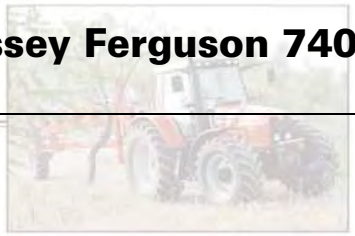
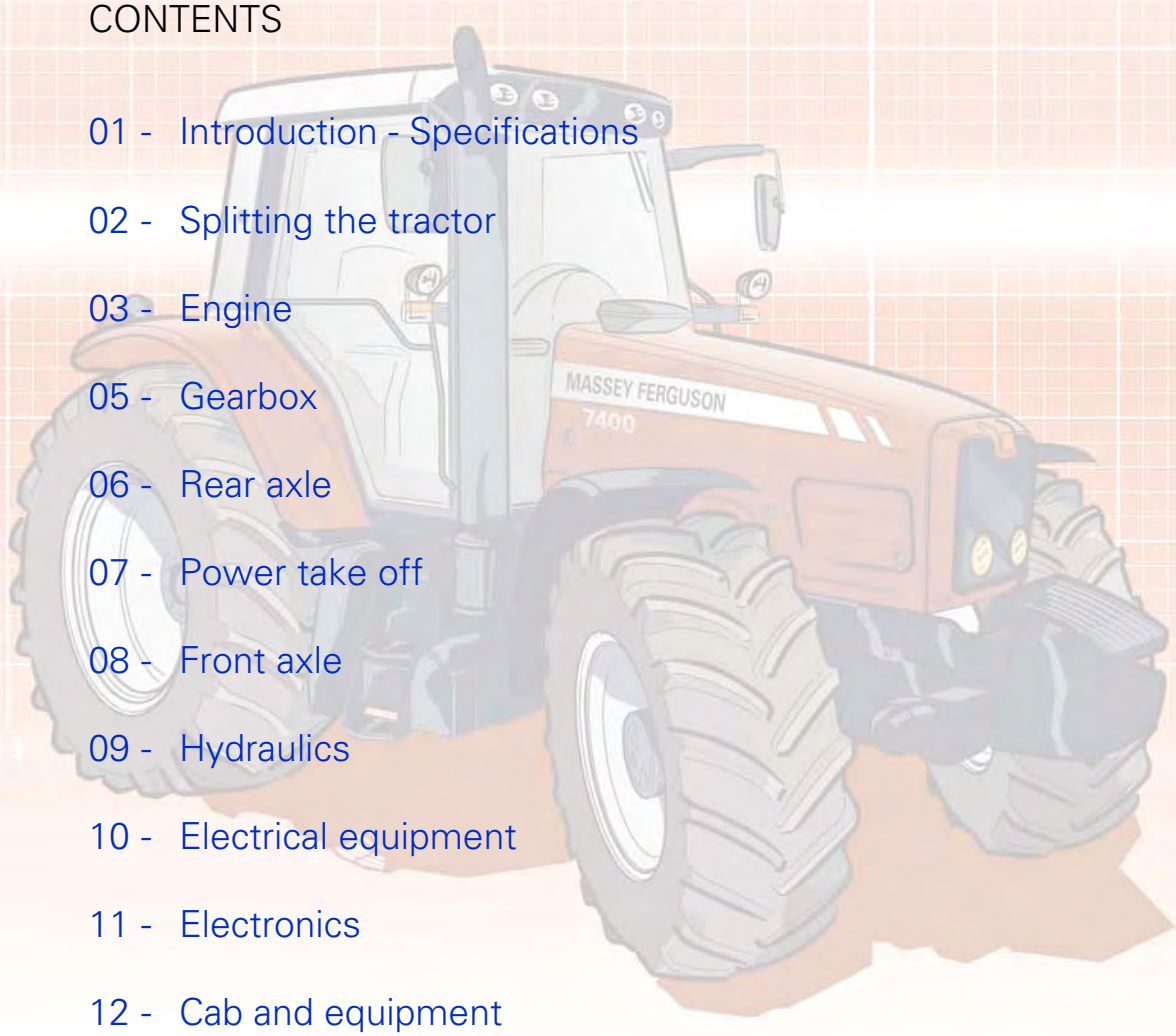




