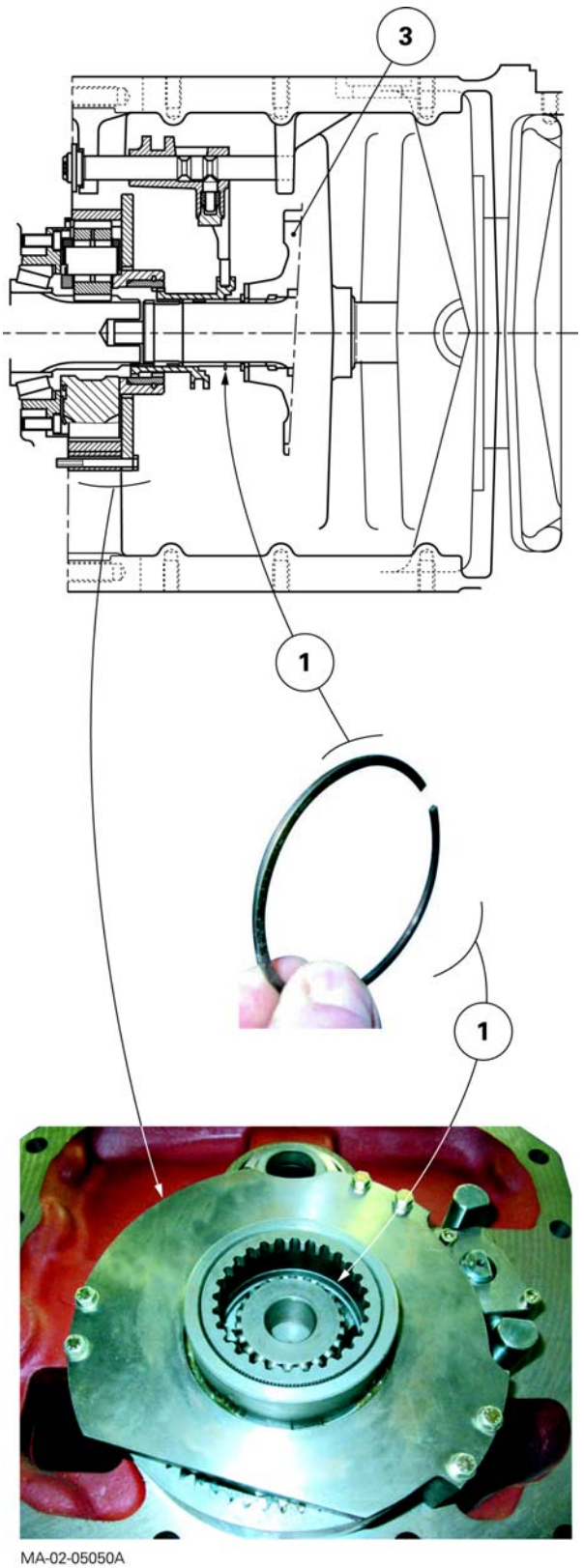

Fig. 14

Final operations

Remark

Final operations are quite simple, and should therefore be carried out in the reverse order to preliminary operations. However, it will be necessary during reassembly to carry out the tightening torques, adjustments and tests described below.

Tightening torques

- Rear cab attachment (see chapter 12).
- 4WD cover screw: 85-120 Nm (mating facing previously smeared with Loctite 510 or equivalent).
- Rear wheels screws or nuts (see chapter 6).

Topping-up

- of transmission oil in the housings (check on transparent tube located to the left of the PTO housing).

Adjustments

- Creeper cables (if fitted).
- Gear cables on the selector cover.
- Chassis reinforcements (if fitted, see chapter 2).
- 540 - 1000 rpm PTO cable.
- 750 rpm PTO cable.
- Auto-hitch control cables (if fitted).
- Auxiliary spool valve cables (depending on version).

Return to operation

- of Park Lock mechanism (optional) (for engagement position see manual intervention, chapter 9).
- Bleeding of main brakes and trailer brake, depending on option (see chapter 9).

