

Engine - Remove

LM 5.25

NA --- WE

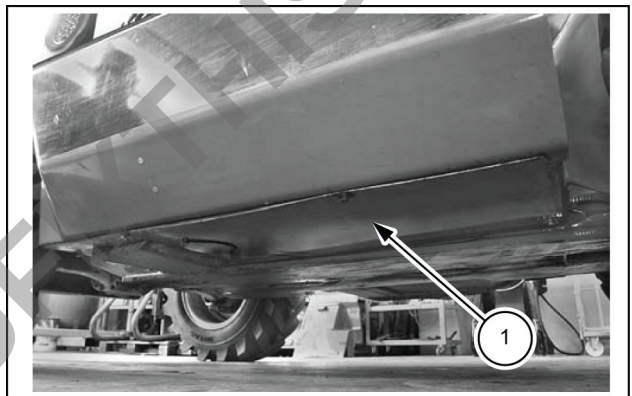
Position the machine on a flat surface. Raise completely the boom. Lock the boom with the safety device. Position the battery master switch to OFF position. Remove the key switch.

1. Remove the engine hood. Refer to **Engine hood - Remove (90.105)**



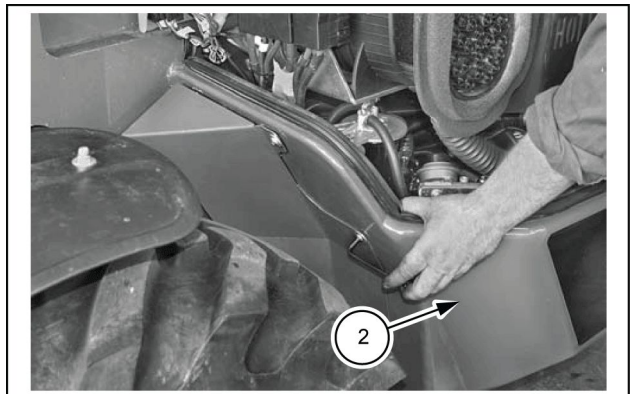
LEIL14TLH0771AA 1

2. Remove the lower protective cover (1)
3. Drain the cooling system (quantity **12.0 L (3.2 US gal)**)
4. Drain the hydraulic oil (quantity **92.0 L (24.3 US gal)**).



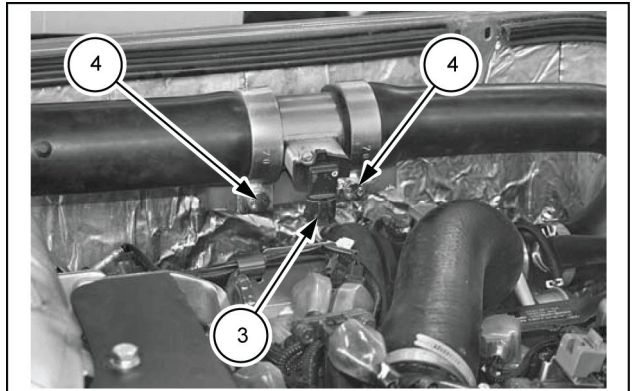
LEIL14TLH0777AB 2

5. Remove the rear cover (2).



LEIL14TLH0778AB 3

6. Disconnect the connector of the air pressure sensor (3) X746. Remove the screws (4) of the clamps.



LEIL14TLH0779AB 4

INTRODUCTION

Bolts with fine pitch

A. Friction coefficient

B. Preload (N)

C. Fastening torque (Nm)

		4.8		5.8		6.8		8.8		10.9		12.9	
		A	B	C	B	C	B	C	B	C	B	C	
M8	0.10	9798.1	10.87	12247.6	13.59	14697.1	16.31	19596.1	21.75	27557.1	30.58	33068.5	36.70
	0.14	9079.5	13.53	11349.4	16.91	13619.3	20.29	18159.1	27.05	25536.2	38.04	30643.4	45.65
M10	0.10	15296.9	21.13	19121.1	26.41	22945.3	31.69	30593.8	42.25	43022.5	59.42	51627.0	71.30
	0.14	14175.0	26.27	17718.8	32.84	21262.6	39.41	28350.1	52.55	39867.3	73.89	47840.8	88.67
M10	0.10	16383.6	22.12	20479.5	27.66	24575.4	33.19	32767.2	44.25	46078.8	62.23	55294.6	74.67
	0.14	15221.6	27.80	19027.0	34.75	22832.5	41.70	30443.3	55.61	42810.8	78.20	51373.0	93.84
M12	0.10	22020.7	35.83	27525.9	44.79	33031.0	53.75	44041.4	71.67	61933.2	100.78	74319.8	120.94
	0.14	20405.8	44.53	25507.2	55.66	30608.7	66.79	40811.6	89.06	57391.3	125.24	68869.5	150.29
M12	0.10	23333.7	37.26	29167.1	46.57	35000.6	55.88	46667.4	74.51	65626.1	104.78	78751.3	125.74
	0.14	21669.2	46.70	27086.5	58.38	32503.8	70.06	43338.4	93.41	60944.6	131.36	73133.5	157.63
M14	0.10	31610.0	59.04	39512.5	73.80	47415.0	88.57	63220.0	118.09	88903.1	166.06	106683.7	199.27
	0.14	29345.9	73.92	36682.4	92.40	44018.9	110.89	58691.9	147.85	82535.4	207.91	99042.5	249.49
M16	0.10	42581.3	89.78	53226.6	112.23	63871.9	134.67	85162.5	179.56	119759.8	252.51	143711.8	303.02
	0.14	39587.8	113.06	49484.7	141.32	59381.6	169.59	79175.5	226.12	111340.6	317.98	133608.7	381.57
M18	0.10	51457.2	124.03	64321.5	155.03	77185.8	186.04	102914.4	248.06	144723.3	348.83	173668.0	418.59
	0.14	47751.7	155.02	59689.6	193.78	71627.5	232.53	95503.3	310.05	134301.6	436.00	161161.9	523.20
M18	0.10	55415.1	130.17	69268.9	162.72	83122.7	195.26	110830.3	260.35	155855.1	366.12	187026.1	439.34
	0.14	51577.6	164.67	64472.0	205.84	77366.4	247.01	103155.2	329.35	145062.1	463.15	174074.5	555.77
M20	0.10	65534.1	173.72	81917.7	217.16	98301.2	260.59	131068.3	347.45	184314.8	488.60	221177.8	586.32
	0.14	60886.2	218.17	76107.8	272.71	91329.3	327.26	121772.4	436.34	171242.5	613.61	205491.0	736.33
M20	0.10	70114.7	181.58	87643.3	226.97	105172.0	272.36	140229.3	363.15	197197.5	51.68	236637.0	612.82
	0.14	65319.1	230.55	81648.8	288.19	97978.6	345.82	130638.1	461.10	183709.9	648.42	220451.9	778.10
M22	0.10	81220.8	236.88	101526.0	296.10	121831.2	355.32	162441.5	473.76	228433.4	666.23	274120.1	799.48
	0.14	75533.9	298.75	94417.4	373.43	113300.9	448.12	151067.8	597.49	212439.1	840.22	254927.0	1008.27
M22	0.10	86164.2	246.02	107705.3	307.53	129246.4	369.04	172328.5	492.05	242337.0	691.94	290804.3	830.33
	0.14	80331.8	313.41	100414.7	391.76	120497.7	470.11	160663.6	626.82	225933.2	881.46	271119.8	1057.75
M24	0.10	98515.6	308.56	123144.5	385.70	147773.4	462.84	197031.1	617.12	277075.0	867.83	332490.0	1041.40
	0.14	91693.3	390.33	114616.6	487.92	137539.9	585.50	183386.5	780.67	257887.3	1097.82	309464.8	1317.38
M22	0.10	104079.4	319.62	130099.2	399.52	156119.0	479.43	208151.7	639.23	292723.2	898.92	351267.9	1878.71
	0.14	97096.0	408.12	121370.1	510.15	145644.1	612.18	194192.1	816.24	273082.6	1147.84	327699.1	1377.41
M27	0.10	127922.3	448.43	159902.9	560.54	191883.5	627.65	255844.7	896.87	359781.6	1261.22	431737.9	1513.46
	0.14	119185.0	569.67	148981.3	712.09	178777.5	854.51	238370.1	1139.34	335207.9	1602.20	402249.5	1922.64
M30	0.10	16817.5	623.80	201021.8	779.75	241226.2	935.70	321635.0	1247.60	452299.2	1754.43	542759.0	2105.32
	0.14	149957.0	795.14	187446.3	993.93	224935.5	1192.72	299914.0	1590.29	421754.2	2236.34	506105.0	2683.61

Engine - Service instruction

LM 5.25

NA --- WE

See the engine manual to perform maintenance on the engine.