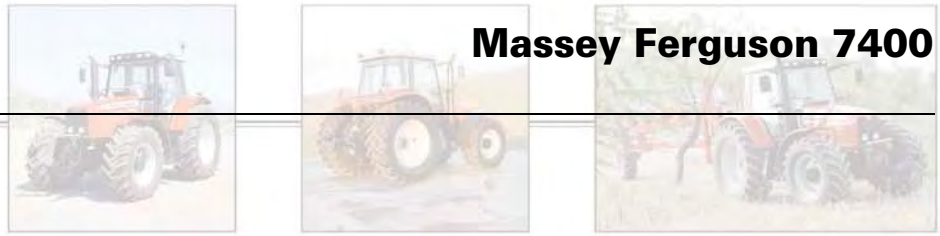
Workshop Service Manual

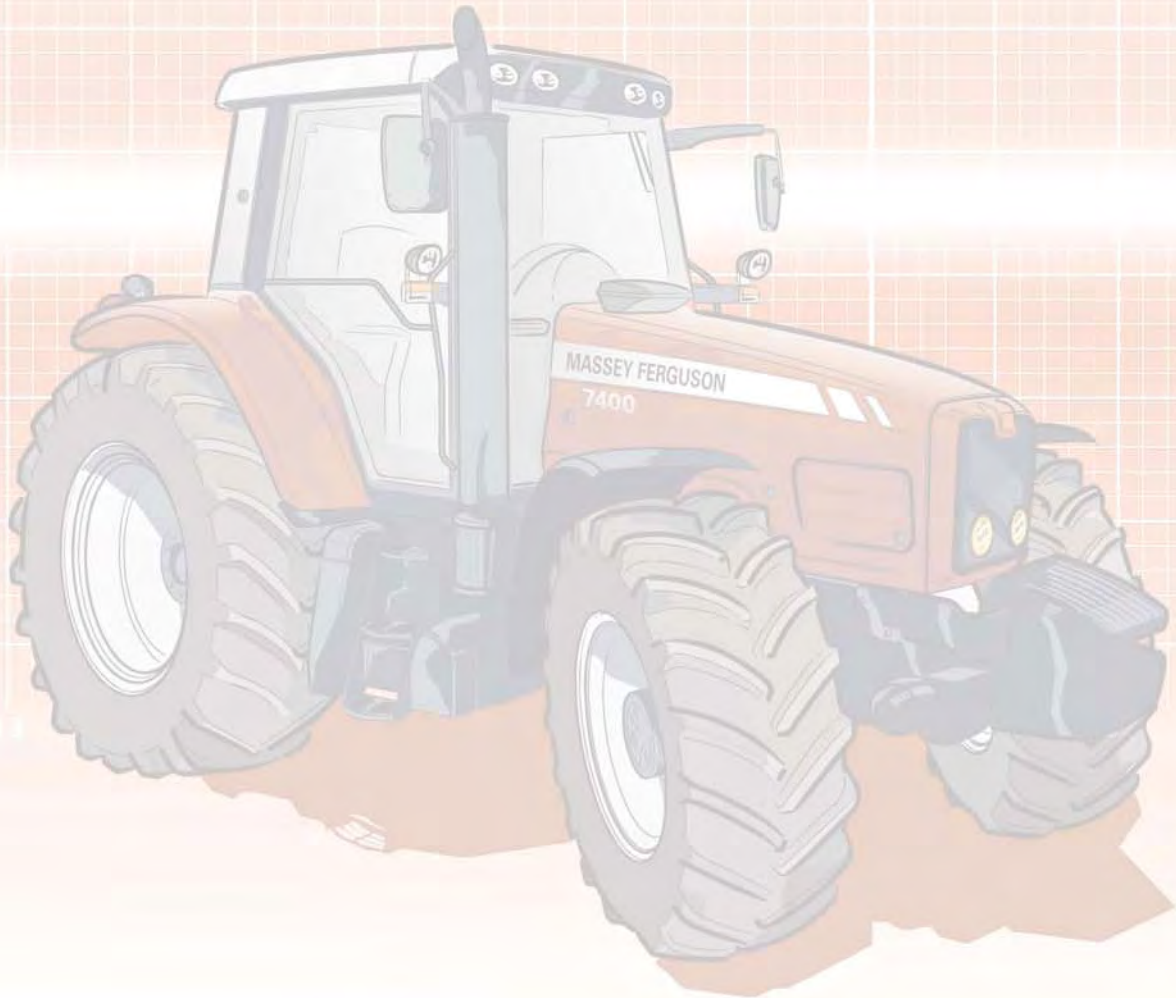
n° 3378553M4

CONTENTS



MASSEY FERGUSON

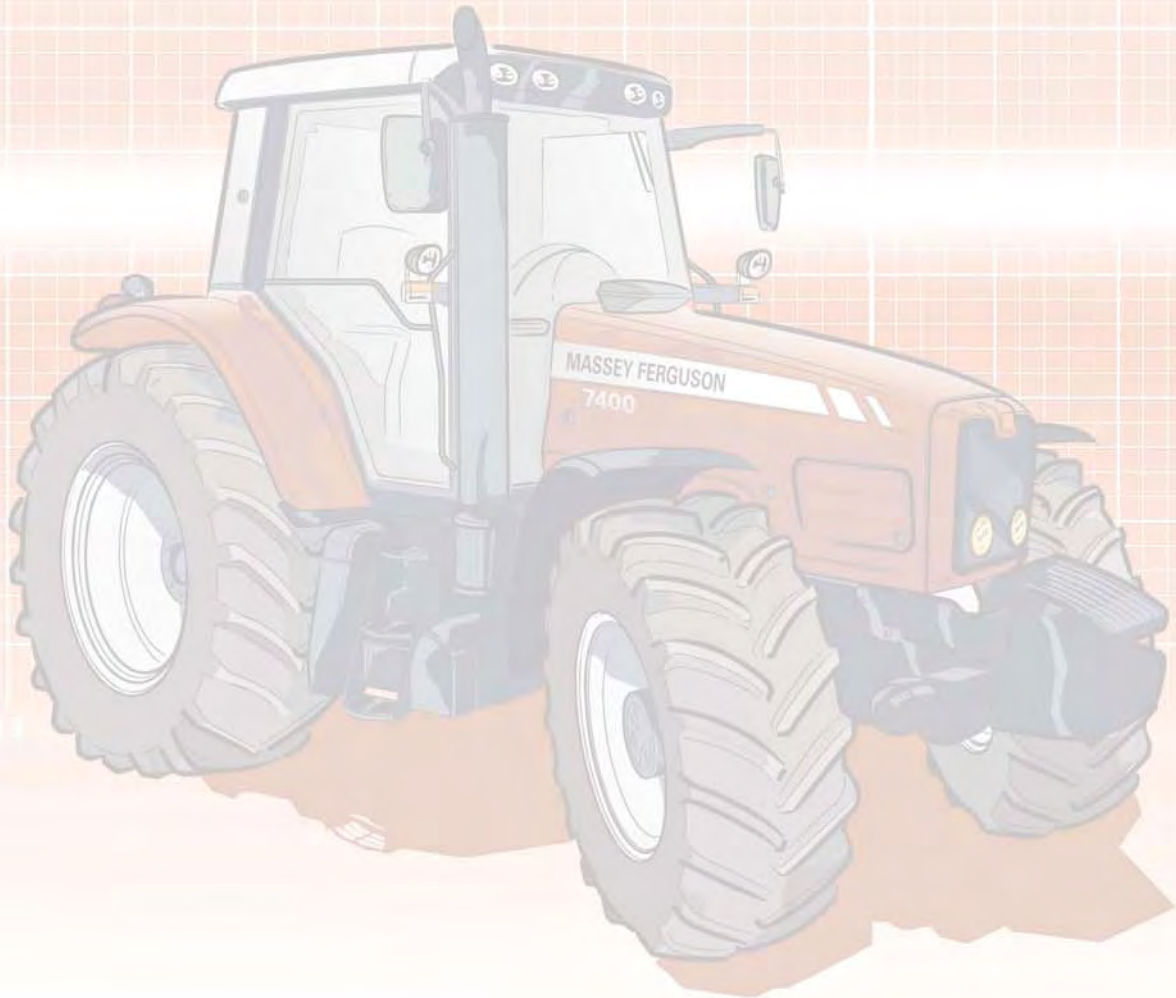


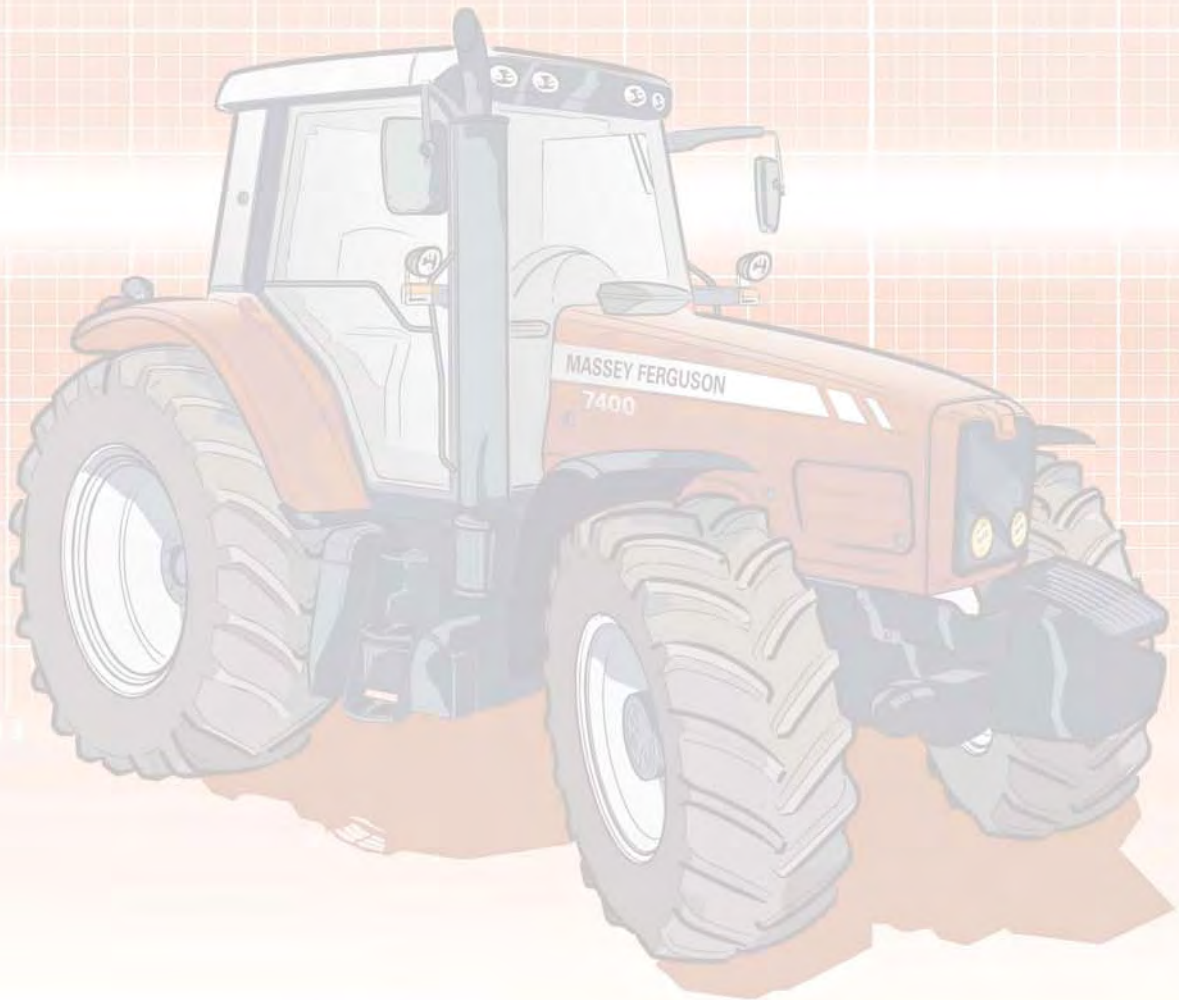




01 - Introduction - Specifications

CONTENTS





01A01 - Introduction

CONTENTS

A . Using the manual

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.

Page numbering

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

Example: **10A01.1**

10 = Chapter

A = Section

01 = Sequence number within the section

1 = Page number within the section

The issue number and date are indicated at the bottom of the page.

Using the manual

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 issue number and date will be changed.

Former pages should be destroyed.

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 in the final sections of the relevant chapters.

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 replacement parts have the full backing of the manufacturer's warranty. AGCO Dealers and agents are required to supply only genuine service parts.

B . Specifications

Model 7465

Engine	
DIN power (Kw)	87
Trademark	PERKINS EEM
Type	1106C-E60TA
Number of cylinders / Cylinder capacity	6 / 6.0 Turbo
Injection pump	Bosch VP30
Fan	Viscostatic
Intercooler	Air / air
Alternator	80 or 120 A
Transmission	
Model	DYNA VT ML160
Ranges-speeds	Continuous speed variation from 0.03 to 50 kph in forward position (speed limited to 30, 35, 40 or 50 kph depending on country) Continuous speed variation from 0.03 to 38 kph in reverse position.
Reduction ratio of bevel gear / differential	4.182
Final drive units	
Drive units	Epicyclic
Model	HA110 normal assembly HA130 reinforced assembly
Reduction ratio	HA110 7.000 HA130 8.200
Brake discs per trumpet housing	5
Parking brake	mechanical
Differential lock	multidisc
Linkage	
Stabilisers	telescopic
Perforated bar	optional
3-point linkage	Type 2 or 3, hook or ball type (*)
Clevis	standard or assisted
Automatic clevis	standard or assisted
Hitch eye bolt	eye bolt or automatic hook (*)
Swinging drawbar	standard
Roller swinging drawbar	optional
Power take-off	
540/750/1000	yes
750/1000	yes
Number of clutch discs	5
Power take-off brake	mechanical
Proportional PTO	no
Automated power take-off	optional
Front power take-off	optional

Front axle	
Model	20.19/20.19S
Type	fixed or suspended (*)
Rotational direction	anti-clockwise
Number of clutch discs	7
Swinging fender (4WD)	optional
2WD	no
Front linkage (optional)	2.5 T or 3.5 T
Hydraulics	
57 l/min Open Centre	no
100 l/min TFLS	no
110 l/min Closed Centre	yes
150 l/min Closed Centre	no
Orbitrol steering unit	OSPCON+OVR
Steering (volume)	160
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 4
Instrument panel	DCC2
Linkage calculator	EHRD
Draft sensors	2
Sensor capacity	6 T
Datatronic	Optional
Dual control (front and rear)	Optional
TIC without draft sensor	Optional
Fieldstar	Optional
Cab	
Suspension	yes
Rear view mirrors	manual (standard) or electrical (optional)
Air conditioning	manual (standard) or automatic (optional)
Standard bonnet	standard
Standard roof	standard
High-visibility roof	optional
Steep nose bonnet	no
Platform	no
Reference (*): according to country	

Model 7475

Engine	
DIN power (Kw)	98.5
Trademark	PERKINS EEM
Type	1106C-E60TA
Number of cylinders / Cylinder capacity	6 / 6.0 Turbo
Injection pump	Bosch VP30
Fan	Viscostatic
Intercooler	Air / air
Alternator	80 or 120 A
Transmission	
Model	DYNA VT
Ranges-speeds	Continuous speed variation from 0.03 to 50 kph in forward position (speed limited to 30, 35, 40 or 50 kph depending on country) Continuous speed variation from 0.03 to 38 kph in reverse position.
Reduction ration of bevel gear / differential	4.182
Final drive units	
Drive units	Epicyclic
Model	HA110 normal assembly HA130 reinforced assembly
Reduction ratio	HA110 7.000 HA130 8.200
Brake discs per trumpet housing	5
Parking brake	mechanical
Differential lock	multidisc
Linkage	
Stabilisers	telescopic
Perforated bar	optional
3-point linkage	Type 2 or 3, hook or ball type (*)
Clevis	standard or assisted
Automatic clevis	standard or assisted
Hitch eye bolt	eye bolt or automatic hook (*)
Swinging drawbar	standard
Roller swinging drawbar	optional
Power take-off	
540/750/1000	yes
750/1000	yes
Number of clutch discs	5
Power take-off brake	mechanical
Proportional PTO	no
Automated power take-off	optional
Front power take-off	optional

Front axle	
Model	20.22/20.22S
Type	fixed or suspended (*)
Rotational direction	anti-clockwise
Number of clutch discs	7
Swinging fender (4WD)	optional
2WD	no
Front linkage (optional)	2.5 T or 3.5 T
Hydraulics	
57 l/min Open Centre	no
100 l/min TFLS	no
110 l/min Closed Centre	yes
150 l/min Closed Centre	no
Orbitrol steering unit	OSPCON+OVR
Steering (volume)	160
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 4
Instrument panel	DCC2
Linkage calculator	EHRD
Draft sensors	2
Sensor capacity	6 T
Datatronic	Optional
Dual control (front and rear)	Optional
TIC without draft sensor	Optional
Fieldstar	Optional
Cab	
Suspension	yes
Rear view mirrors	manual (standard) or electrical (optional)
Air conditioning	manual (standard) or automatic (optional)
Standard bonnet	standard
Standard roof	standard
High-visibility roof	optional
Steep nose bonnet	no
Platform	no
Reference (*): according to country	

Model 7480

Engine	
DIN power (Kw)	106
Trademark	PERKINS EEM
Type	1106C-E60TA
Number of cylinders / Cylinder capacity	6 / 6.0 Turbo
Injection pump	Bosch VP30
Fan	Viscostatic
Intercooler	Air / air
Alternator	80 or 120 A
Transmission	
Model	DYNA VT
Ranges-speeds	Continuous speed variation from 0.03 to 50 kph in forward position (speed limited to 30, 35, 40 or 50 kph depending on country) Continuous speed variation from 0.03 to 38 kph in reverse position.
Reduction ration of bevel gear / differential	4.182
Final drive units	
Drive units	Epicyclic
Model	HA130
Reduction ratio	8.200
Brake discs per trumpet housing	5
Parking brake	mechanical
Differential lock	multidisc
Linkage	
Stabilisers	telescopic
Perforated bar	optional
3-point linkage	Type 2 or 3, hook or ball type (*)
Clevis	standard or assisted
Automatic clevis	standard or assisted
Hitch eye bolt	eye bolt or automatic hook (*)
Swinging drawbar	standard
Roller swinging drawbar	optional
Power take-off	
540/750/1000	yes
750/1000	yes
Number of clutch discs	5
Power take-off brake	mechanical
Proportional PTO	no
Automated power take-off	optional
Front power take-off	optional

Front axle	
Model	20.29/20.29S
Type	fixed or suspended (*)
Rotational direction	anti-clockwise
Number of clutch discs	7
Swinging fender (4WD)	optional
2WD	no
Front linkage (optional)	2.5 T or 3.5 T
Hydraulics	
57 l/min Open Centre	no
100 l/min TFLS	no
110 l/min Closed Centre	yes
150 l/min Closed Centre	no
Orbitrol steering unit	OSPCON+OVR
Steering (volume)	160
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 4
Instrument panel	DCC2
Linkage calculator	EHRD
Draft sensors	2
Sensor capacity	6 T
Datatronic	Optional
Dual control (front and rear)	Optional
TIC without draft sensor	Optional
Fieldstar	Optional
Cab	
Suspension	yes
Rear view mirrors	manual (standard) or electrical (optional)
Air conditioning	manual (standard) or automatic (optional)
Standard bonnet	standard
Standard roof	standard
High-visibility roof	optional
Steep nose bonnet	no
Platform	no
Reference (*): according to country	

Model 7485

Engine	
DIN power (Kw)	113
Trademark	SISU EEM
Type	66 ETA
Number of cylinders / Cylinder capacity	6 / 6.6 Turbo
Injection pump	Bosch VP30
Fan	Viscostatic
Intercooler	Air / air
Alternator	80 or 120 A
Transmission	
Model	DYNA VT
Ranges-speeds	Continuous speed variation from 0.03 to 50 kph in forward position (speed limited to 30, 35, 40 or 50 kph depending on country) Continuous speed variation from 0.03 to 38 kph in reverse position.
Reduction ration of bevel gear / differential	4.182
Final drive units	
Drive units	Epicyclic
Model	HA160
Reduction ratio	8.600
Brake discs per trumpet housing	4
Parking brake	mechanical
Differential lock	multidisc
Linkage	
Stabilisers	telescopic
Perforated bar	optional
3-point linkage	type 3, hook or ball type (*)
Clevis	standard or assisted
Automatic clevis	standard or assisted
Hitch eye bolt	eye bolt or automatic hook (*)
Swinging drawbar	standard
Roller swinging drawbar	optional
Power take-off	
540/750/1000	yes
750/1000	yes
Number of clutch discs	5
Power take-off brake	mechanical
Proportional PTO	no
Automated power take-off	optional
Front power take-off	optional

