

NEW HOLLAND

REPAIR MANUAL

T4020
T4030
T4040
T4050
Tractors

NEW HOLLAND AGRICULTURE

SERVICE

87758551

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The following pages are the collation of the contents pages from each section and chapter of the T4020, T4030, T4040, T4050 Standard Repair manual. Complete Repair part # 87758551.

The sections used through out all New Holland product Repair manuals may not be used for each product. Each Repair manual will be made up of one or several books. Each book will be labeled as to which sections are in the overall Repair manual and which sections are in each book.

The sections listed above are the sections utilized for the T4020, T4030, T4040, T4050 Standard Tractors.

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BOOK 1 - 87758552

Chapter 1 - General

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SECTION 10 - ENGINE

BOOK 1 - 87758552

Chapter 1 - Engine

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BATTERY MAINTENANCE

Relative Density

The relative density of the battery electrolyte shows the charge level of the battery. When the battery is fully charged, the relative density of the electrolyte, at 25°C, is at least 1.280.

Alternatively, approximate charge can be measured using a digital voltmeter (± 0.01 V) as follows:

less than	10.5 V unusable battery*
less than	11.8 V flat battery
less than	12.3 V half-charged battery
more than	12.6 V fully-charged battery

* See notes to paragraph "TESTS" for instructions on how to recuperate a slightly sulphurized battery.

Battery voltage must be registered on a flat battery considering the following:

A) the battery must be flat for at least 4 hours

B) if the vehicle has been used recently, or if the battery has been charged recently, switch the headlights on for 2 minutes.

When a battery is flat, the sulphuric acid in the electrolyte combines chemically with the plates and this decreases the relative density of the solution.

A battery densimeter will determine the relative density of the electrolyte in an element. A reduction in the amount of sulphuric acid in the solution will show the degree of charge of that element.

The lower the temperature at which the battery operates, the more necessary it is to keep the battery fully charged. For example, a battery with a relative density of 1.225 at 27°C (80°F) can start the engine at mild outside temperatures but might not do so at lower temperatures because of lower battery performance.

Table 1 shows the effect of temperature on battery performance.

Table 1

Temperature	Fully charged battery performance
25.0°C (77°F)	100%
-4.5°C (23.9°F)	82%
-24.0°C (-11.2°F)	64%
-27.5°C (-17.5°F)	58%
-31.0°C (-23.8°F)	50%
-34.5°C (-30.5°F)	40%
-37.5°C (-35.5°F)	33%

Maximum battery life can be obtained by paying the right attention and by carrying out regular checks. The energy capacity output must not be exceeded by constant overload and charging requirements must be respected.

Precautions

IMPORTANT: *Batteries contain sulphuric acid and generate a highly explosive hydrogen and oxygen mix during charging.*