- For fuel filter **(2)** replacement and for fuel prefilter **(3)** replacement: refer to the engine manual.
- For engine oil filter **(4)** replacement: refer to the engine manual.
- To do the inspection and adjustment of the belt **(1)**: check that the belt has no tears, cracks or signs of rubbing; if in doubt, install a new belt.

Make sure the belt fits properly on the pulleys and the tensioner works correctly.

NOTICE: If the belt does not seem to be in good conditions, replace it with a new one.

- To do the check and the refill of the engine oil: check the oil level positioning the machine in a flat ground and switch off the engine.

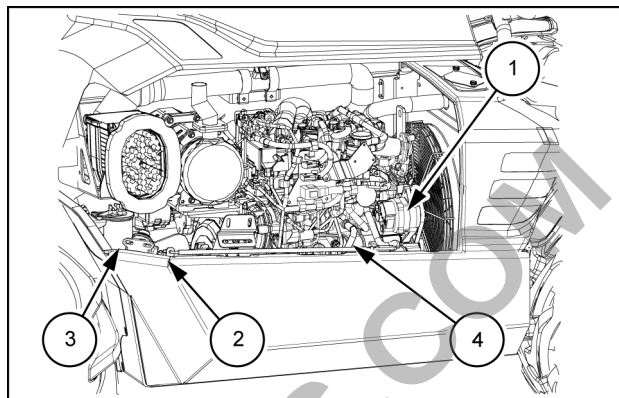
Wait at least 5 minute, to allow the oil to set in the sump. Take out the dipstick **(1)**, clean it and put it all the way back in.

Remove the dipstick again and check that the oil level is between the "MIN" and "MAX" notches. Insert the dipstick again.

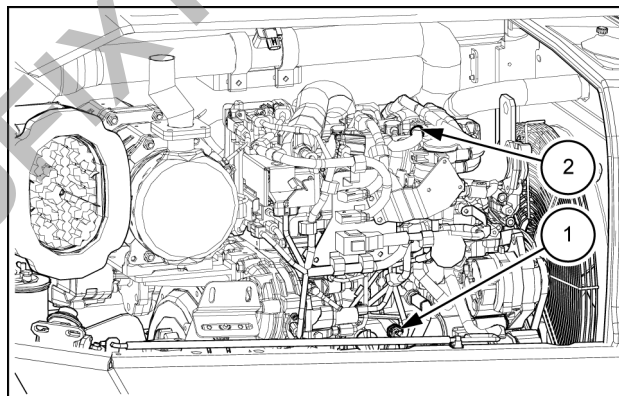
If necessary, add oil **NEW HOLLAND AMBRA UNITEK 10W-40** through the cap **(2)**.

NOTICE: Do not top-up above the "MAX" notch. If topped up excessively, the oil is burnt and smoke is produced.

NOTICE: Never use the engine if the oil is below the "MIN" notch.



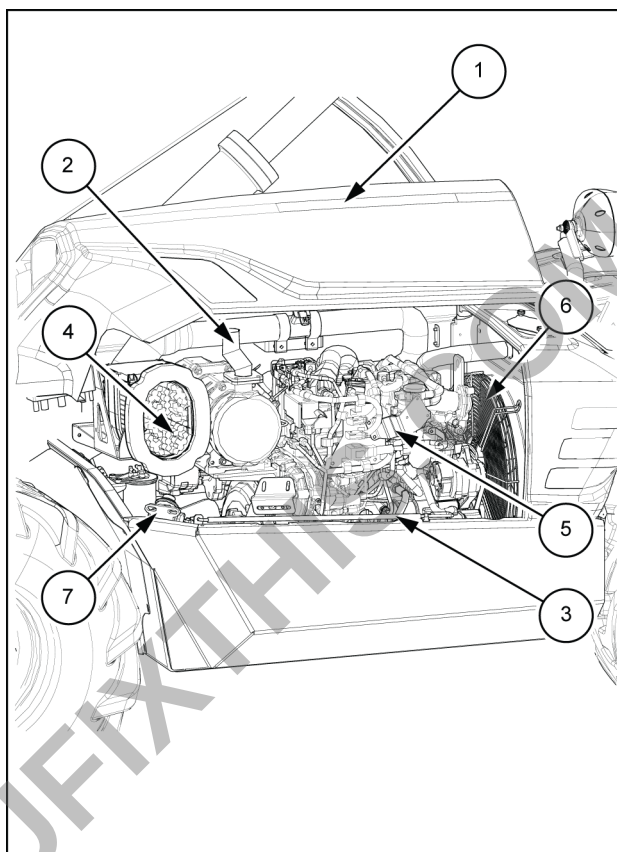
LEIL14TLH0379AB 1



LEIL14TLH0380AB 2

Engine bonnet interior

1. Engine bonnet
2. Muffler
3. Safety rod
4. Air filter
5. Engine
6. Radiator
7. Engine Control Unit



LEIL14TLH0307BB 6

Foreword - Ecology and the environment

LM 5.25	NA --- WE
LM 6.28	NA --- WE

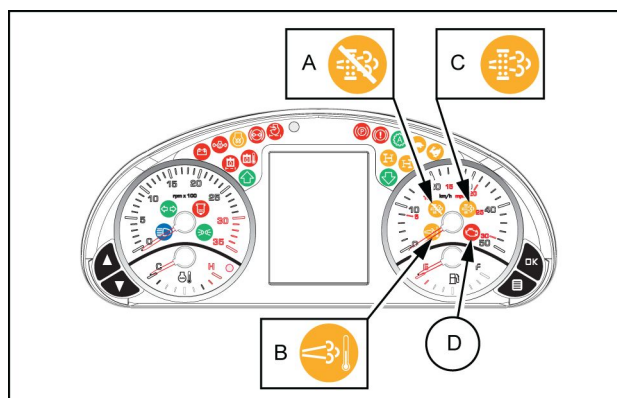
Soil, air, and water are vital factors of agriculture and life in general. When legislation does not yet rule the treatment of some of the substances required by advanced technology, sound judgment should govern the use and disposal of products of a chemical and petrochemical nature.

NOTE: *The following are recommendations that may be of assistance:*

- Become acquainted with and ensure that you understand the relative legislation applicable to your country.
- Where no legislation exists, obtain information from suppliers of oils, filters, batteries, fuels, antifreeze, cleaning agents, etc., with regard to their effect on man and nature and how to safely store, use, and dispose of these substances.
- Agricultural consultants will, in many cases, be able to help you as well.

Helpful hints

- Avoid filling tanks using cans or inappropriate pressurized fuel delivery systems that may cause considerable spillage.
- In general, avoid skin contact with all fuels, oils, acids, solvents, etc. Most of them contain substances that may be harmful to your health.
- Modern oils contain additives. Do not burn contaminated fuels and or waste oils in ordinary heating systems.
- Avoid spillage when draining off used engine coolant mixtures, engine, gearbox and hydraulic oils, brake fluids, etc. Do not mix drained brake fluids or fuels with lubricants. Store them safely until they can be disposed of in a proper way to comply with local legislation and available resources.
- Modern coolant mixtures, i.e. antifreeze and other additives, should be replaced every two years. They should not be allowed to get into the soil, but should be collected and disposed of properly.
- Do not open the air-conditioning system yourself. It contains gases that should not be released into the atmosphere. Your NEW HOLLAND dealer or air conditioning specialist has a special extractor for this purpose and will have to recharge the system properly.
- Repair any leaks or defects in the engine cooling or hydraulic system immediately.
- Do not increase the pressure in a pressurized circuit as this may lead to a component failure.
- Protect hoses during welding as penetrating weld splatter may burn a hole or weaken them, allowing the loss of oils, coolant, etc.