Tests

- Suspended front axle (if fitted)
- Cab suspension (if fitted, see chapter 12)
- Reverse shuttle
- Gears 1 to 4
- Hare/Tortoise range
- Dynashift
- Creeper unit (if fitted).
- Park Lock mechanism (optional).
- Linkage
- Auxiliary spool valves
- Power take-off (all versions)
- Auto-hitch (if fitted)

Checking tightness

- of mating faces
- of hydraulic unions,
- of control block bleed screw (suspended front axle).

2C30 - GBA25/GPA20 separation

CONTENTS

GBA25/GPA20 separation

A . General

There are two procedures for disassembling the gearbox and the centre housing, depending on the type of operation to be carried out on the tractor.

Disassembly with the cab fixed to the centre housing

Accessible elements:

- Creeper unit and creeper gear selection mechanism (depending on option)
- Power take-off clutch
- Handbrake mechanism (only on tractors with no creeper gears)

Disassembly with the cab fixed to the gearbox

Accessible element:

- Crownwheel and pinion.

NOTE: *Due to the various types of hydraulic equipment that may be fitted onto the tractor, this section describes the general disassembly procedure. Before and during disassembly, check that all connections between the fixed assembly and mobile assembly have been disconnected.*

B . Disassembly and reassembly with the cab fixed to the centre housing

Disassembly

Implementation

1. Apply the handbrake.
2. Check that the suspended front axle (if fitted) is in low position and unscrew the control unit bleed screw (see chapter 9).
3. Remove the lateral panels from each side of the engine and bonnet (if necessary).
4. Place the rear wheels in the wide track position.
5. Remove the footsteps.

Operations underneath the tractor

6. Remove the guards and the 4 WD shafts.
7. Drain the oil from the gearbox and centre housing.
8. Dismantle the front linkage reinforcements (if mounted).

Operations on the right-hand side of the tractor

9. Disconnect and remove the batteries.
10. Remove the battery support.
11. Mark then disconnect:
    - the hose on the steering ram
    - the main tube (20 bar) to the gearbox control block (Fig. 1)
    - the front differential lock hose on the right-hand hydraulic cover
    - the return hoses on the selector cover
    - the brake hose on the accumulator 20 bar supply line (depending on equipment)
    - the lubricating hoses (running to and from the cooler depending on the model)
    - the creeper gear cables (optional)

***NOTE**:*

On tractors fitted with creeper gears (Fig. 2):

- *Remove screw (1)*
- *Pull the pin (2) outwards to free the "D" finger of the fork.*

Fig. 1

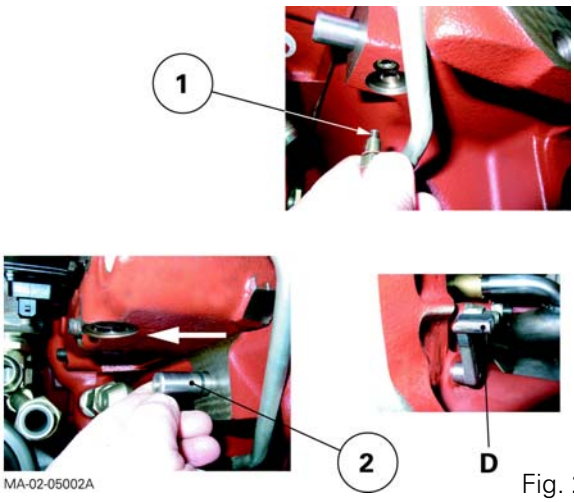

Fig. 2

12. Mark then disconnect:
- the electrical connectors on the gearbox control block and the right hydraulic cover
- the radar (if fitted).

Operations on the left-hand side of the tractor

13. Mark then disconnect:
- the hose on the steering ram
- the harness of the fuel gauge on the fuel tank
- the fuel feed and return hoses on the engine (block ports immediately)
- the vent hose on the fuel tank.

14. Drain the fuel tank (if necessary) and remove it.

15. Disconnect the lubrication hose from the flared tube located to the left of the gearbox.

16. Remove the lubrication tube from the transmission situated between the left side of the gearbox and the right cover of the centre housing.