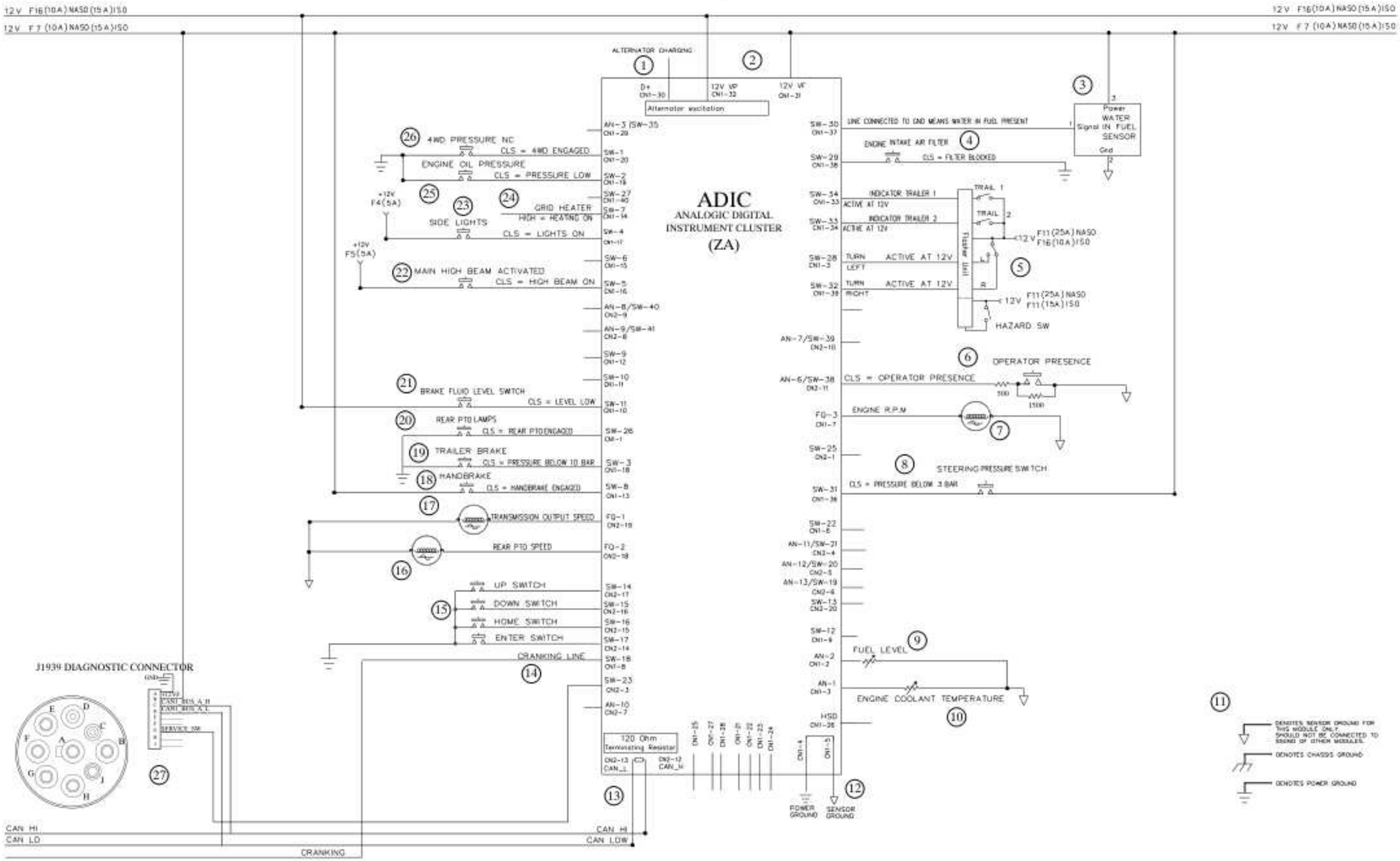
- *Do not use devices producing flames or sparks to inspect the electrolyte level.*
- *Do not remove battery caps without protecting your hands and your eyes.*

During battery maintenance, follow the steps below:

1. Keep the electrolyte level 17 mm over the plates. If this is not respected, the acid concentration will vary, which could damage spacers and cause a deterioration in plate performance.
2. Use distilled or de-mineralized water only. Never use tap water or rain water or water from any other source.
3. Keep the battery charged at least 75% to avoid plate sulphurization, performance loss and possible freezing at low temperatures.
4. Avoid overcharging the battery. Excessive charge will generate high internal heat which will cause grid deterioration and water loss.
5. During quick recharge, check the battery temperature does not exceed 50°C.
6. Do not add sulphuric acid to an element unless some electrolyte has been spilt. Before filling, check the solution has the correct relative density. Slow recharge is the only way to recharge the battery completely. You can use a high amperage battery charger to charge the battery with high current intensity for short periods of time. Use a slow charge to bring the battery to its full capacity.