DPF warning lights conditions

LEIL14TLH0419AB 4

Warning light	A	B	C	D	Regeneration
Level 0: only passive regeneration					
Very low	ON	OFF	OFF	OFF	Not required
	OFF	OFF	OFF	OFF	Not required
Level 1: active regeneration					
Low	ON	OFF	ON	OFF	Automatic active regeneration required
	OFF	ON	ON	OFF	Waiting for optimal conditions to run automatic regeneration
Level 2: active of forced regeneration					
Medium	ON	OFF	Flashing	OFF	Automatic active regeneration required / Forced regeneration required
	ON	ON	Flashing	OFF	Automatic active regeneration in progress
	OFF	ON	ON	OFF	Forced regeneration in progress
Level 3: engine in de-rating					
Medium/high	ON	OFF	Flashing	ON Engine error 003 701.15	Forced regeneration required
	OFF	ON	ON	ON Engine error 003 701.15	Forced regeneration in progress
Level 4: engine in de-rating					
High	ON	OFF	Flashing	ON Engine error 003 701.16	Contact the assistance service for regeneration
	OFF	ON	ON	ON Engine error 003 701.16	Contact the assistance service for regeneration
Level 5: engine down					
Very high	ON	OFF	Flashing	ON Engine error 003 701.00	Contact the assistance service to change the filter
	OFF	OFF	Flashing	ON Engine error 003 701.00	Contact the assistance service to change the filter

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Basic instructions - How to use the maintenance standard and precautions

LM 5.25	NA --- WE
LM 6.28	NA --- WE

Application

WHEN THE MACHINE IS NEW

Confirm that the performances are in accordance with standard specifications as compared to the performance standards.

AT SPECIFIC SELF INSPECTION (RULE BY COUNTRY)

Use the data for the criterion, for the purpose of correction, adjustment and replacement.

WHEN PERFORMANCES ARE DETERIORATED

Determine whether it is caused by a fault or end of service life after long hours of operation, to be used for safety and economical considerations.

WHEN MAIN COMPONENTS ARE REPLACED

For example, use data to restore performances of pumps and others.

Terminology

STANDARD VALUES

Values to be used to condition or assemble a new machine. Where special notes are not given, these values represent standard specifications (machine with standard attachments and standard shoes).

REFERENCE VALUES FOR REMEDY

Values at which readjustment is required. In order to ensure performance and safety it is strictly prohibited to use the machine over the specified values.

SERVICE LIMIT

This is the limit value at which reconditioning is impossible without replacement of parts. If the value is expected to exceed the service limit before next inspection and correction are performed, replace the parts immediately. The operation over the specified values causes increase of damage and requires the down time of machine, and also causes safety problems.

Cautions to be exercised at judgment

EVALUATION OF MEASURED DATA

Disagreement of measuring conditions, variations of data peculiar to a new machine, and measuring errors are to be evaluated. Determine generally at what levels measured values are located, instead of determining whether or not values fall within or run out of the reference values.

DETERMINING CORRECTION, ADJUSTMENT OR REPLACEMENT

Machine performances deteriorate with time as parts wear and some deteriorated performances may be restored to new levels. Therefore, determine correction, adjustment or replacement, depending upon the operating hours, kind of work and circumstances in which the machine is placed, and condition the machine performances to its most desirable levels.

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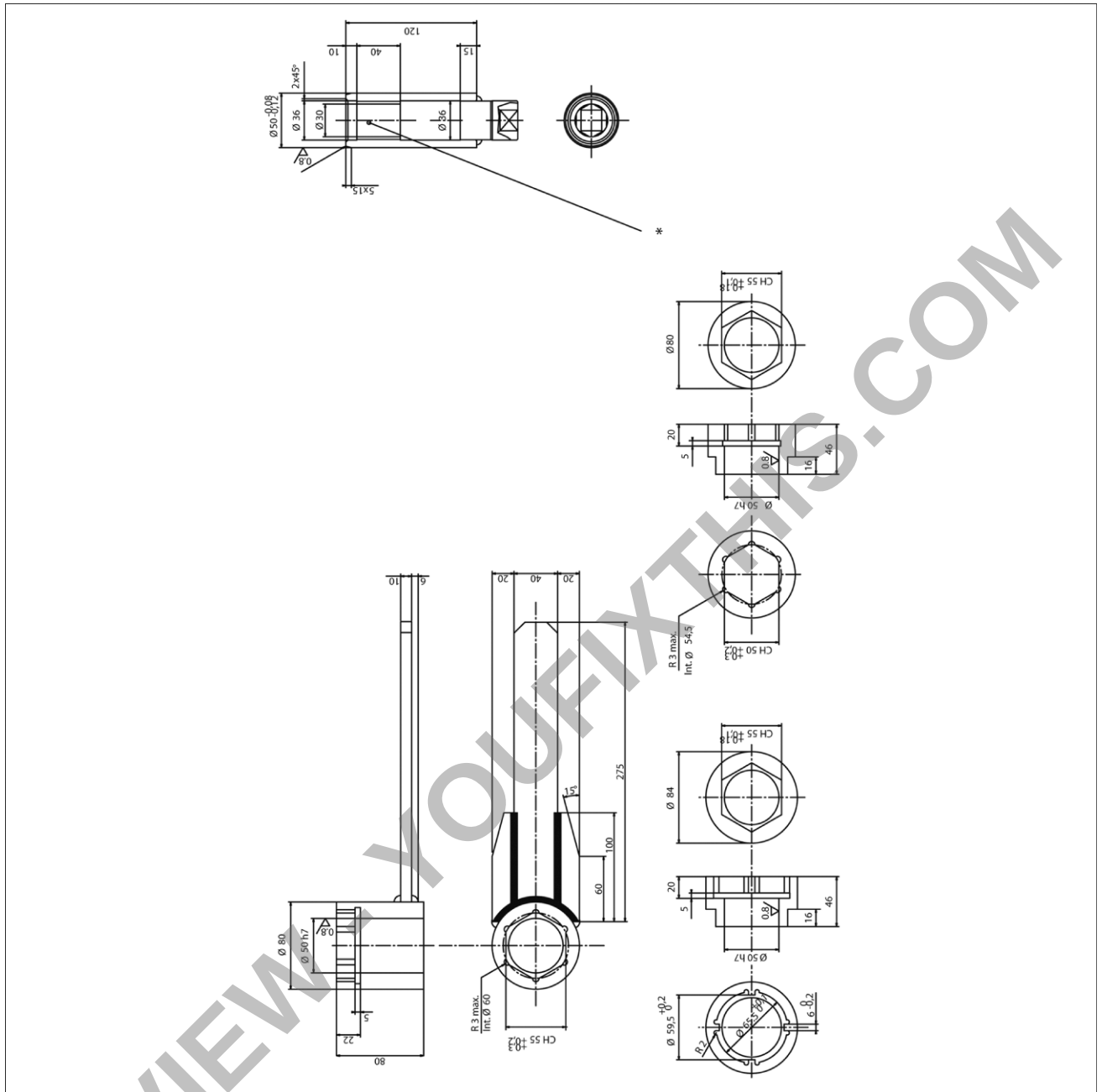
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Engine and crankcase - 001

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(*) See content for specific models