Front axle	
Model	20.29/20.29S
Type	fixed or suspended (*)
Rotational direction	anti-clockwise
Number of clutch discs	7
Swinging fender (4WD)	optional
2WD	no
Front linkage (optional)	2.5 T or 3.5 T
Hydraulics	
57 l/min Open Centre	no
100 l/min TFLS	no
110 l/min Closed Centre	yes
150 l/min Closed Centre	no
Orbitrol steering unit	OSPCON+OVR
Steering (volume)	160
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 4
Instrument panel	DCC2
Linkage calculator	EHRD
Draft sensors	2
Sensor capacity	9 T
Datatronic	Optional
Dual control (front and rear)	Optional
TIC without draft sensor	Optional
Fieldstar	Optional
Cab	
Suspension	yes
Rear view mirrors	manual (standard) or electrical (optional)
Air conditioning	manual (standard) or automatic (optional)
Standard bonnet	standard
Standard roof	standard
High-visibility roof	optional
Steep nose bonnet	no
Platform	no
Reference (*): according to country	

Model 7490

Engine	
DIN power (Kw)	125
Trademark	SISU EEM
Type	66 ETA
Number of cylinders / Cylinder capacity	6 / 6.6 Turbo
Injection pump	Bosch VP30
Fan	Viscostatic
Intercooler	Air / air
Alternator	120 or 150 A
Transmission	
Model	DYNA VT
Ranges-speeds	Continuous speed variation from 0.03 to 50 kph in forward position (speed limited to 30, 35, 40 or 50 kph depending on country) Continuous speed variation from 0.03 to 38 kph in reverse position.
Reduction ration of bevel gear / differential	4.182
Final drive units	
Drive units	Epicyclic
Model	HA160
Reduction ratio	8.600
Brake discs per trumpet housing	4
Parking brake	mechanical
Differential lock	multidisc
Linkage	
Stabilisers	telescopic
Perforated bar	optional
3-point linkage	type 3, hook or ball type (*)
Clevis	standard or assisted
Automatic clevis	standard or assisted
Hitch eye bolt	eye bolt or automatic hook (*)
Swinging drawbar	standard
Roller swinging drawbar	optional
Power take-off	
540/750/1000	yes
750/1000	yes
Number of clutch discs	5
Power take-off brake	mechanical
Proportional PTO	no
Automated power take-off	optional
Front power take-off	optional

Front axle	
Model	20.29/20.29S
Type	fixed or suspended (*)
Rotational direction	anti-clockwise
Number of clutch discs	7
Swinging fender (4WD)	optional
2WD	no
Front linkage (optional)	2.5 T or 3.5 T
Hydraulics	
57 l/min Open Centre	no
100 l/min TFLS	no
110 l/min Closed Centre	yes
150 l/min Closed Centre	no
Orbitrol steering unit	OSPCON+OVR
Steering (volume)	80/205
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 4
Instrument panel	DCC2
Linkage calculator	EHRD
Draft sensors	2
Sensor capacity	9 T
Datatronic	Optional
Dual control (front and rear)	Optional
TIC without draft sensor	Optional
Fieldstar	Optional
Cab	
Suspension	yes
Rear view mirrors	manual (standard) or electrical (optional)
Air conditioning	manual (standard) or automatic (optional)
Standard bonnet	standard
Standard roof	standard
High-visibility roof	optional
Steep nose bonnet	no
Platform	no
Reference (*): according to country	

Model 7495

Engine	
DIN power (Kw)	137
Trademark	SISU EEM
Type	66 ETA
Number of cylinders / Cylinder capacity	6 / 6.6 Turbo
Injection pump	Bosch VP30
Fan	Viscostatic
Intercooler	Air / air
Alternator	120 or 150 A
Transmission	
Model	DYNA VT
Ranges-speeds	Continuous speed variation from 0.03 to 50 kph in forward position (speed limited to 30, 35, 40 or 50 kph depending on country) Continuous speed variation from 0.03 to 38 kph in reverse position.
Reduction ration of bevel gear / differential	4.182
Final drive units	
Drive units	Epicyclic
Model	HA160
Reduction ratio	8.600
Brake discs per trumpet housing	4
Parking brake	mechanical
Differential lock	multidisc
Linkage	
Stabilisers	telescopic
Perforated bar	optional
3-point linkage	type 3, hook or ball type (*)
Clevis	standard or assisted
Automatic clevis	standard or assisted
Hitch eye bolt	eye bolt or automatic hook (*)
Swinging drawbar	standard
Roller swinging drawbar	optional
Power take-off	
540/750/1000	yes
750/1000	yes
Number of clutch discs	5
Power take-off brake	mechanical
Proportional PTO	no
Automated power take-off	optional
Front power take-off	optional

Front axle	
Model	20.43/20.43S
Type	fixed or suspended (*)
Rotational direction	anti-clockwise
Number of clutch discs	7
Swinging fender (4WD)	optional
2WD	no
Front linkage (optional)	2.5 T or 3.5 T
Hydraulics	
57 l/min Open Centre	no
100 l/min TFLS	no
110 l/min Closed Centre	yes
150 l/min Closed Centre	no
Orbitrol steering unit	OSPCON+OVR
Steering (volume)	80/205
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 4
Instrument panel	DCC2
Linkage calculator	EHRD
Draft sensors	2
Sensor capacity	9 T
Datatronic	Optional
Dual control (front and rear)	Optional
TIC without draft sensor	Optional
Fieldstar	Optional
Cab	
Suspension	yes
Rear view mirrors	manual (standard) or electrical (optional)
Air conditioning	manual (standard) or automatic (optional)
Standard bonnet	standard
Standard roof	standard
High-visibility roof	optional
Steep nose bonnet	no
Platform	no
Reference (*): according to country	

C . Ground speeds

Range		Forward	Reverse
Tortoise Field speeds	**kph**	**0.03 - 28**	**0.03 - 16**
	mph	**0.019 - 17.4**	**0.019 - 9.94**
Hare Road speeds	**kph**	**0.03 - 50**	**0.03 - 38**
	mph	**0.019 - 31**	**0.019 - 24**

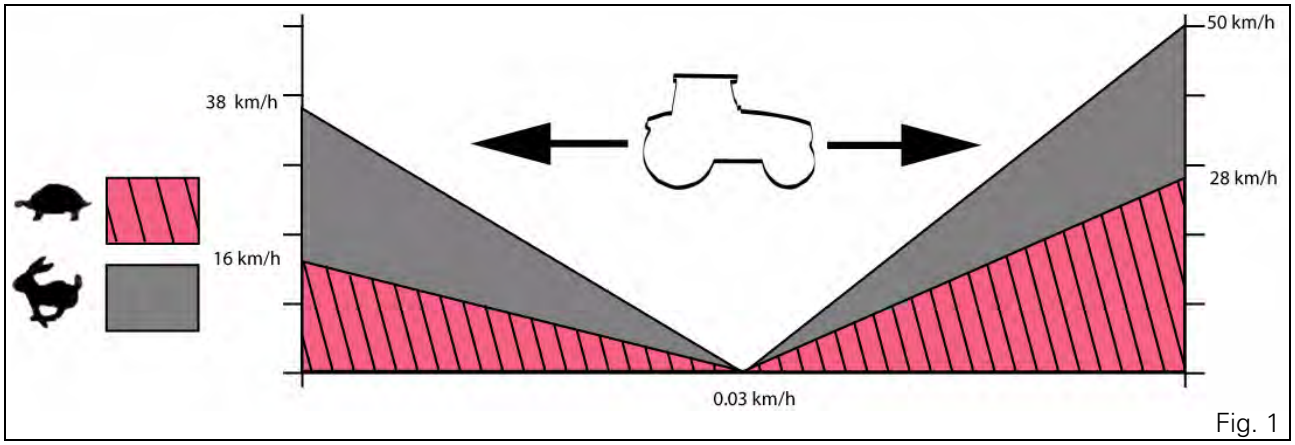


Fig. 1

Note: Speed limits comply with legislation in force in the countries concerned. Speed is limited electronically.

D . General dimensions

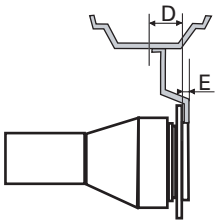
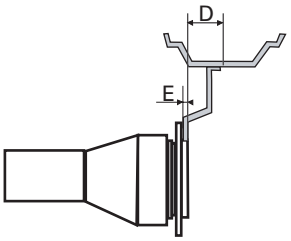
Wheels with steel flange

Different wheel tracks are abtained by changing the position of the rim in relation to the disc, or by inverting the wheels.

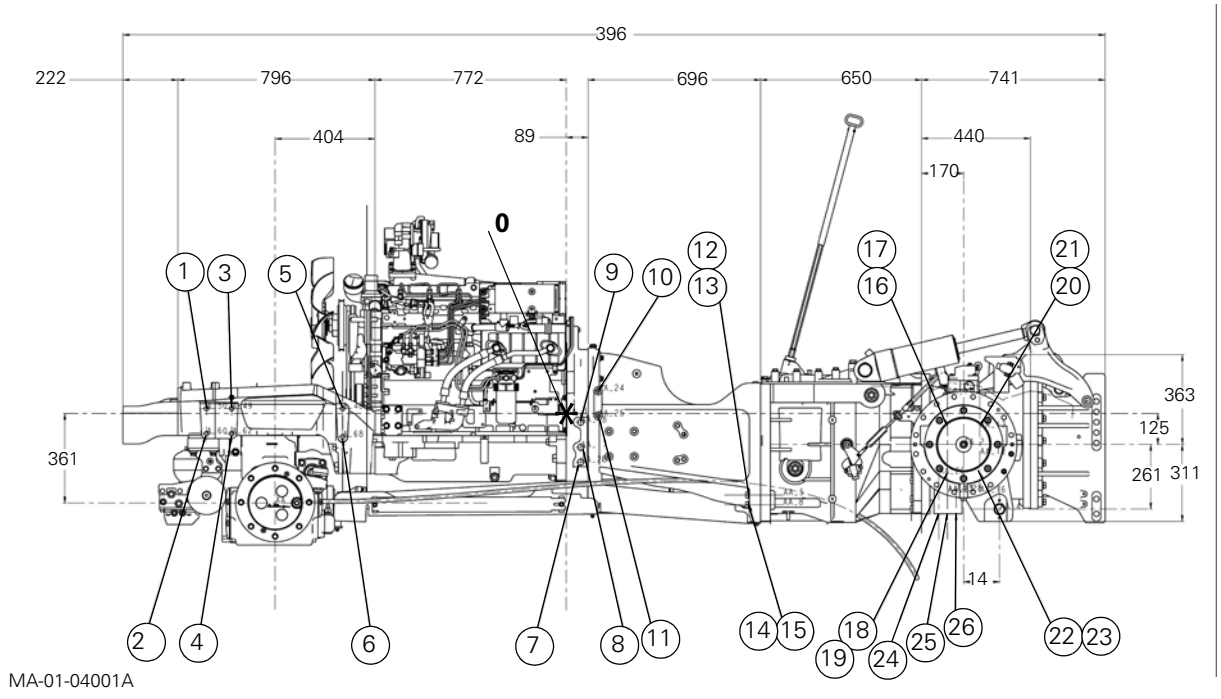
Note: Ensure sufficient clearance is maintained between the tyres and the interior of the fenders.

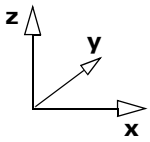
If the wheels are inverted, switch them around.

At assembly, tighten the nuts gradually to the torques indicated in the table in chapter 6.

