
Keep With Loader Operator's Manual

HYDRAULIC SELF LEVELING VALVE

NEW HOLLAND 7309 & 7310
SMC 2491 & 2410
LOADERS

Optional self-leveling valve (for raising loader) can be installed on loader hydraulic system using tools ordinarily available. Loader may be dismantled to ease installation. Engage tractor brakes, shut off tractor engine, and move loader control levers back and forth several times to relieve pressure in hoses before installation.



WARNING: *If self-leveling valve is to be installed on dismantled loader, retract lift cylinders completely before disconnecting quick couplers, or be sure loader is securely supported before loosening any hose connections.*



WARNING: *Escaping hydraulic fluid under pressure can penetrate skin causing serious personal injury.*

- *DO NOT use your hand to check for leaks, Use a piece of cardboard or paper to search for leaks.*
- *Stop engine and relieve pressure before connecting or disconnecting lines.*
- *Tighten all connections before starting engine or pressurizing lines.*

If any fluid is injected into skin, obtain medical attention immediately or gangrene may result.

Replace hoses immediately if they are severely damaged by a cut or scrape, extruded at fittings, or leaking.

INSTALLING SELF LEVELING VALVE (Figure 1)

1. Install 7/8-3/4 x 90° male elbow adapter fitting (7) into "A" port of self-leveling valve (1). Install 7/8-3/4 x 90° male elbow adapter fitting (7) and 3/4-3/4 x 90° elbow fitting (6) into "B" port of self-leveling valve (1). Install 7/8 x 3/4 straight fittings (11) into "C" and "D" ports of valve (1).
2. Insert 5/16 x 2-1/2 carriage bolts (2) through self-leveling valve (1) from back. Put 5/16 lock washers (4) onto threaded ends of carriage bolts (2) and hand turn 5/16 hex nuts (3) to start threads on carriage bolts (2).
3. Position self-leveling valve (1) so head of one carriage bolt (2) goes through front keyhole slot in valve support bracket. Slide valve rearward so the other carriage bolt can slide in rear keyhole slot, trapping carriage bolts inside bracket. Center valve on valve support bracket and tighten nuts (3).



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PLUMBING SELF-LEVELING VALVE TO LOADER HYDRAULIC SYSTEM (Figure 1)

1. Disconnect existing hose from "LCR" oil line tube and reconnect it to port "B" of valve.
2. Disconnect existing hoses from "TCB" and "TCR" oil line tubes and install 3/4 tees (5) between oil line tubes and existing hoses with stems pointing downward. Connect 3/4 x 3/4 90° elbow fittings (6) to 3/4 tees (5) on "TCB" and "TCR" oil line tubes.
3. Connect one end of 3/8 x 22 hose (9) to "LCR" oil line tube and connect other end to port "A" of valve. Connect 3/8 x 40 hose (8) from 7/8-3/4 x 90° female elbow fitting (6) on "TCR" oil line to 7/8-3/4 straight fitting (11) in port "C" of valve. Connect remaining 3/8 x 40 hose (8) from "TCB" oil line to 7/8-3/4 straight fitting (11) in valve port "D".
4. Use one reusable tie strap (10) to secure 3/8 x 40 hoses (8) to fitting (7) in port "A" of valve. Use remaining tie strap (10) to secure all three hoses (8, & 9) together midway between boom oil lines and valve (1).
5. After all plumbing has been completed, start tractor engine and slowly cycle lift and bucket cylinders several times to free system of air, then retract cylinders and stop engine. Add additional hydraulic oil, as specified in the tractor operators manual, to bring oil level up to full.

NOTE: If loader stalls while raising boom and leveling bucket, or if loader no longer operates according to direction on control valve decal(s), recheck connections shown.