Front axle system - Powered front axle

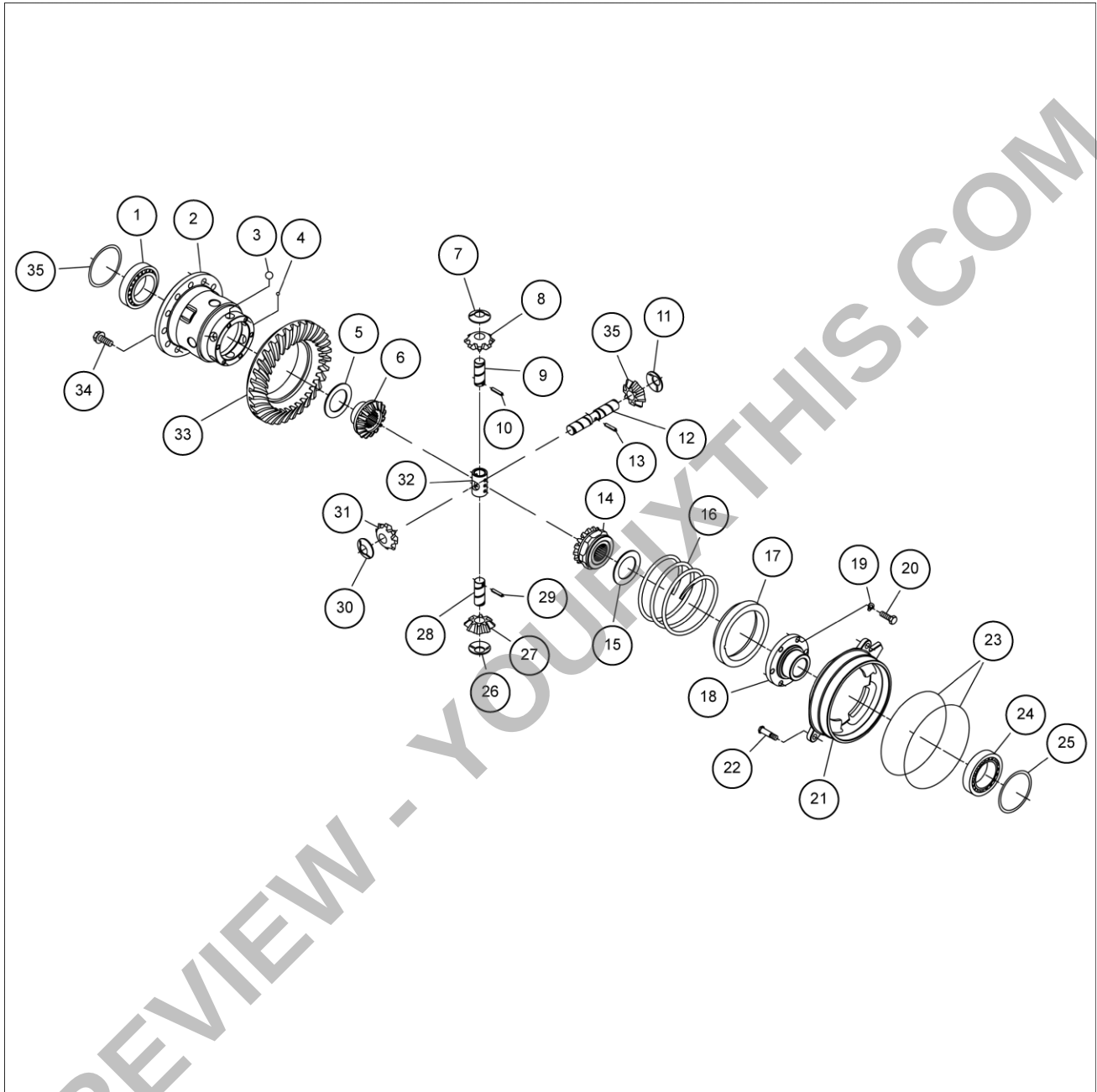


LEIL12TLH1296GA 12

* SPLINE
 35x2,5x12 DIN 5480
 Teeth n. Z= 12
 Modul m= 2,5
 Pressure angle $\alpha = 30^\circ$
 Addendum mod. $x_m = +1,125$
 Pins diameter $\varnothing 4,5h5$
 Measuring between pins $M_d = 25,65 - 25,75$

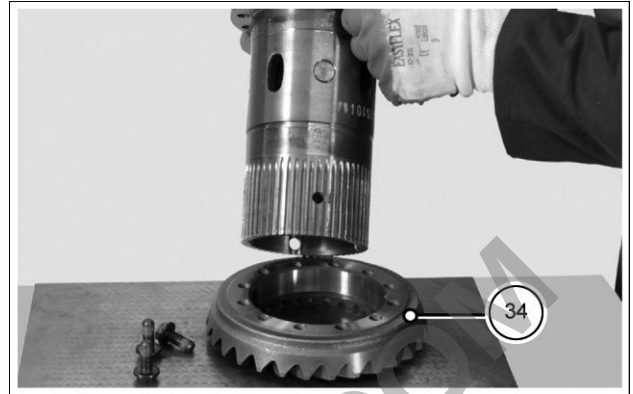
Differential - Disassemble

LM 5.25	NA --- WE
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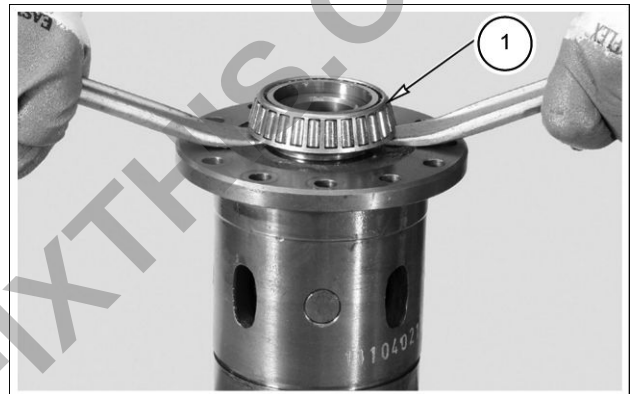
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Extract the crown wheel **(34)**.



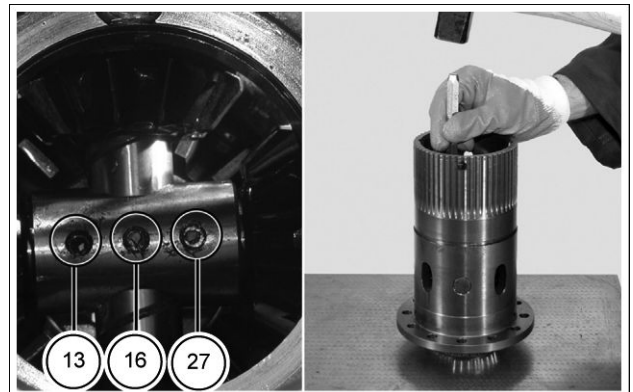
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Remove the tapered roller bearing **(1)** of the crown wheel side, using two levers.



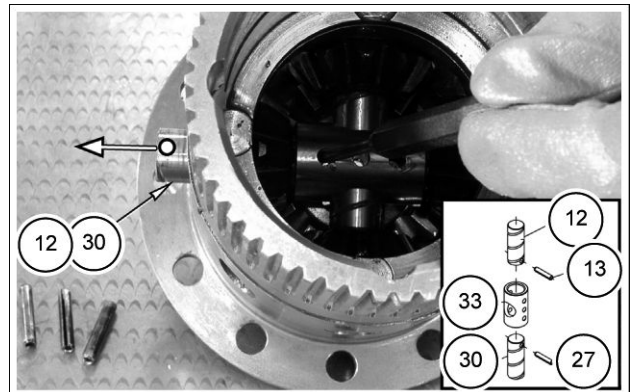
LEIL12TLH0960AA 17

Remove the three spider blocking pins **(13)** **(16)** **(27)** by using a pin driver.



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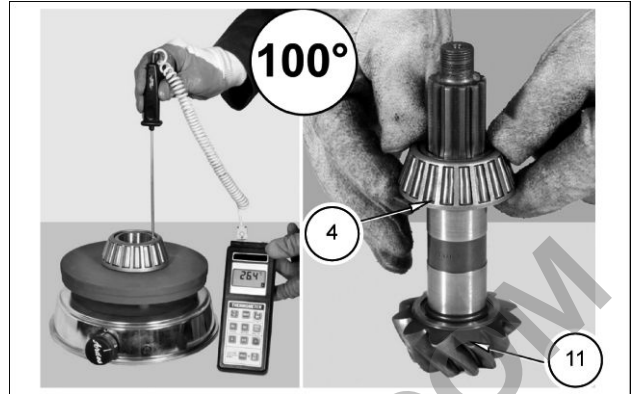
Move the two opposite mounted short bolts **(12)** **(30)** to the outside of the box using the same pin driver.



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Heat the bearing to **100 °C** and assemble it to the pinion shaft.

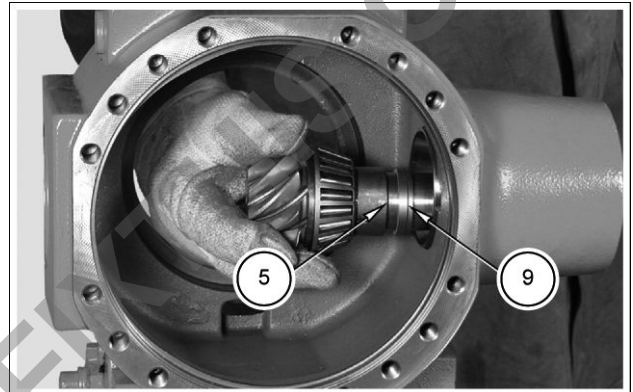
NOTICE: Wear protective gloves.