TABLE OF REAR WHEEL TRACK VALUES (in mm)				
Transmission type				
			disc turned inwards	disc turned outwards
		Inter-flange	**D** = wheel offset (75mm) **E** = thickness of wheel disc (15mm).	
7465 7475 7480	HA110 (flange)	1716	1566	1896
	HA130 (flange)	1716	1566	1896
	HA130 (short and plain)	2469	1718	2516
	HA130 (long and plain)	2999	1718	3046
7485 7490 7495	HA160 (flange)	1840	1690	2020
	HA160 (short and plain)	2469	1718	2516
	HA160 (long and plain)	2990	1718	3046

Attachment points and dimensions for Dyna VT 7465/7475/7480 tractors

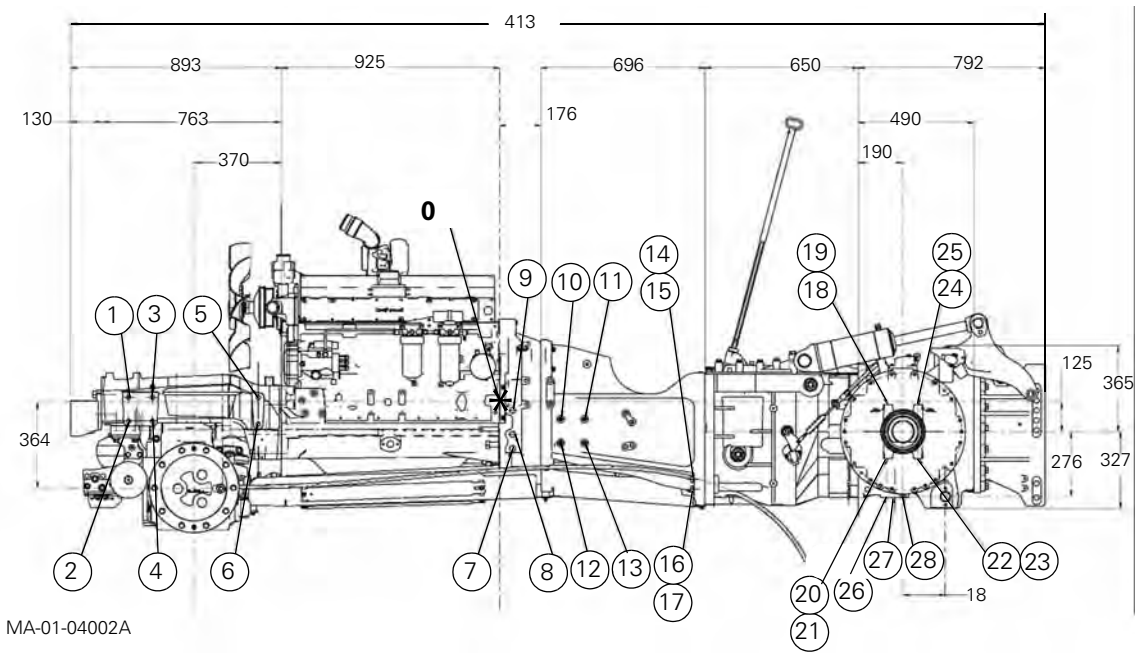


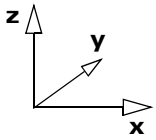


Dimensions in relation to point **0**

REFER-ENCE	DIMENSIONS (mm)				REFER-ENCE	DIMENSIONS (mm)			
0 = Engine axis		**x**	**y**	**z**	**0 = Engine axis**		**x**	**y**	**z**
1	M 20	-1452.1	+/-280	-20	14	M16	740	+/-252	-369
2	M 20	-1452.1	+/-280	81.6	15	M16	740	+/-252	-369
3	M 20	-1350.5	+/-280	-20	16	M16 ∅ 17X11	1540	+/-585	-20
4	M 20	-1350.5	+/-280	81.6	17	M16 ∅ 17X11	1540	+/-705	-20
5	M 20	-902.5	+/-275	20	18	M16 ∅ 17X36	1540	+/-595	-225
6	M 20	-902.5	+/-275	-94	19	M16 ∅ 17X36	1540	+/-675	-225
7	M 20	59	+/-274	-196.6	20	M16 ∅ 17X11	1670	+/-585	-20
8	M 20	59	+/-274	-136.6	21	M16 ∅ 17X11	1670	+/-705	-20
9	M 20	59	+/-274	-35	22	M16 ∅ 17X36	1670	+/-595	-225
10	M16	128.85	+/-274	91.7	23	M16 ∅ 17X36	1670	+/-675	-225
11	M16	128.85	+/-274	-9.9	24	M20 ∅ 20X1.5	1505	+/-150	-405
12	M16	740	+/-252	-329	25	∅ 20	1540	+/-150	-405
13	M16	740	+/-252	-329	26	M20 ∅ 20X1.5	1575	+/-150	-405

Attachment points and dimensions for Dyna VT 7485/7490/7495 tractors





Dimensions in relation to point **0**

REFER-ENCE	DIMENSIONS (mm)				REFER-ENCE	DIMENSIONS (mm)			
0 = Engine axis		**x**	**y**	**z**	**0 = Engine axis**		**x**	**y**	**z**
1	M 20	-1572.3	+/-280	-20	15	M16	834	+/-252	-328.7
2	M 20	-1572.3	+/-280	81.3	16	M16	834	+/-162	-368.7
3	M 20	-1470.7	+/-280	-20	17	M16	834	+/-252	-368.7
4	M 20	-1470.7	+/-280	81.3	18	M16 ∅ 17X11	1646.8	+/-585	-9.7
5	M 20	-1022.7	+/-275	20.3	19	M16 ∅ 17X11	1646.8	+/-705	-9.7
6	M 20	-1022.7	+/-275	-93.7	20	M16 ∅ 17X36	1646.8	+/-595	-239.7
7	M 20	56.5	+/-274	-206.3	21	M16 ∅ 17X36	1646.8	+/-675	-239.7
8	M 20	56.5	+/-274	-146.3	22	M16 ∅ 17X36	1776.8	+/-595	-239.7
9	M 20	56.5	+/-274	-44.7	23	M16 ∅ 17X36	1646.8	+/-675	-239.7
10	M16	260	+/-240	-71.7	24	M16 ∅ 17X11	1776.8	+/-585	-9.7
11	M16	361.8	+/-240	-71.7	25	M16 ∅ 17X11	1776.8	+/-705	-9.7
12	M16	260.2	+/-220	-173.3	26	M20 ∅ 21X1.5	1641.8	+/-150	-280
13	M16	361.8	+/-220	-173.3	27	∅ 20	1676.8	+/-150	-280
14	M16	834	+/-177	-328.7	28	M20 ∅ 21X1.5	1711.8	+/-150	-280

Fig. 2

E . Capacities

	Engine oil	Engine cooling	Transmission oil	Front axle	Front final drive units	Fuel tank	Additional tank	Windshield washer	Air conditioning
7465	14.5	28.5	56	fixed 6 susp 8.5	fixed 2X0.7 susp 2X0.6	270	-	4	1550
7475	14.5	28.5	56	fixed 6 susp 8.5	fixed 2X0.7 susp 2X0.6	270	-	4	1550
7480	14.5	28.5	56	fixed 6 susp 8.5	fixed 2X1.5 susp 2X1.3	270	-	4	1550
7485	20	28.5	58	fixed 6 susp 8.5	fixed 2X1.5 susp 2X1.3	380	-	4	1550
7490	20	28.5	58	fixed 6 susp 8.5	fixed 2X1.5 susp 2X1.3	380	-	4	1550
7495	20	28.5	58	fixed 6 susp 8.5	fixed 2X1.5 susp 2X1.6	380	-	4	1550
Value in litres, and in grammes for the air conditioning circuit									

F . 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

AREA		
multiply by		
mm^2	x 15	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		
mm^3	x 0.6102	in^3
in^3	x 163.87	mm^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

G . Locking compounds and sealants

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	Commercial 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.

Note:

a) Do not use too much of the compound in order to avoid locking adjacent parts.

b) Do not attempt to retighten after 5 minutes of curing, in order to avoid breaking the film of compound.

c) 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.

H . 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.

Note: 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

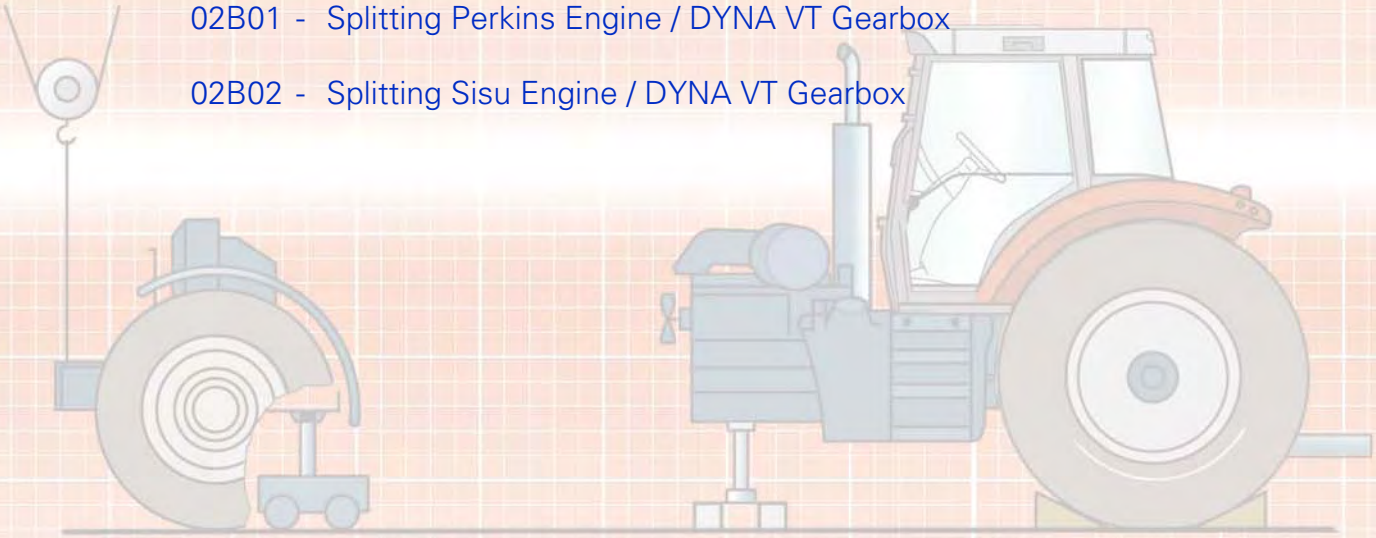
Table 4: Reduced tightening torque values. Inch-system threads

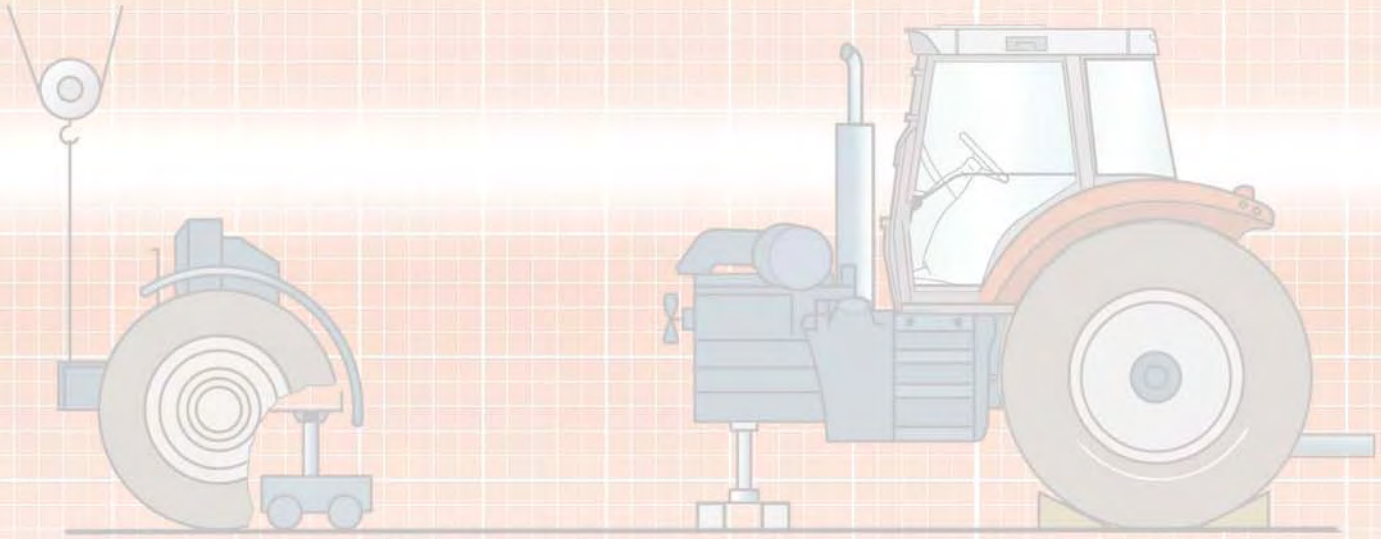
Nominal dimension d	Tensile grade		Tensile grade	
	SAE 5 (ISO 8.8, BS S)		SAE 8 (ISO 10.9, BS V)	
	Torque Nm		Torque Nm	
	Min	Max	Min	Max
#6	1.5	1.9	2	2.6
#8	2.7	3.5	3	5
#10	3.8	5	5	7.1
1/4	8.8	12	13	18
5/16	18	24	25	34
3/8	31	42	44	60
7/16	51	69	72	96
1/2	80	104	110	140
5/8	160	210	220	300
3/4	280	370	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 4WD shaft located under the engine.