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INPUT/OUTPUT WIRING DIAGRAM FOR THE ELECTRONIC CONTROL UNIT OF THE INSTRUMENT PANEL (ADIC)



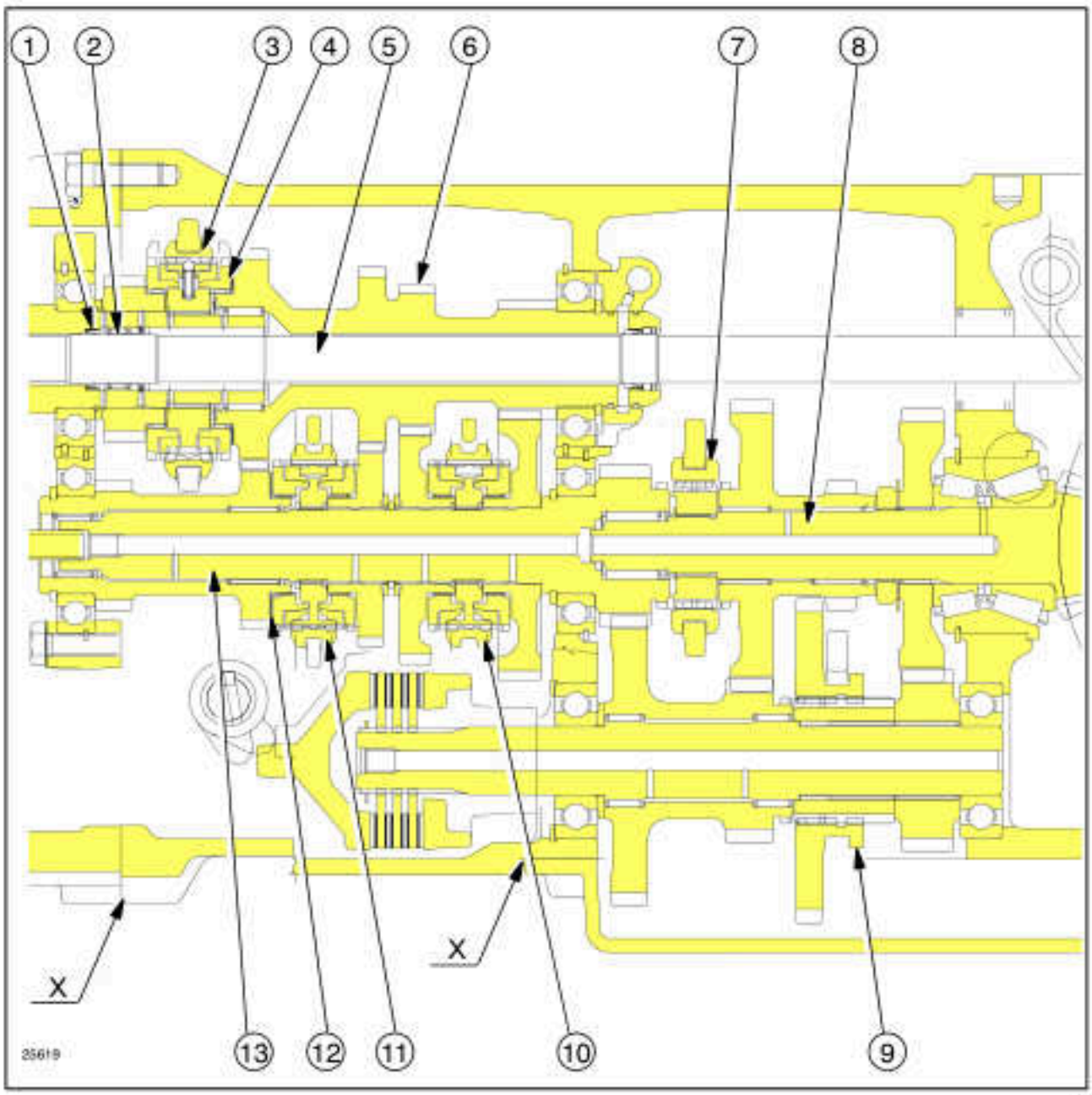
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UXX Fault Codes