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Fit the pinion (11), shim "S1" (10) and distance piece (5) in the main body (12).

NOTE: The finer shims must be placed in- between the thicker ones.

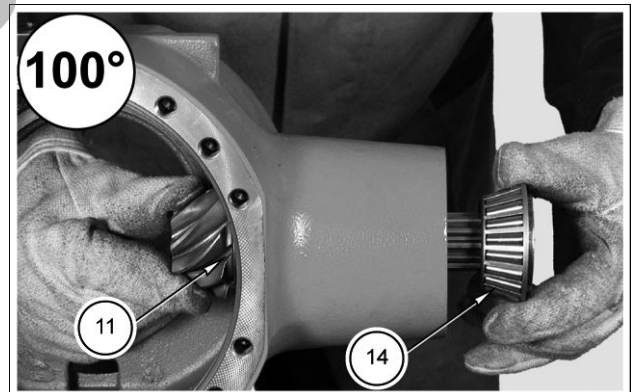


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Heat the external bearing (14) to a temperature of about **100 °C** and fit it on to the pinion (11) so as to complete the pack as shown in the figure.

NOTICE: Wear protective gloves.

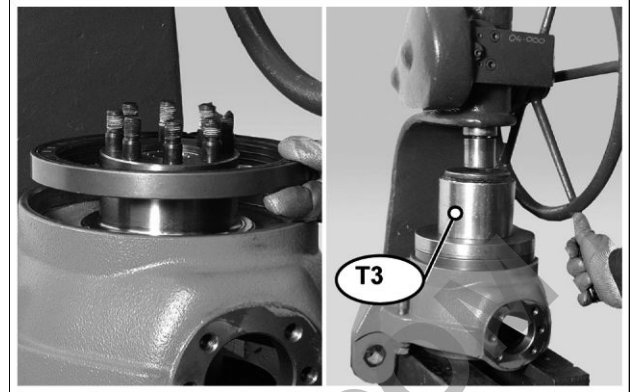
NOTE: Lightly lubricate bearing with SAE85W90 oil.



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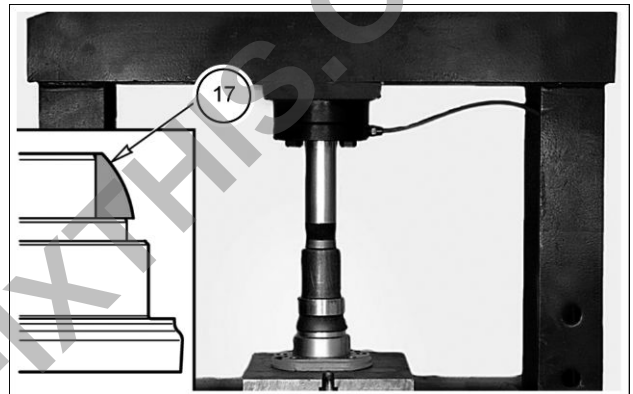
Using special tool T3 apply a reposition able jointing compound for seals to the outer surface of the sealing ring (44). Position the sealing ring (44) in the steering case (14).

NOTE: Check that the ring (44) is correctly oriented.



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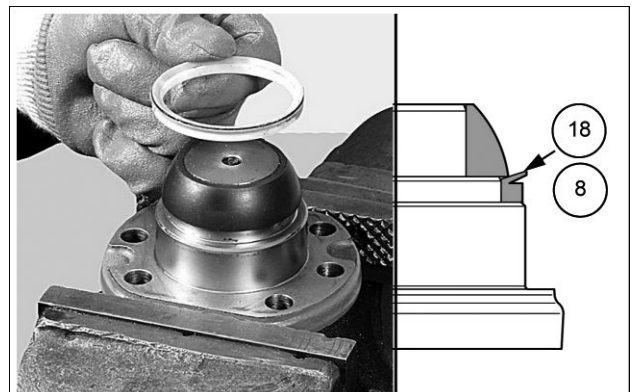
If the bottom articulation pin (17) has been extracted, position the pin under a press and fit the ball cover (20).



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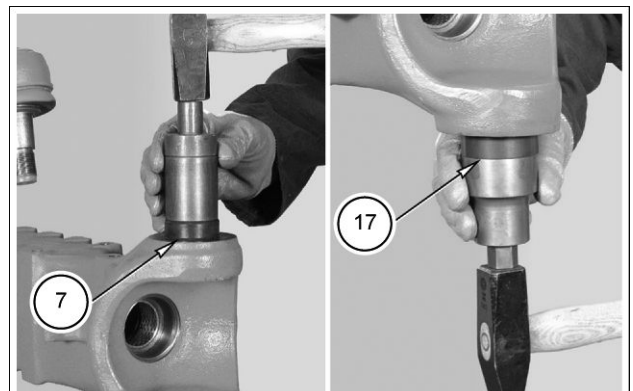
Fit the front sealing rings (18) (8) onto the articulation pins (4) and (6).

NOTE: Carefully check that the rings are properly oriented (18) (8).



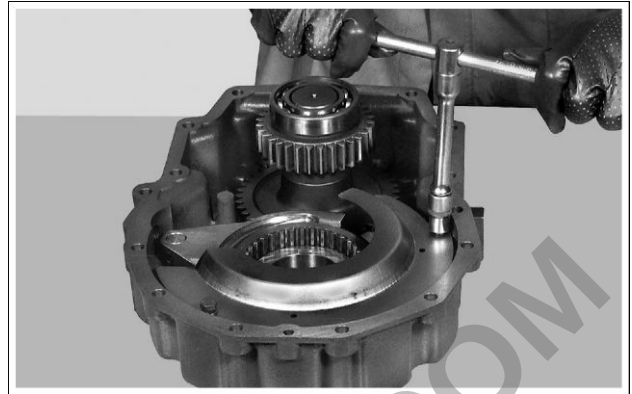
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Lubricate the top bush (7) or the bottom ball bush (17) and fit them into the fulcrum holes of the arm.



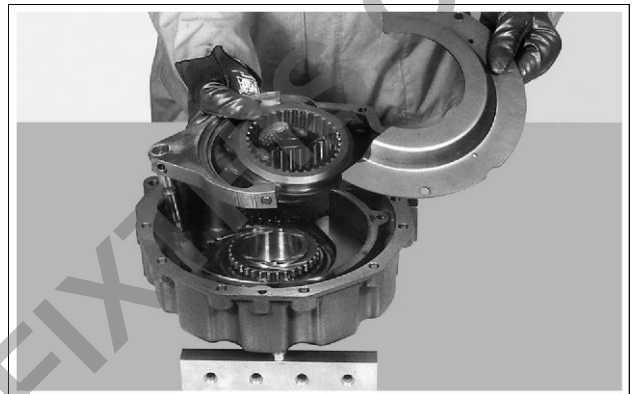
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Remove screws from the flow regulator plate.



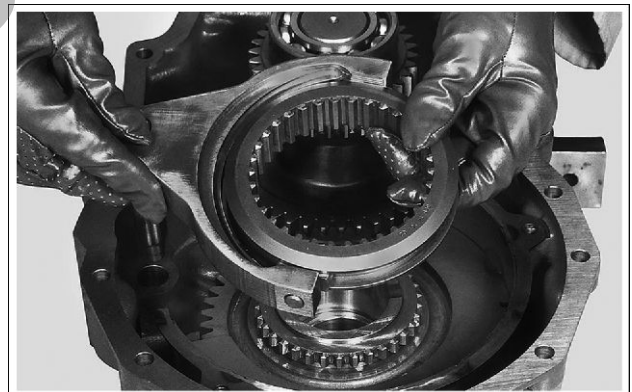
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Remove the flow regulator plate.