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).

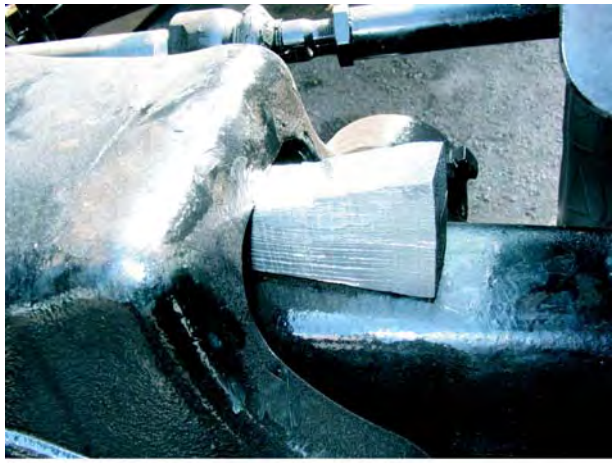


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Fig. 1

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Fig. 2

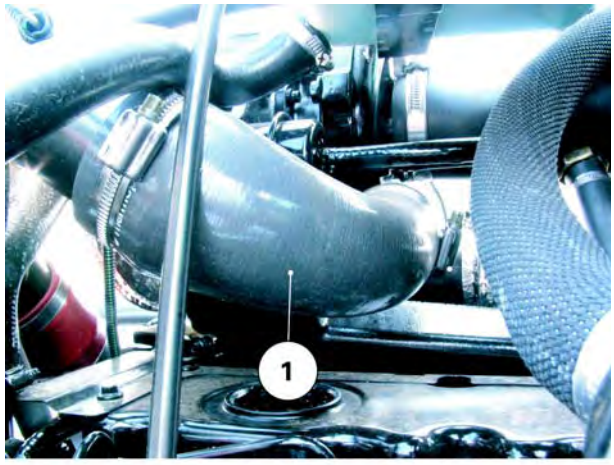

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Fig. 3

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).

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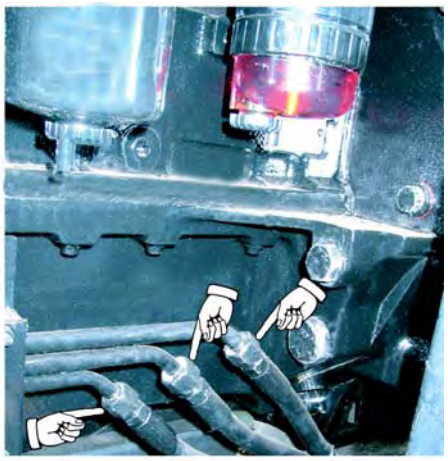
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Fig. 4

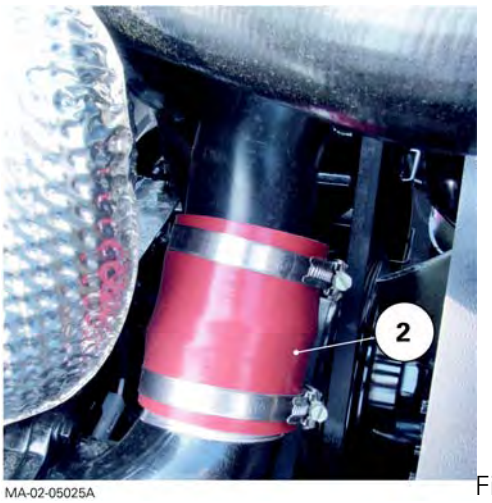

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Fig. 5

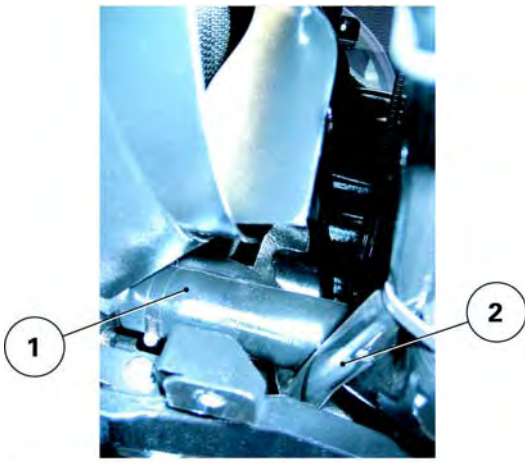

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Fig. 6

Servicing above the engine

15. Disconnect the upper radiator hose (1) (Fig. 8).

Servicing at the front of the tractor

16. Remove the weights (if fitted).

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).

18. Disconnect the air sleeves (3) (4) on the air inter-cooler located inside the grille (Fig. 7).

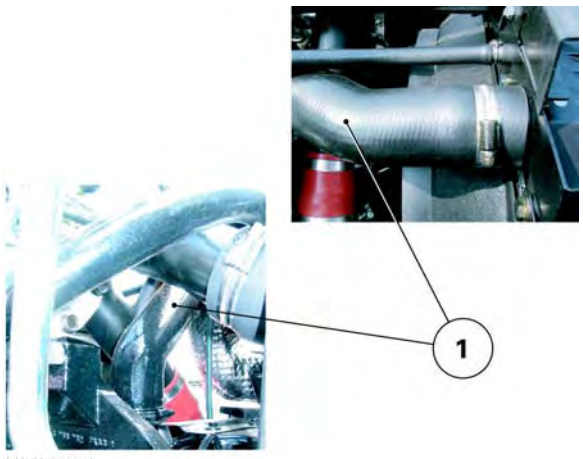

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Fig. 8

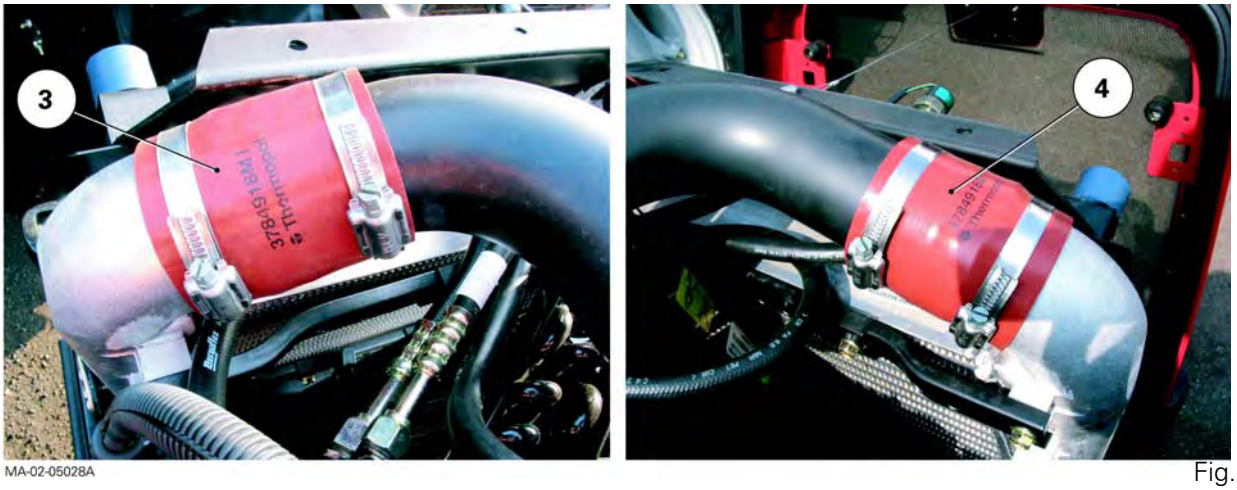

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Fig. 7

Preparing for disassembling

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

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 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.