FAULT CODE	DESCRIPTION
U17	Seat switch not activated.
U18	Correct start-up procedure was not used.
U19	Transmission oil temperature below 10°C (*).
U20	Parking brake is not applied.
U21	Engine speed below 1150 rpm, increase the speed.
U22	Engine speed above 1350 rpm, lower the speed.
U23	Reverser control lever in neutral, position it on forward gear.
U26	Clutch pedal not fully raised, release it.
U31	Wheel speed detected: the tractor is moving, check the parking brake and calibrate again.
U32	Clutch A calibration value too low, the speed has dropped too quickly, the clutch pressure is not governed correctly or other factors have caused the speed to drop.
U33	Clutch A calibration value too high, the speed has not dropped, there is no pressure in the clutch or there is a mechanical fault with the transmission.
U34	Clutch B calibration value too low, the speed has dropped too quickly, the clutch pressure is not governed correctly or other factors have caused the speed to drop.
U35	Clutch A calibration value too high, the speed has not dropped, there is no pressure in the clutch or there is a mechanical fault with the transmission.
U49	No movement of the synchronizer sensed.
U51	Engine speed error.
U60	Range gear lever in neutral.
U61	Gearbox (gear) lever in neutral.
U64	Solenoid valve connections of the reverse gear synchronizer and fast forward gear reversed.
U91	Synchronizer potentiometer signal is not within allowable limits for HILO position; potentiometer signal incorrect or synchronizer jammed.
U92	Synchronizer potentiometer signal is not within allowable limits for shuttle position; potentiometer signal incorrect or synchronizer jammed.
U111	Impossible to calibrate the transmission.

(*) - For temperatures between 10 to 20°C (50 to 68°F) or above 100°C (212°F) calibration is permissible even if the display shows "**CL**" or "**CH**" (on pressing switch 2 in position C the warning disappears). For temperatures below 10°C (50°F) it is not possible to calibrate the clutches.

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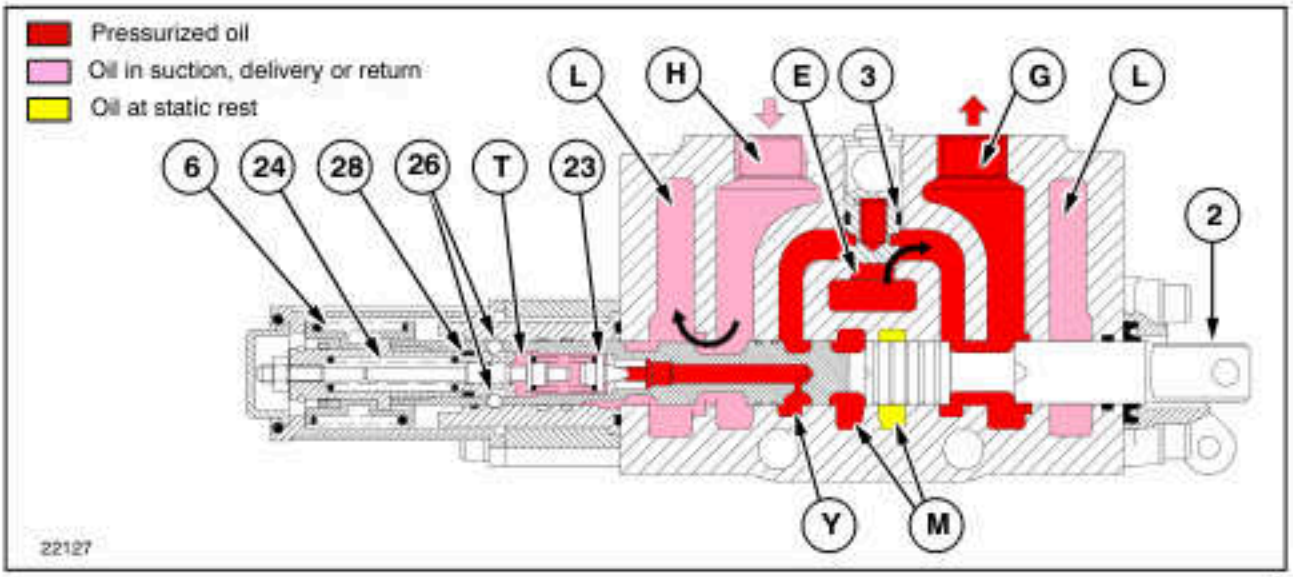
Longitudinal cross-sectional view of gearbox and gear range (16 + 16)

1. Seal.
2. Power take-off shaft support roller bearings.
3. Reverser control synchronizer.
4. Gearbox driving gear clearance adjusting thickness.
5. Power take-off shaft.
6. Gearbox driving gear.
7. Selector sleeve for high or medium-low speeds.
8. Bevel pinion shaft.
9. Selector sleeve for low or medium-high speeds.
10. Synchronizer for 1st and 2nd speed.
11. Synchronizer for 3rd and 4th speed.
12. Gearbox driven shaft gear clearance adjusting thickness.
13. Gearbox driven shaft.