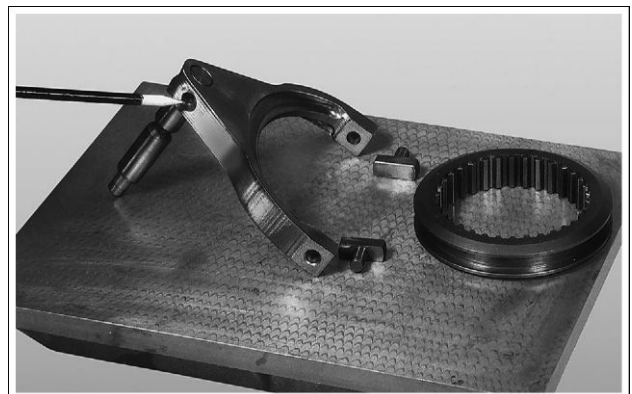
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Pull out coupling and fork simultaneously.



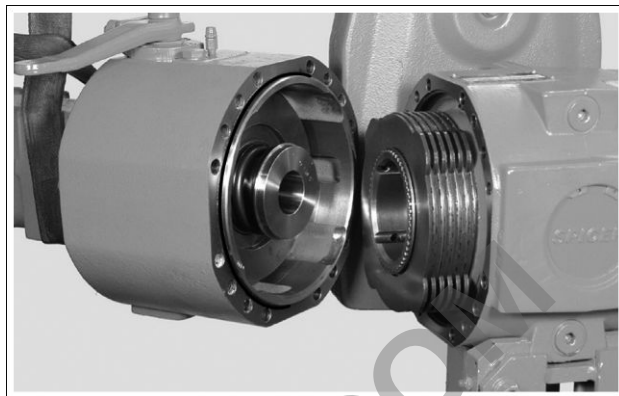
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Check sliding blocks, pin and sliding coupling.
Replace all worn parts.

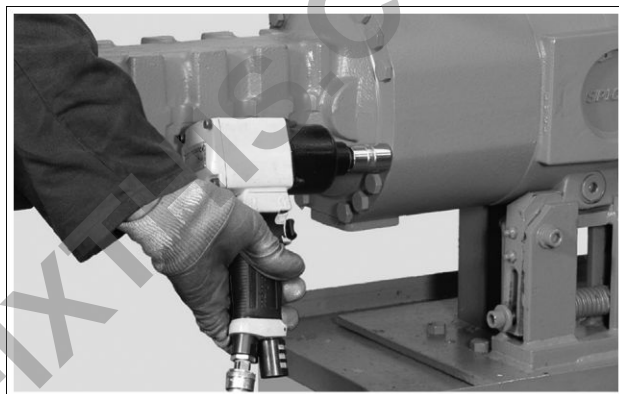


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Exchange and lubricate the O-ring and insert the arm to the box.

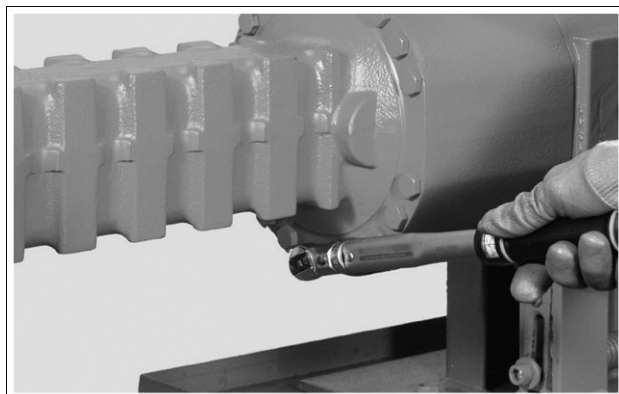


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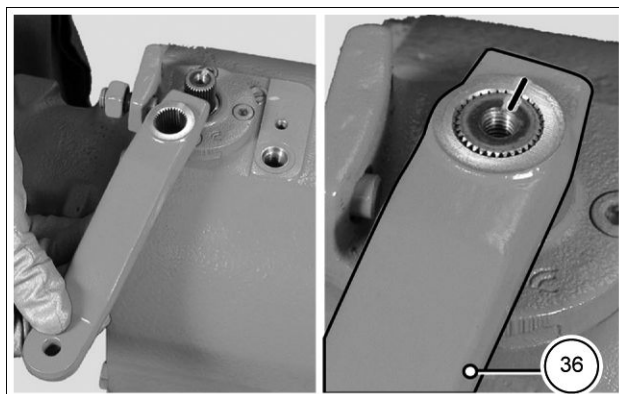
LEIL12TLH1401AA 29

Insert the screws and tighten them alternately.



LEIL12TLH1402AA 30

Install the brake lever (36).
Respect the position previously marked.



LEIL12TLH1403AA 31



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Variable displacement pump - Check