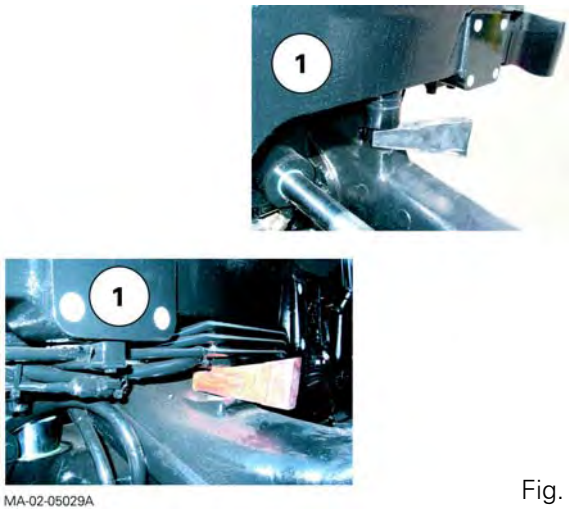

Fig. 9

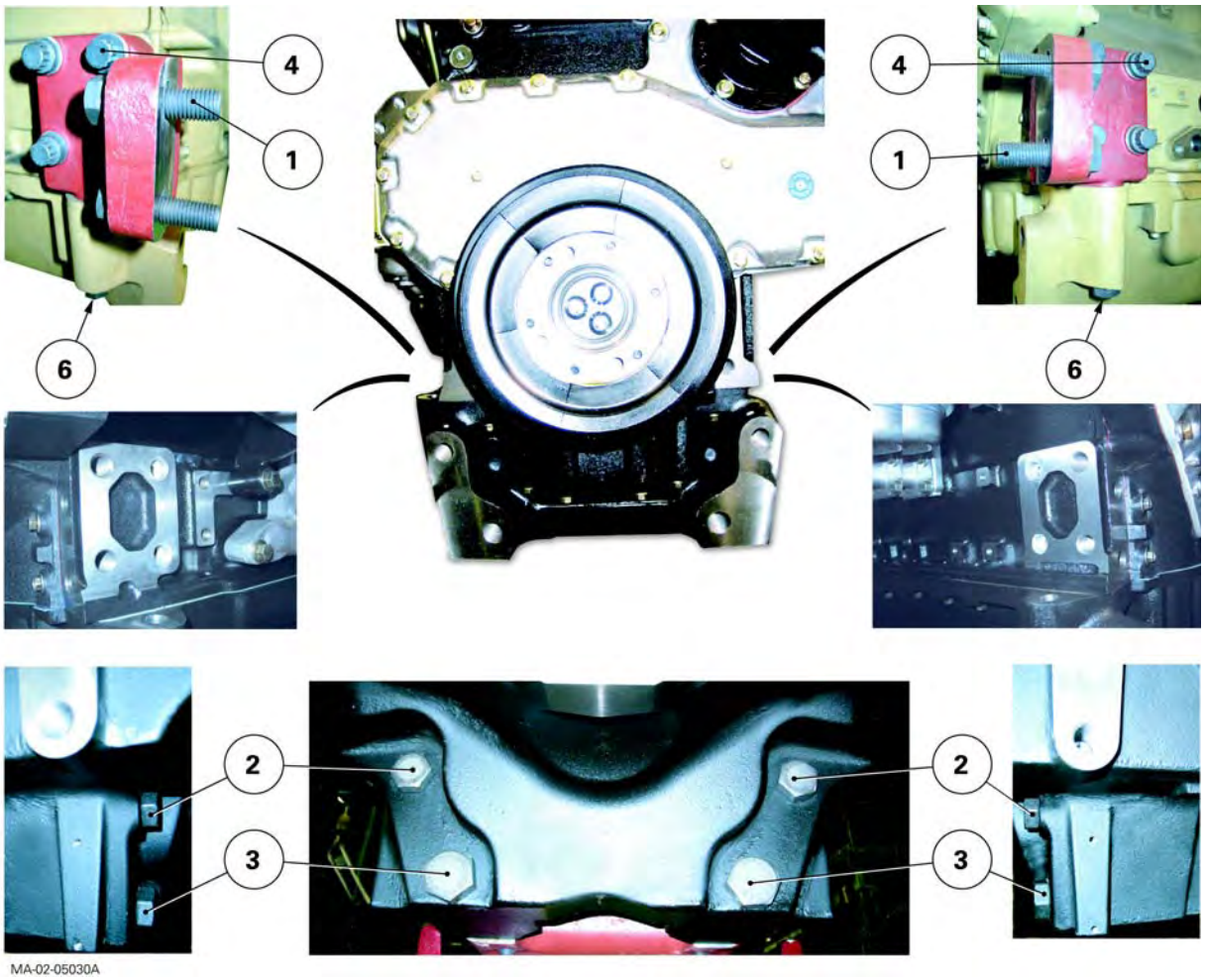

Fig. 10

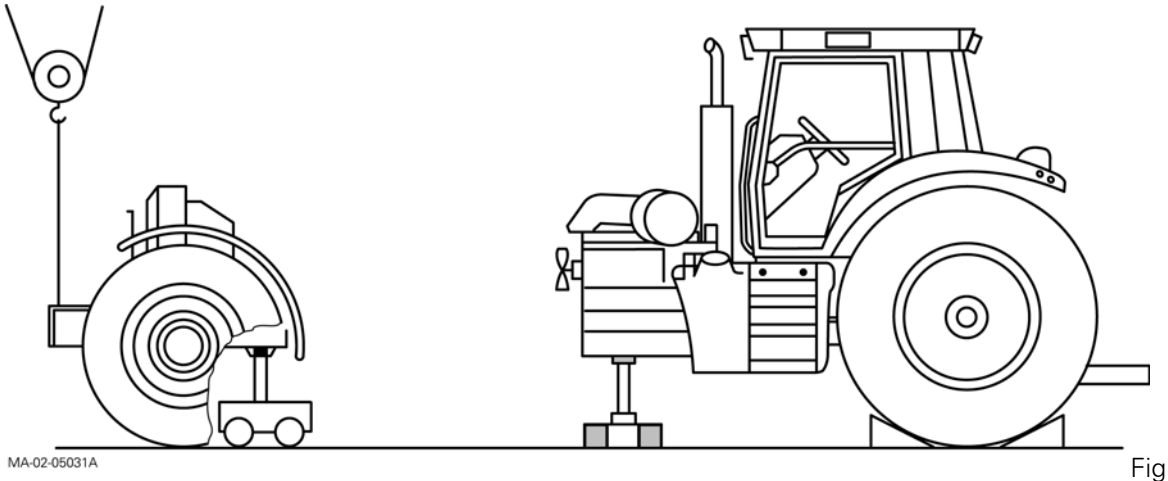

Fig. 11

Reassembling

24. 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.

25. Screw a guide stud onto each rear face of the 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. 15) 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 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).

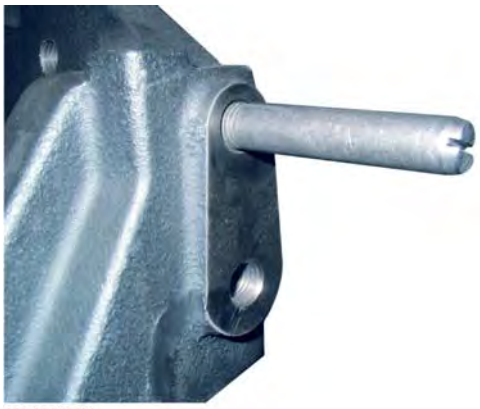

Fig. 12

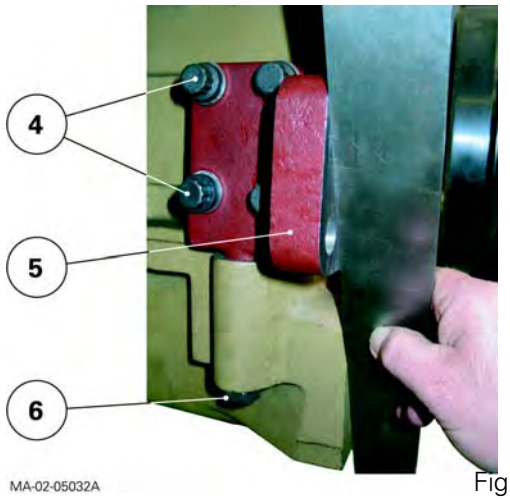

Fig. 13

Testing

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

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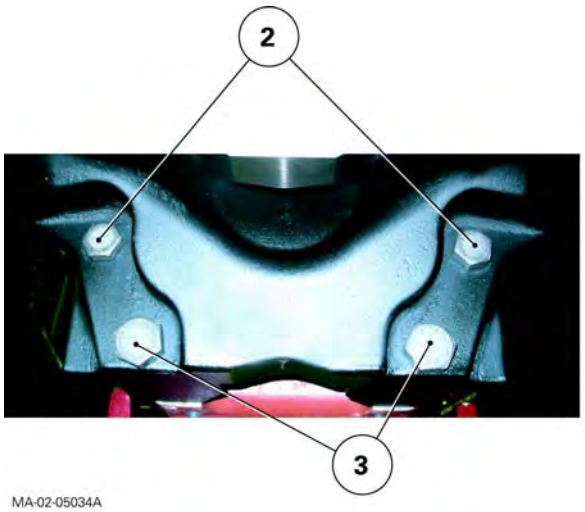
Fig. 14



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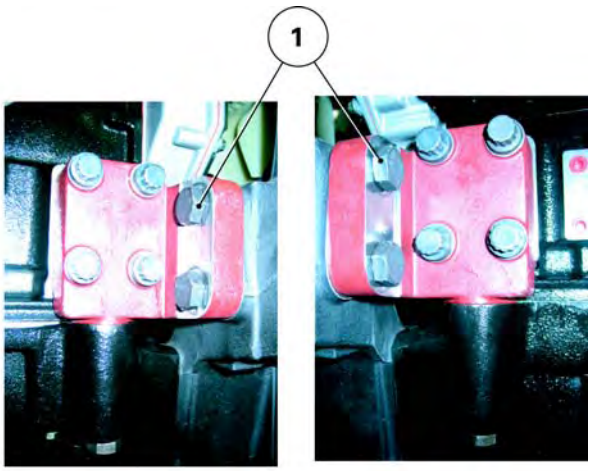


Fig. 15

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.

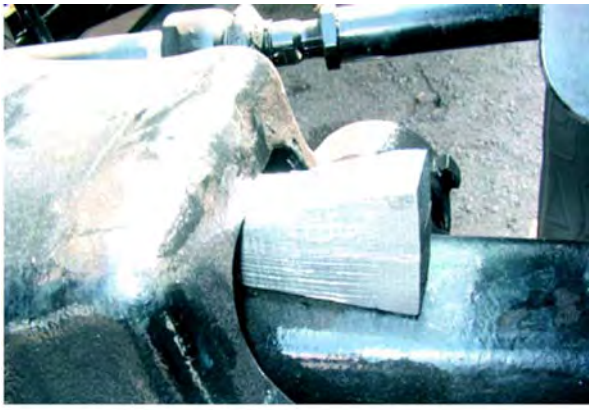
B . Disassembling

Preliminary operations

1. 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). 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.



MA-02-06031A

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.

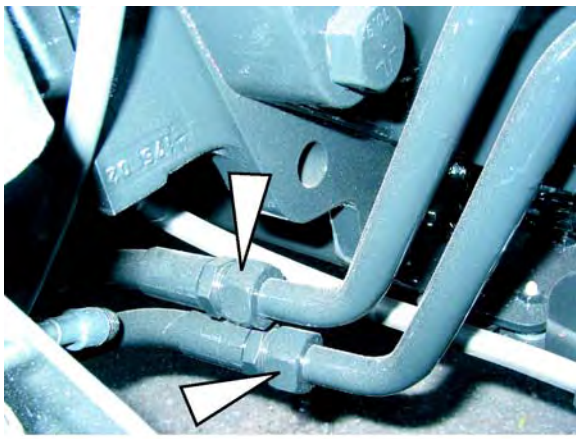


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Fig. 2

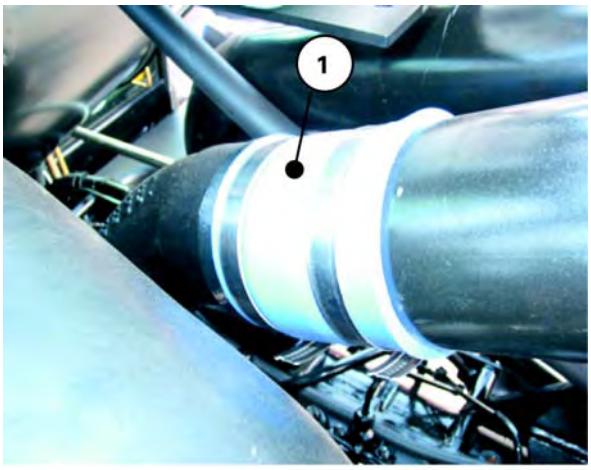

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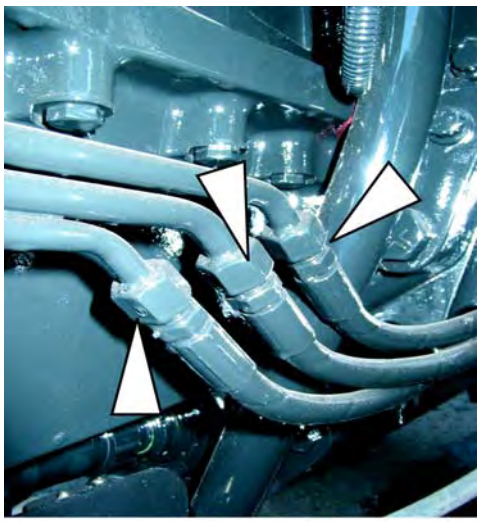
Fig. 3



MA-02-06021A

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 expel 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).