NOTE: *On assembly apply a bead of sealing compound to the surfaces **X** as indicated on page 33.*

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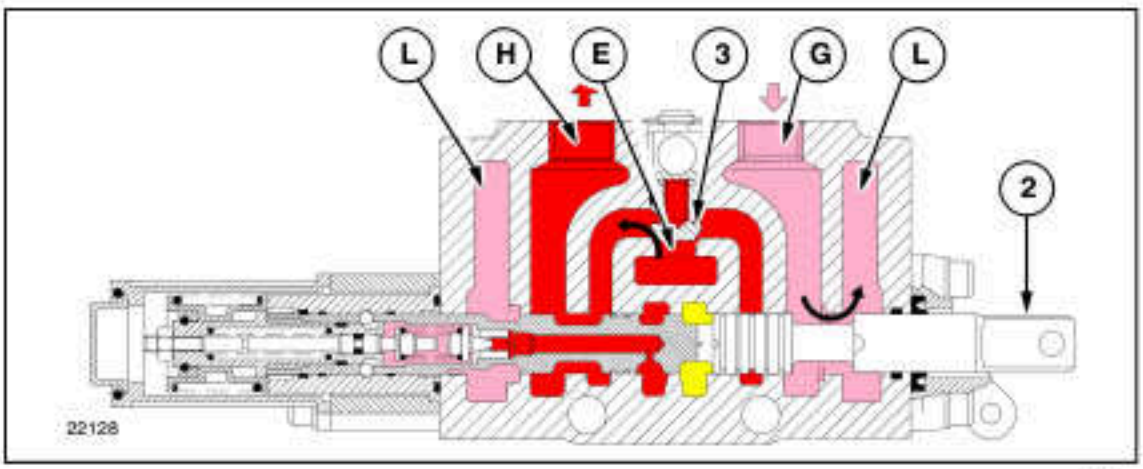
OPERATING STAGES OF AUXILIARY CONTROL VALVE FOR THE OPERATION OF A SINGLE/ DOUBLE-ACTING CYLINDER WITH AUTOMATIC DETENT RELEASE AND FLOAT POSITION



8

Lifting

On pulling back the control lever (located in the cab), the spool (2) shifts and the detent balls (26) engage the left hand groove, where they are held in place by the support (28) and spring (24). The movement of the spool (2) connects: delivery line (E) with the lower chamber of the cylinder, by way of the check valve (3) and the line (G), and also the upper cylinder chamber with the exhaust line (L) by way of line (H), intercepting the supply of oil to the hydraulic lift control valve. On completion of the lifting movement, the oil pressure increases to 170 to 175 bar (2465 to 2537 psi), acting through the port (V), it overcomes the resistance of the spring of the needle valve (23). Inside chamber (T) the oil pressure increases and, acting on the detent ball support (28), it overcomes the resistance of the spring, thus moving the support (28). In this condition the two detent balls (26) drop onto the support (28), releasing the stem (2) which, under the action of the spring (6), returns to the neutral position, and consequently the entire flow from the pump is conveyed to the lift control valve through lines (M).