Operations under the cab

17. Mark, pinch out and disconnect the heating hoses, blocking the ports immediately.

18. The hose between the cooler and the thermostat valve.

Operations on the engine

19. Disconnect the connector of the main engine wiring harness.

20. Disconnect the throttle control cable on the injection pump (four-cylinder engine only).

21. Separate the compressor, the condenser and the filter from their respective holders and remove them carefully without breaking the circuit.

NOTE: *Proceed carefully.*

Preparing for disassembly

22. Stop the front axle swinging (all versions) by sliding a suitable chock in at each side of the support (1) (Fig. 3).

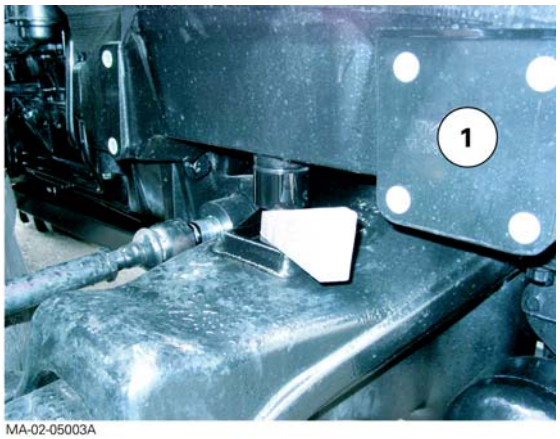

Fig. 3

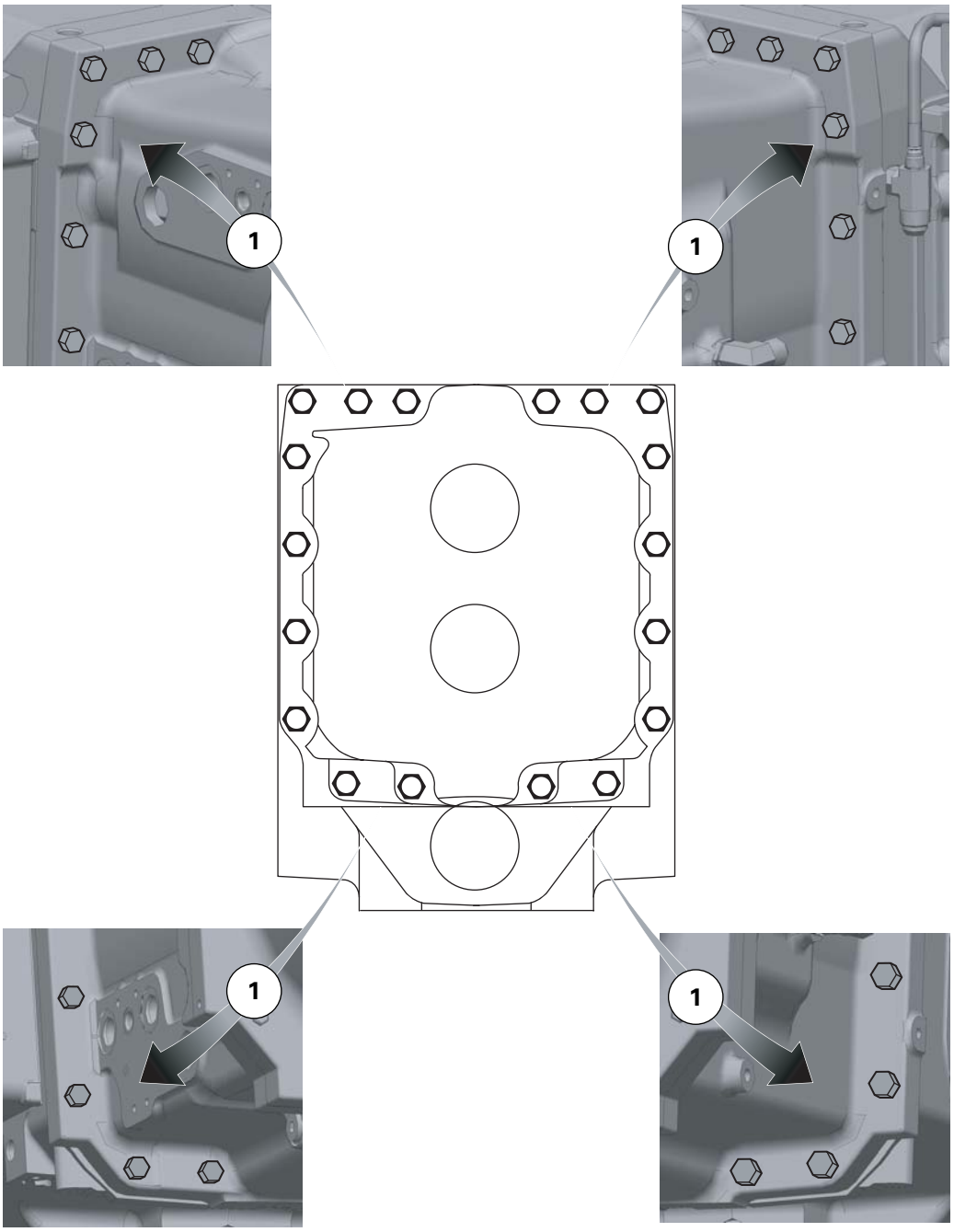

Fig. 4

23. Chock the rear wheels.

24. Place fixed stands (Fig. 5):
- at the front of the centre housing
- to the rear of the hitch hook.