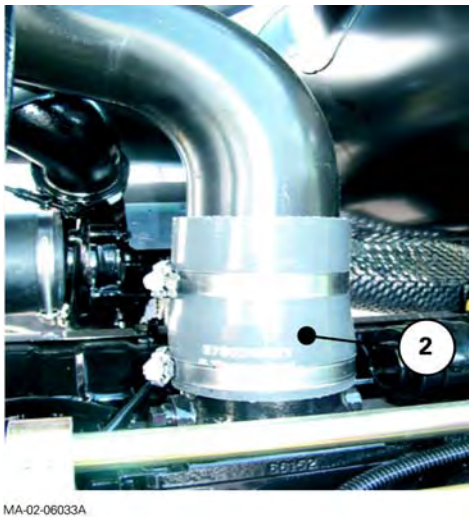


Fig. 5

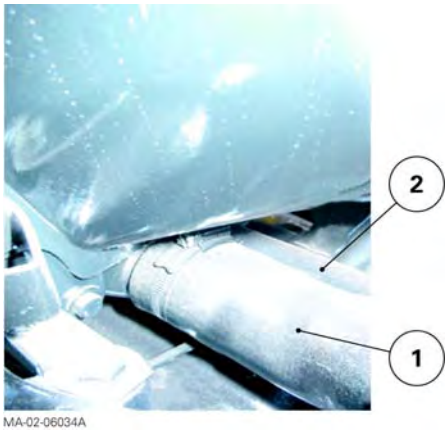


Fig. 6

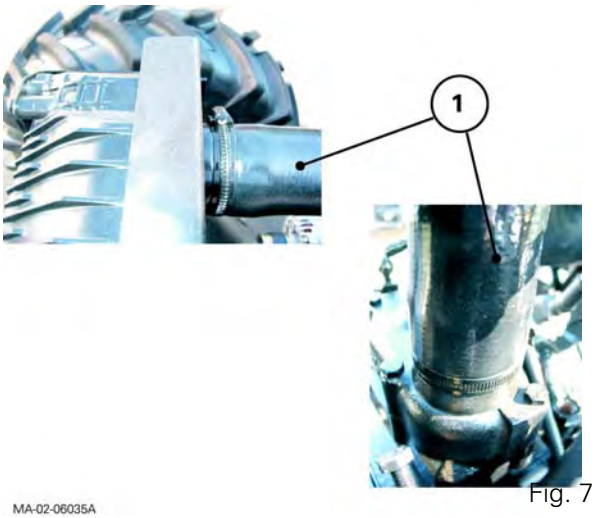


Fig. 7

18. Disconnect the air sleeves (3) (4) on the air inter-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.

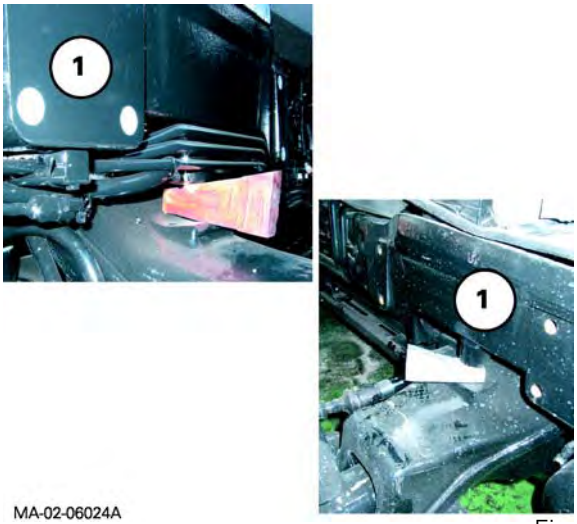


Fig. 8

Screw dimensions

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

Reminder

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

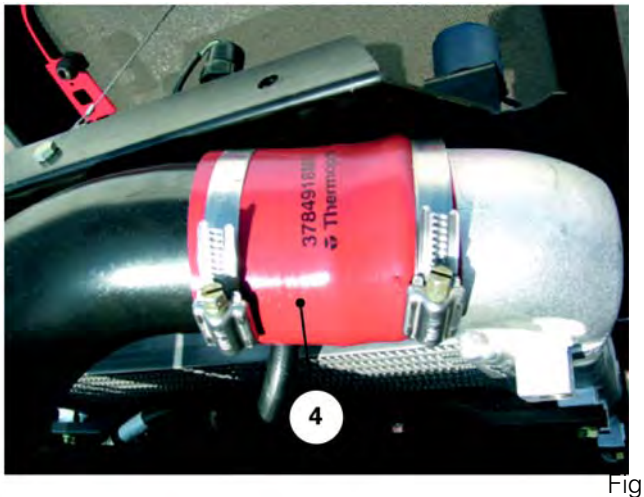


Fig. 9

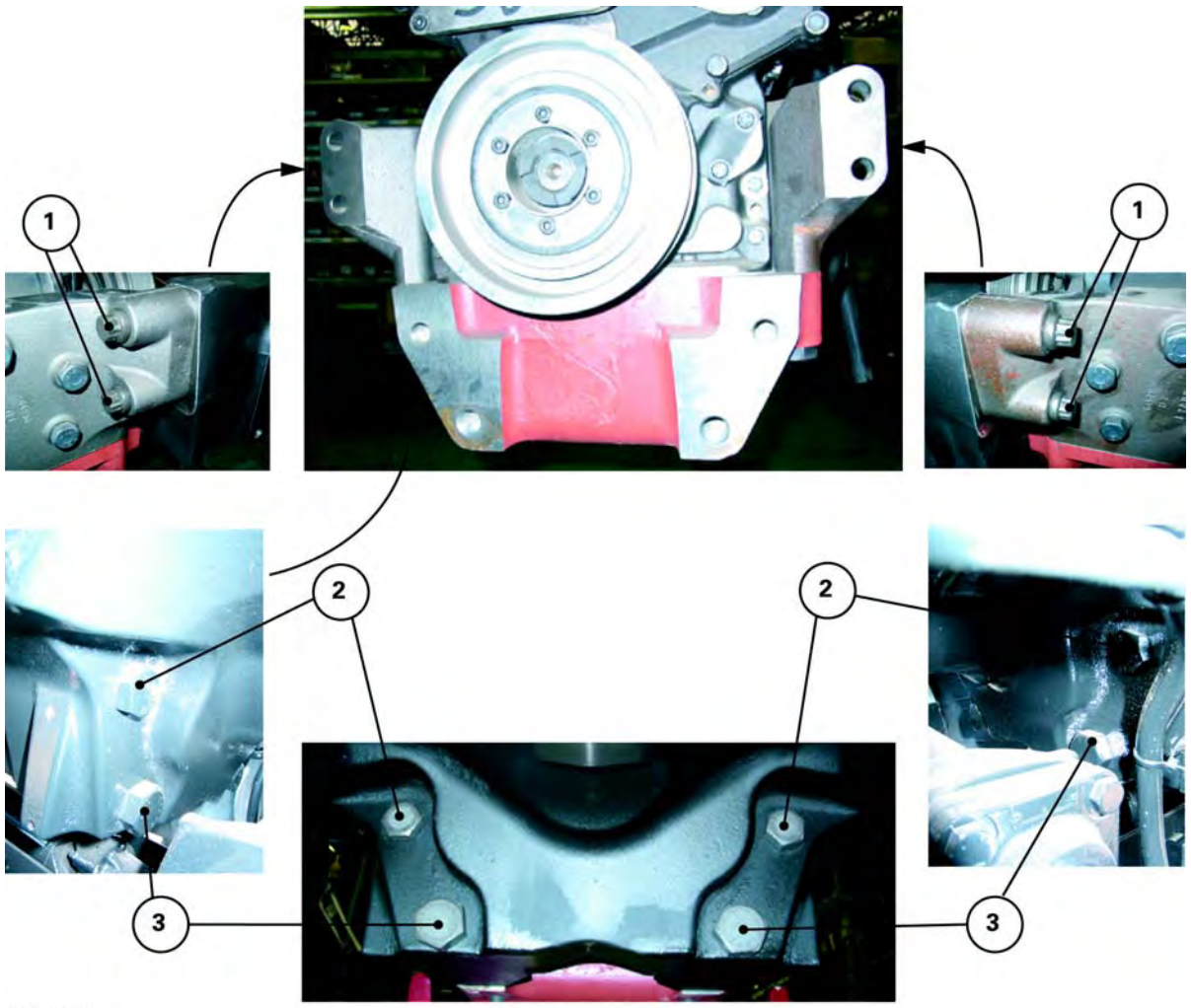


Fig. 10

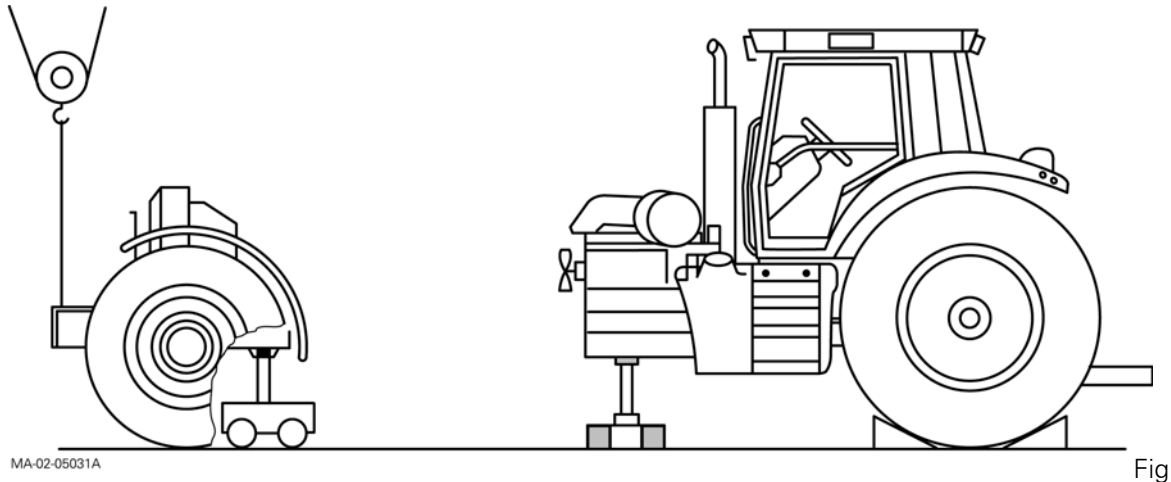


Fig. 11

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 torque

- 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 system (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

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

MA-02-06039A

Fig. 12

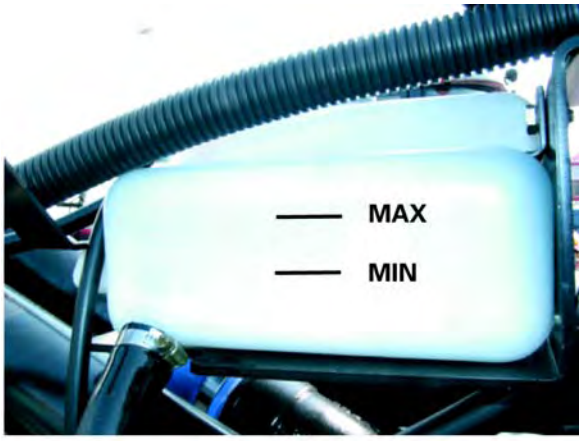


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Fig. 13

Splitting - Front frame / Sisu engine

02B01 - Splitting Perkins Engine / DYNA VT Gearbox

CONTENTS

A . General

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

Engine interface

- Engine flywheel
- Engine adapter plate

Gearbox interface

- Spacer and sealing ring
- Internal hydraulic pipes

NOTE:

- *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 (6-cylinder Perkins 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 (4WD 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).

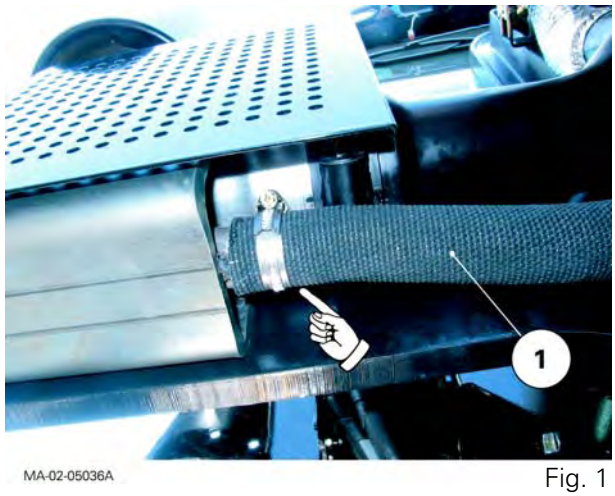

Fig. 1

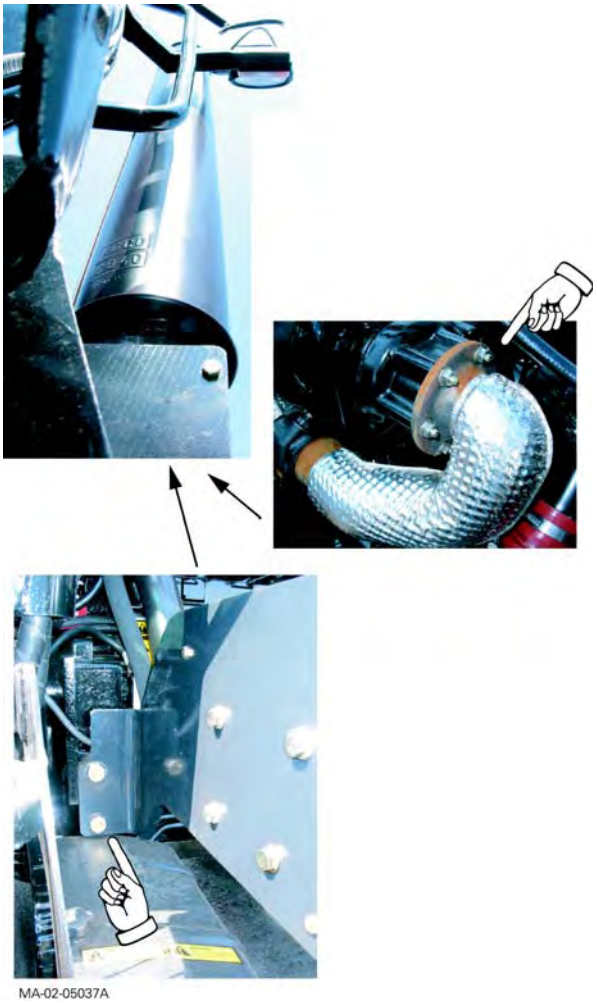

Fig. 2

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).

***NOTE**: 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.

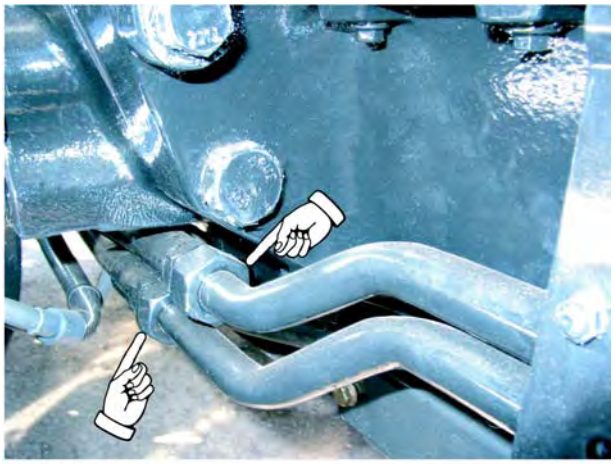

Fig. 3

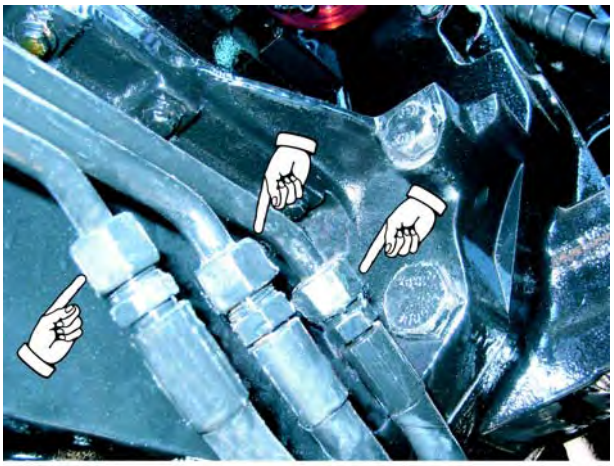

Fig. 4

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).