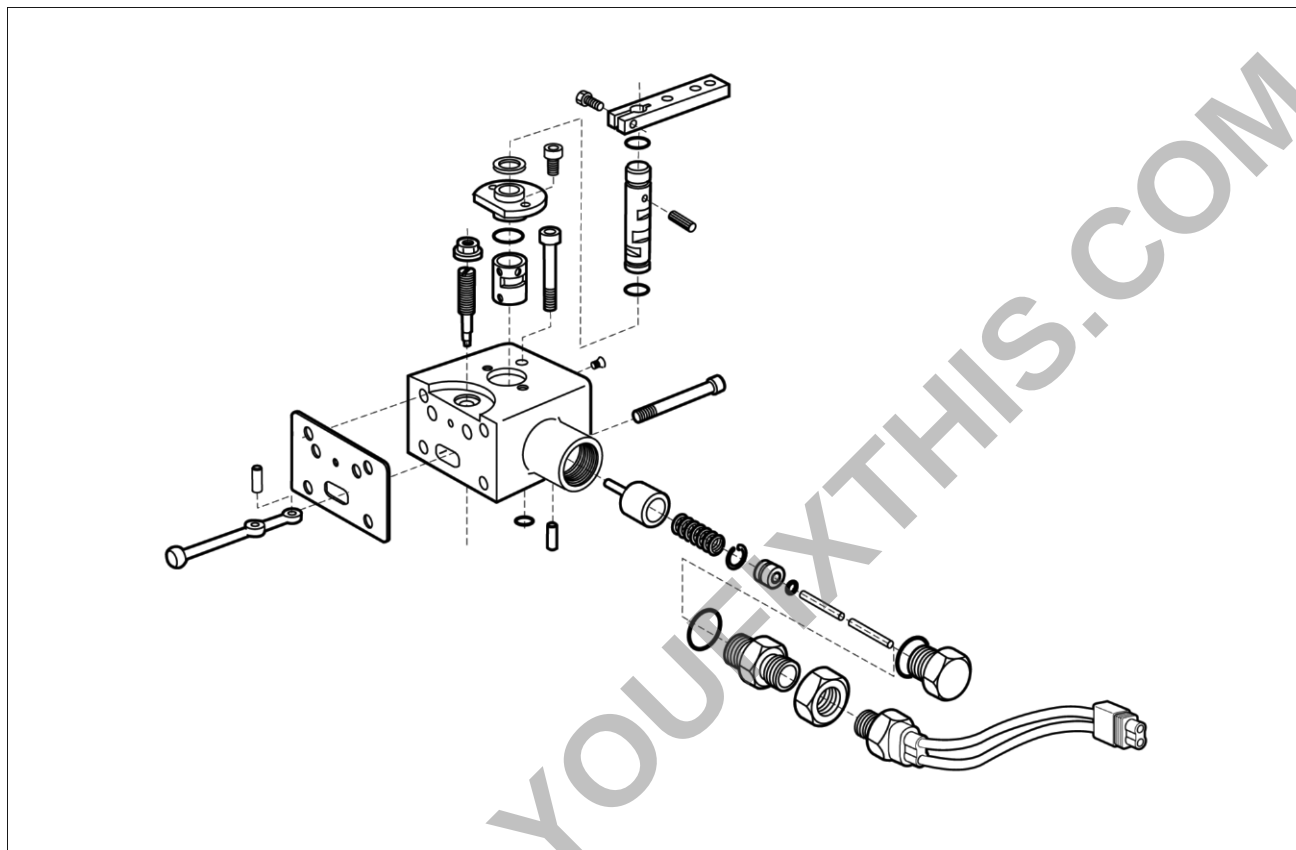
LM 5.25

NA --- WE

LM 6.28

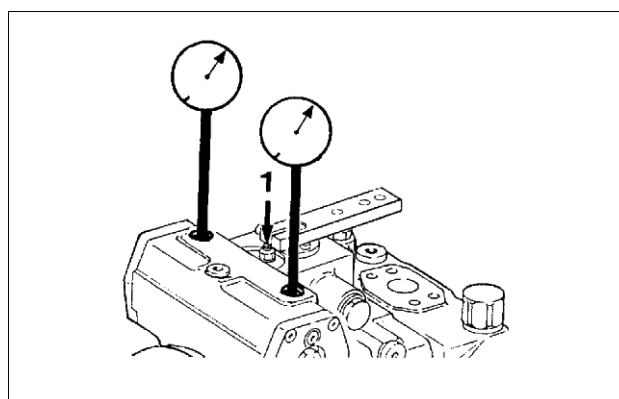
NA --- WE

Control modules



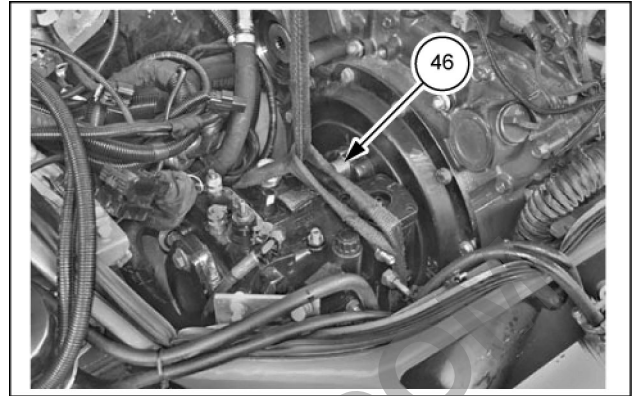
LEIL12TLH0441FA 1

Reset hydraulic zero position (1).
Both gauges must indicate the same pressure.



LEIL12TLH0442AA 2

37. Connect the travel motor to a hosting equipment.
Stretch the rope.
38. Remove the two screws **(46)**.



LEIL14TLH0822AB 33

39. Remove the variable displacement pump.

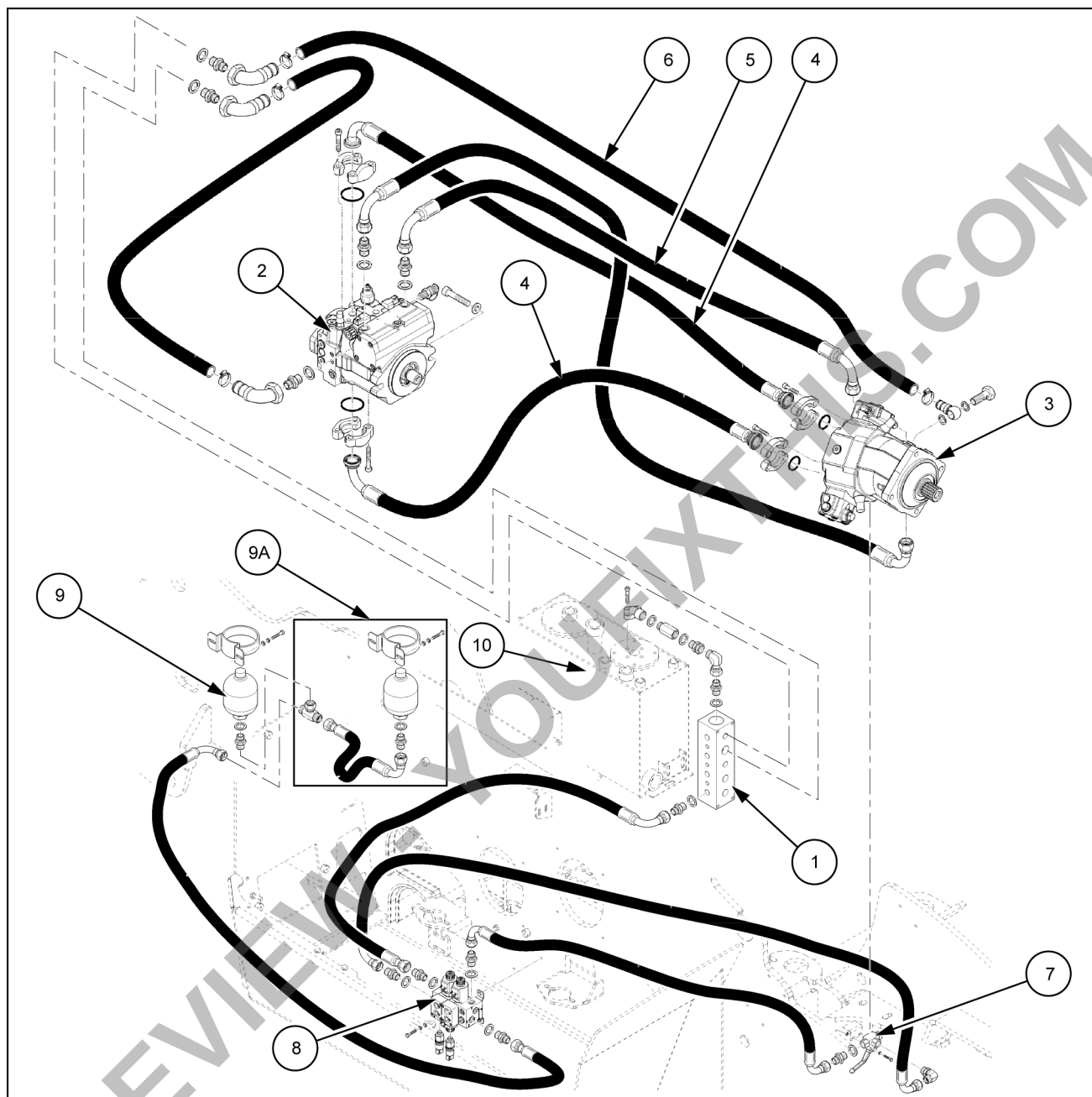


LEIL14TLH0823AA 34

Travel motor - Component localisation

LM 6.28

NA --- WE



LEIL14TLH0720GB 1

- | | |
|---------------------------------|--|
| 1. Return oil manifold | 7. By-pass |
| 2. Variable displacement pump | 8. Gear selection valve |
| 3. Hydrostatic motor | 9. Accumulator |
| 4. Supply hoses (high pressure) | 9A. Accumulator (only tractor version for road circulation with towing option) |
| 5. Pilot hose | 10. Hydraulic oil tank |
| 6. Drain hose | |

Telescopic arm cylinder - Remove

LM 5.25

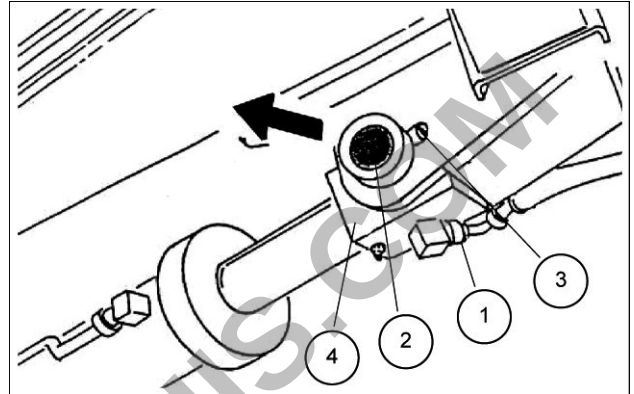
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LM 6.28

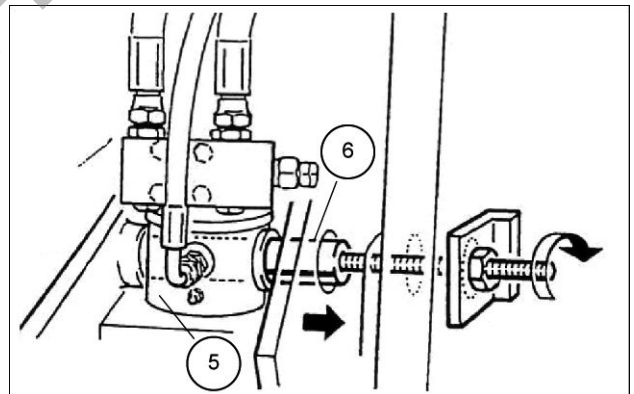
NA --- WE

Lifting cylinder

1. Lift the boom of at least **3 m (118 in)** and block it with a suitable support, in such a way as to work safely.
2. Release the remaining pressure moving the distributor lever over and over again.
3. Disconnect the hose **(1)** (compensator).
4. Unscrew totally bolt and nut **(3)**.
5. Take the pin **(2)** off, taking care of supporting/fastening the cylinder adequately (whole cylinder weight falls on the suitable support).
6. Place a container under the cylinder head **(4)**.
7. Start the diesel engine.
8. Set the lever in LOWERED ARM. The cylinder rod retracts and some oil goes out from the head **(4)**.
9. Release the remaining pressure moving the distributor lever over and over again.
10. Disconnect the hose **(5)** (compensator).
11. Unscrew and take off slowly the screws of the block valve, taking care to the remaining pressure.
12. Put down with care the cylinder on the machine chassis and fasten to a suitable rope.
13. Unscrew and take screw and locking nut off of the pin **(6)**.
14. Take the pin **(6)** off extract it with the proper extractor.
15. Take the cylinder off the machine clamping it to the rope previously prepared.