25. Position a mobile stand at the rear of the gearbox (Fig. 5).

26. Separate the cab from the supports on the front right and left-hand sides (fixed or suspended cab versions—see chapter 12).

27. Gently lift the cab using two straps fitted to the lateral handles.

28. Temporarily fit a wooden chock between the cab and the front supports.

Disassembly

29. Remove each screw (1) fixing the gearbox to the centre housing (Fig. 4) and marking its position.

Screw dimensions

- M14 x 45 mm screw
- M14 x 60 mm screw
- M14 x 70 mm screw

30. With the help of an operator, separate the assemblies (Fig. 5)

NOTE: *During disassembly, check that all connections (hoses and harnesses) are disconnected.*

31. Place the appropriate stands under the cab supports.

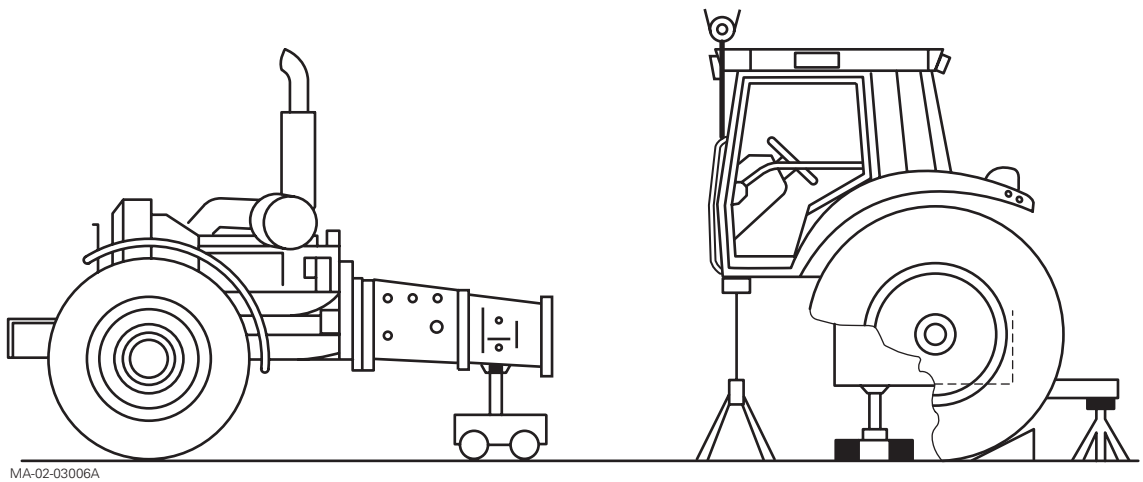

Fig. 5

Thank you very much for your reading.

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