Servicing at the front of the cab

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

Preparing for disassembly

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:

- 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.

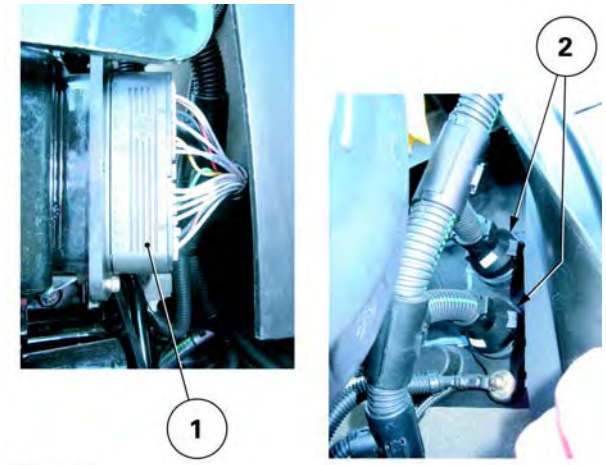

Fig. 5

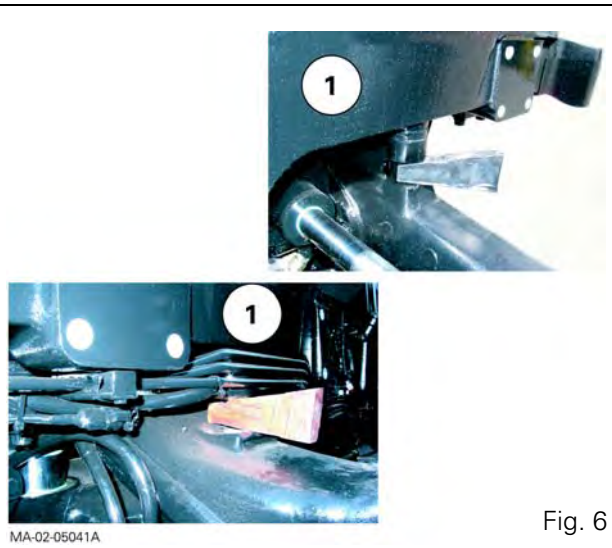

Fig. 6

Disassembly

21. Remove the screws and nuts attaching the engine to the gearbox (Fig. 7). Mark their lengths and positionings.

22. With the help of an operator, separate the assemblies.

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 160 mm

Studs

- M12 x 185 mm
- M22 x 160 mm

Nuts

- M12
- M22

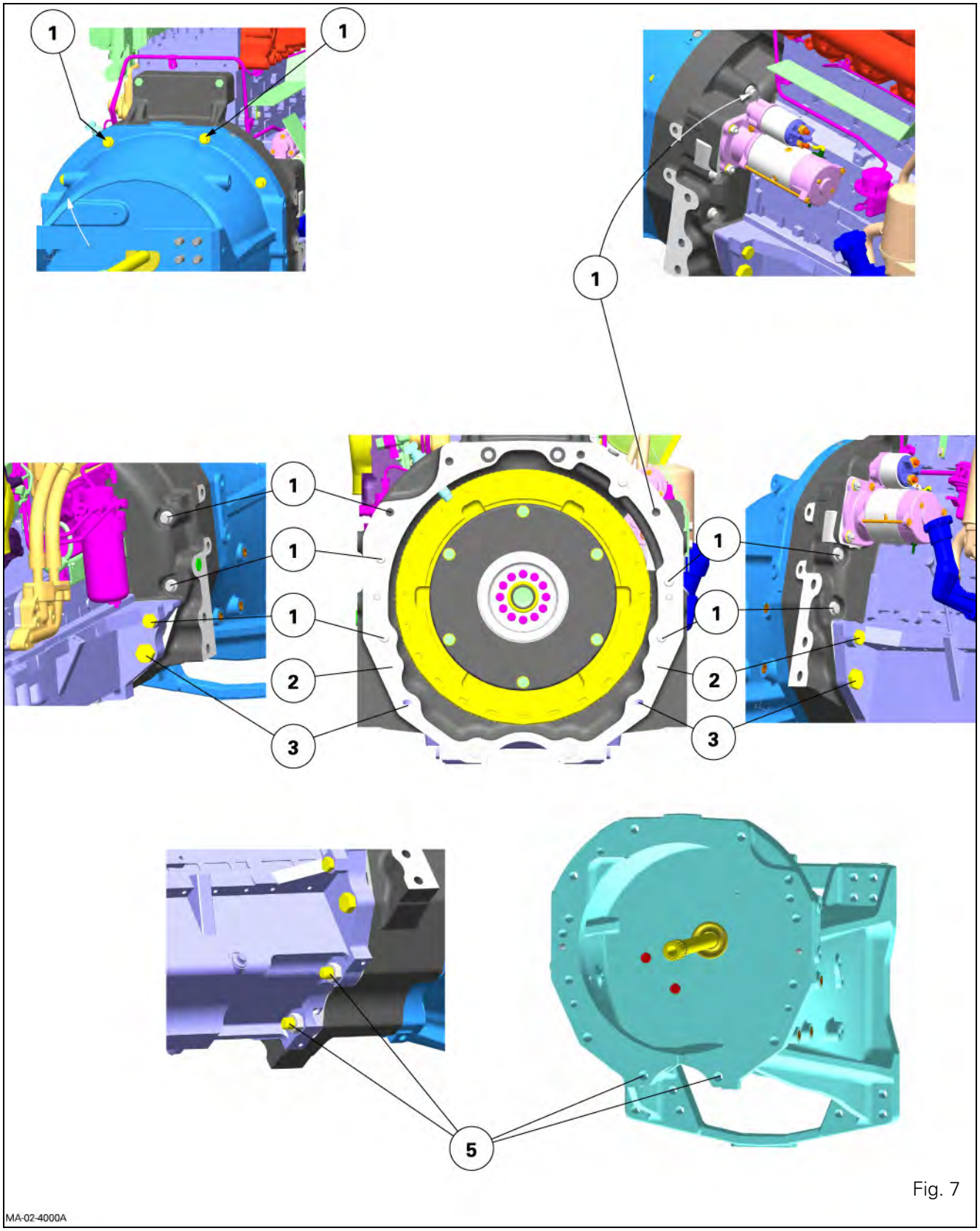

Fig. 7

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. 8),
- the tightness of the lower studs (M22) on the gearbox spacer (Loctite 270).

25. Lightly lubricate the splines of main shaft (1) (Fig. 9) 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.

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. 10):

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

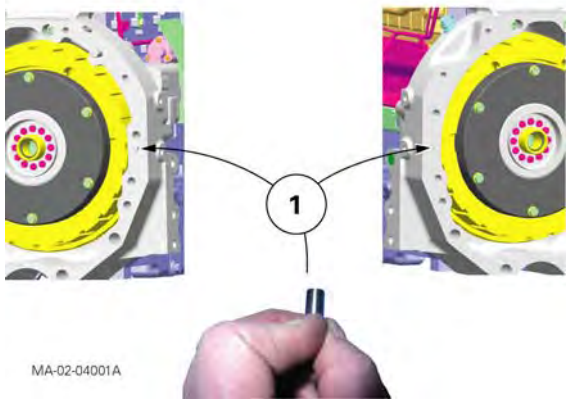

Fig. 8

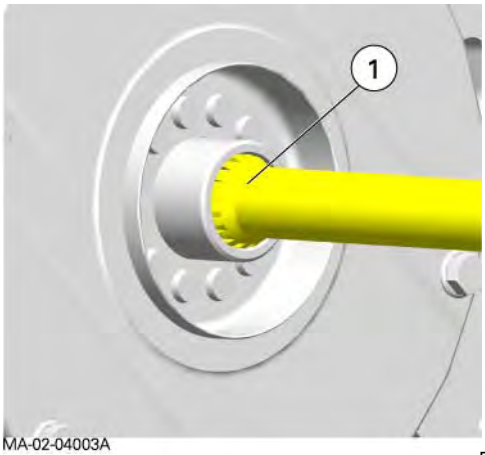

Fig. 9

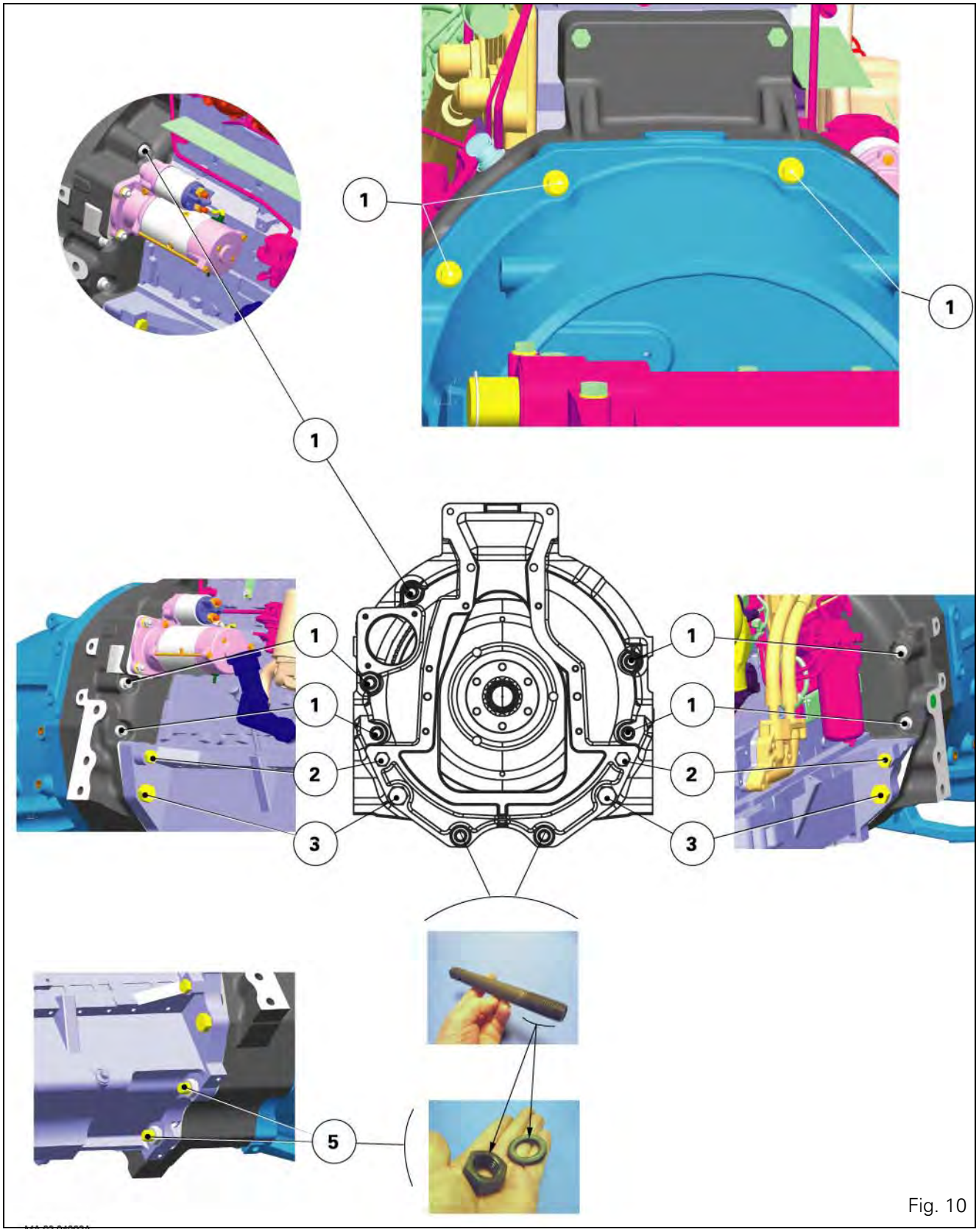

Fig. 10