LEIL12TLH1547AA 1



LEIL12TLH1548AA 2

Contents

Steering - 41

Cylinders - 216

SERVICE

Steering cylinder

Disassemble (*)	3
Assemble (*)	8
Adjust (*)	15

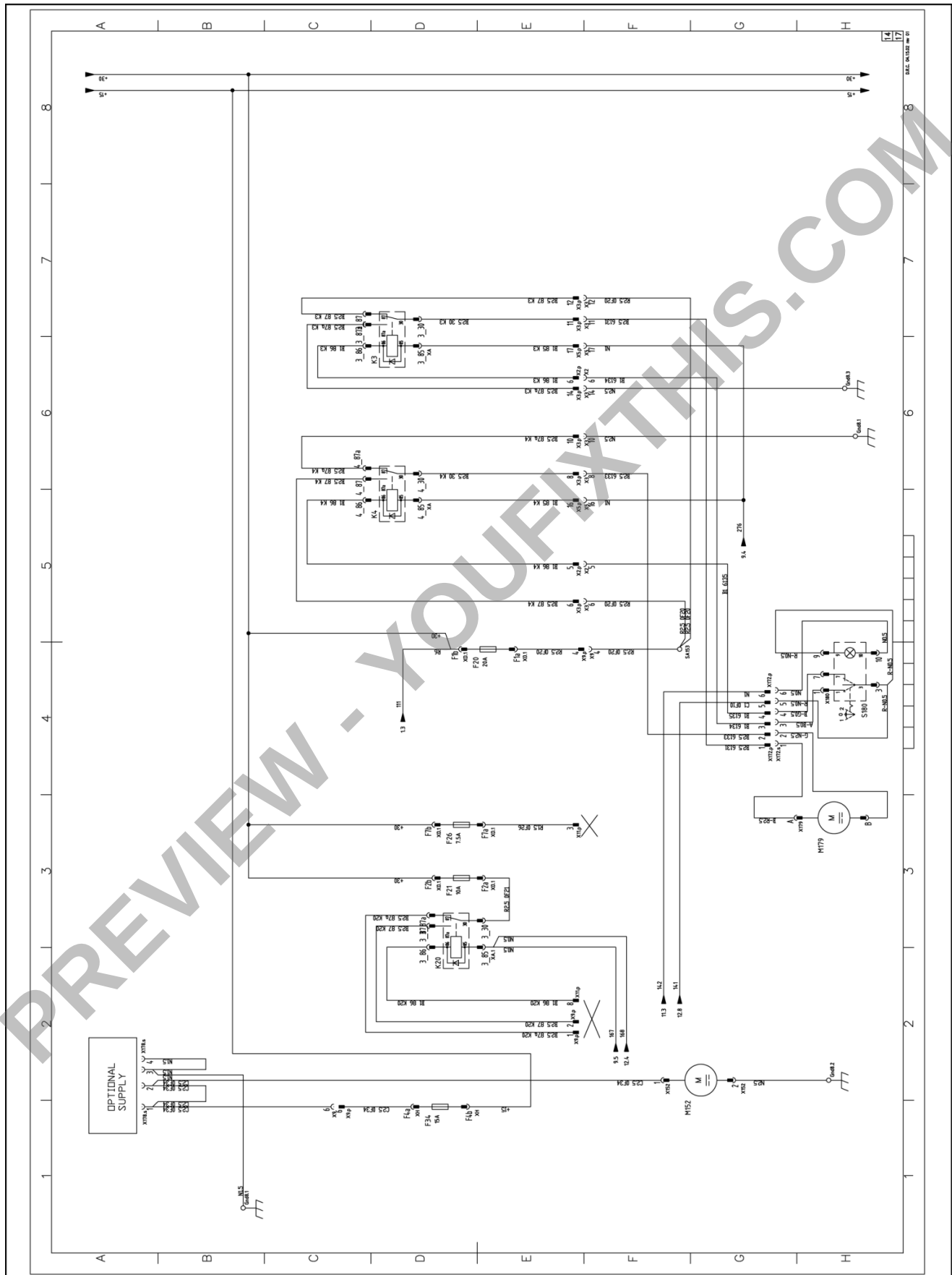
(*) See content for specific models

Item	Description	Sheet
SA44	WELD	
SA47	WELD	
SA48	WELD	
SA66	WELD	
SA78	WELD	
SA79	WELD	
SA81	WELD	
SA82	WELD	
SA83	WELD	
SA84	WELD	
SA85	WELD	
SA88	WELD	
SA94	WELD	
W177	ANTENNA	9
X1	Tyco Multilock 070 8-way PF Natural Connector	
X1.p	Tyco Multilock 070 8-way PF Natural Connector	
X10	Tyco Multilock 070 18-way PF Natural Connector	
X10.p	Tyco Multilock 070 18-way PF Natural Connector	
X101.1	Tyco S-Seal 1.0 26-way PF Key 1 black Connector	
X101.2	Tyco S-Seal 1.0 26-way PF Key 3 black Connector	
X106	SWF 10-way switch connector	
X108	Pneutron black around 7-way connector	
X11	Tyco Multilock 070 12-way PF Natural connector	
X11.p	Tyco Multilock 070 12-way PM Natural connector	
X111	SWF 10-way switch connector	
X112	Tyco Fastin-Faston 4-way PF series .250 connector	
X115	Pneutron black around 7-way connector	
X117	Tyco Fastin-Faston 2-way PF tee series .250 connector	
X119	Tyco Fastin-Faston 2-way PF tee series .250 connector	
X12	Tyco JPT 18-way PF black connector	
X12.p	2.8 mm (0.1 in) 18-way PM black	
X121	SWF 10-way switch connector	
X122	Tyco Fastin-Faston 4-way PF series .250 connector	
X125.p	Tyco MCP 2.8 21-way PM pol. B-C connector - Green	
X125.s	Tyco MCP 2.8 21-way PM pol. B-C connector - Green	
X126	SWF 10-way switch connector	
X127.1	Tyco rigid white faston cover	
X127.2	Tyco rigid white faston cover	
X129	Tyco Fastin-Faston 4-way PF series .250 connector	
X13	Tyco Multilock 070 3-way PF Natural connector	
X13.p	FCI Multilock 070 3-way PM white connector	
X130	Tyco Fastin-Faston 2-way PF series .250 connector	
X131	SWF 10-way switch connector	
X132	SWF 10-way switch connector	
X136	SWF 10-way switch connector	
X139.1	Tyco rigid white faston cover	
X139.2	Tyco rigid white faston cover	
X14	Tyco Multilock 070 14-way PF white connector	
X14.p	Tyco Multilock 070 14-way PF white connector	
X141.1	Merit 4-way start-up board connector	
X141.2	Merit 6-way start-up board connector	
X145	SWF 10-way switch connector	
X146.1	Red pre-isolated fork terminal D.4X 0.25 - 1.50 mm²	
X146.2	Blue pre-isolated fork terminal D.4X 0.25 - 1.50 mm²	
X147.1	Tycon Faston 6.3 Fit 0.8 F terminal for wire 1 - 2.5 mm² without stop tooth	

Wiring harnesses - Component diagram 14 - Optional

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LEIL14TLH0767HA 1

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