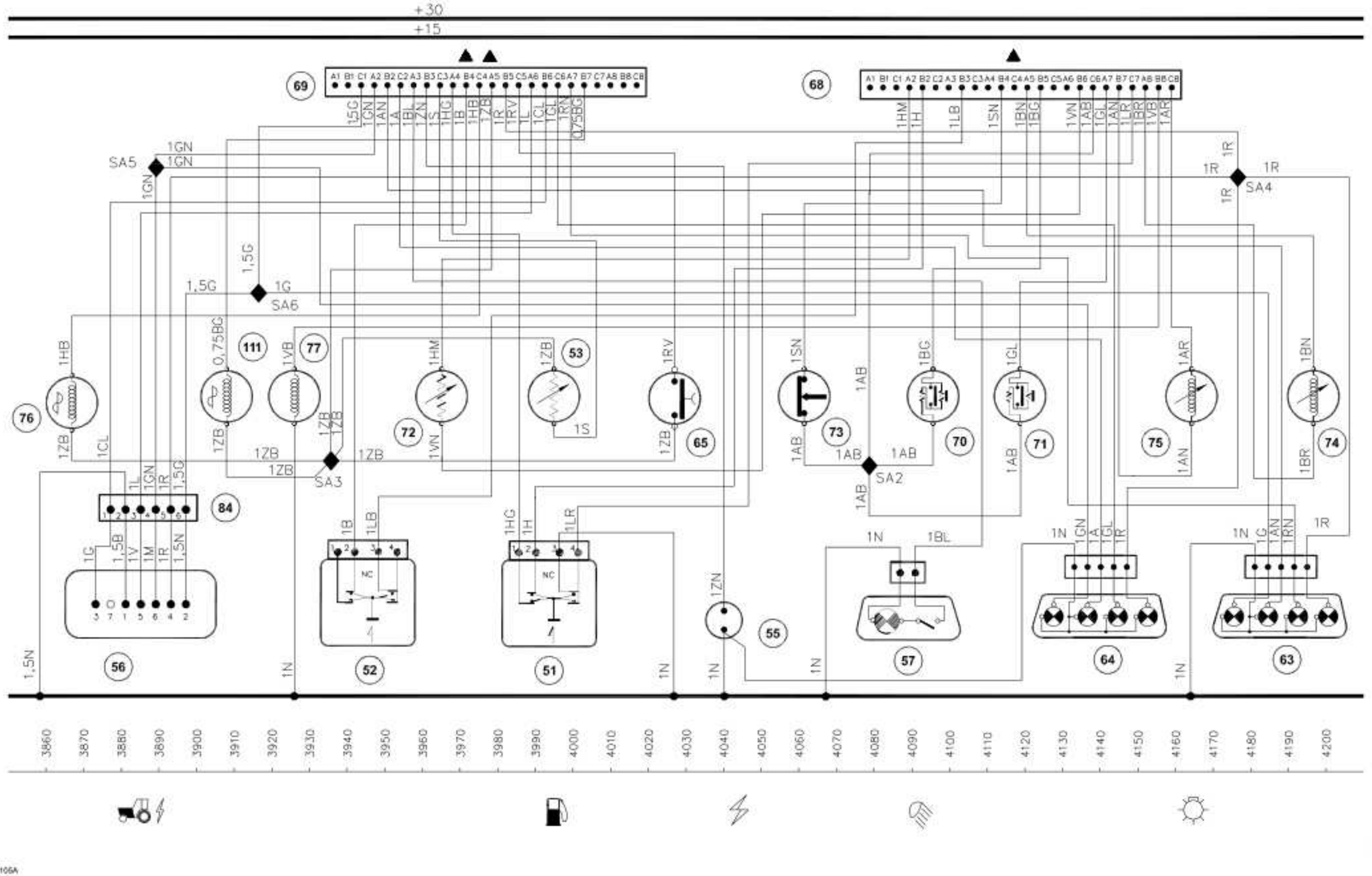
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Lowering

To lower the implement, push forward the control lever (in the cab). The control valve spool (2) shifts and the detent balls (26) engage in the central groove where they are held in position by the support (28) and the spring (24). In this condition the oil contained in the lower chamber of the cylinder can flow to the exhaust (L) by way of line (G), while the upper chamber is connected with the delivery (E) by way of line (H) and check valve (3). On completion of the lowering operation, the detent will be automatically released in the manner described previously.

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TRANSMISSION CIRCUIT (North America version) - DIAGRAM M



MPM1106A

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