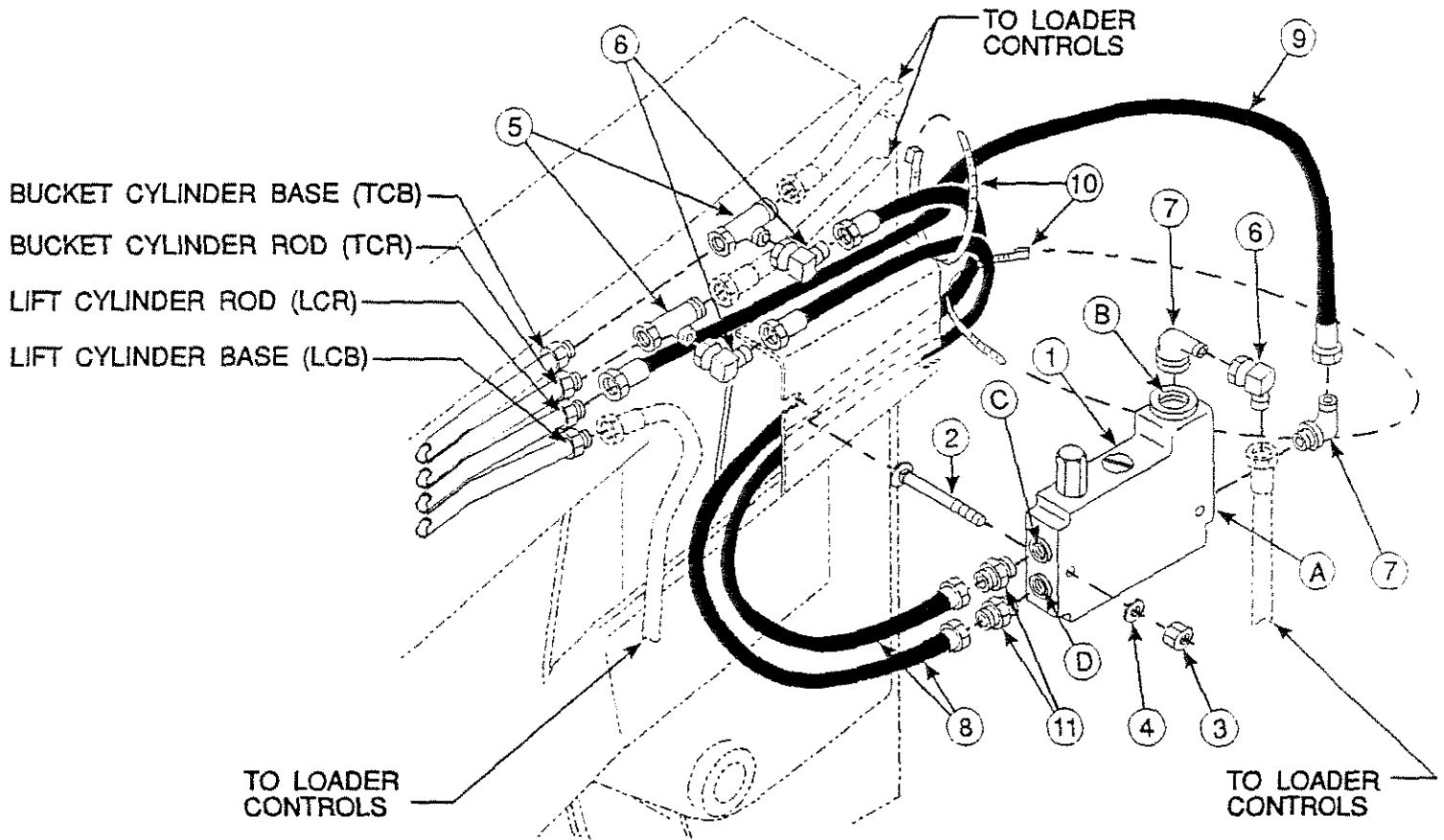


Figure 1
 PLUMBING
 SELF-LEVELING
 VALVE

PARTS LIST - HYDRAULIC SELF LEVELING VALVE KIT

ITEM	PART NO.	DESCRIPTION	QTY.
1	37135	VALVE, Self Leveling	1
2	40800-1	BOLT, Carriage, 5/16-18 x 2-1/2	2
3	G120376	NUT, Hex 5/16-18	2
4	G120214	WASHER, Lock, 5/16	2
5	37850-2	FITTING, 3/4 - 3/4 Tee	2
6	34128-2	FITTING, 3/4 - 3/4 90°	3
7	32845-6	FITTING, 7/8 - 3/4 x 90°	2
8	36844-10	HOSE, 3/8 x 40"	2
9	36844-19	HOSE, 3/8 x 22"	1
10	8137-1	STRAP, Reusable Tie	2
11	32844-7	FITTING, 7/8 - 3/4 Male	2

SELF-LEVELING ADJUSTMENT

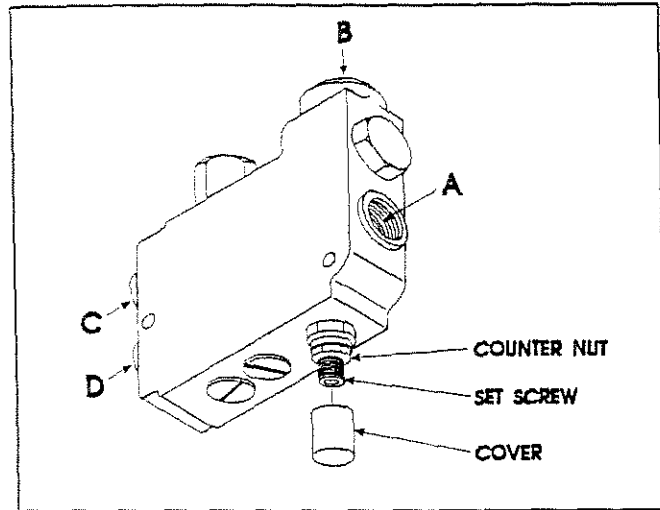
If self-leveling circuitry causes bucket to dump or roll back undesirably causing bucket to spill contents while raising the loader, the self-leveling valve can be adjusted to correct this.

1. Lower boom arms with bucket level until bucket rests on ground. Shut off tractor engine and set tractor brakes.



WARNING: *Never attempt to repair or tighten hydraulic hoses or fittings with tractor running or hydraulic system under pressure.*

2. Remove cover from set screw on bottom of self-leveling valve and loosen counter nut. If bucket tends to uncurl too slowly when raised, causing contents to spill over back of bucket, turn set screw counterclockwise. If bucket tends to uncurl too fast when raised, causing dumping of contents, turn set screw clockwise. It is recommended to adjust screw two turns each time until desired bucket travel is obtained.



NOTE: *Maximum adjustment provided by set screw is 10 turns from closed position to fully open position.*

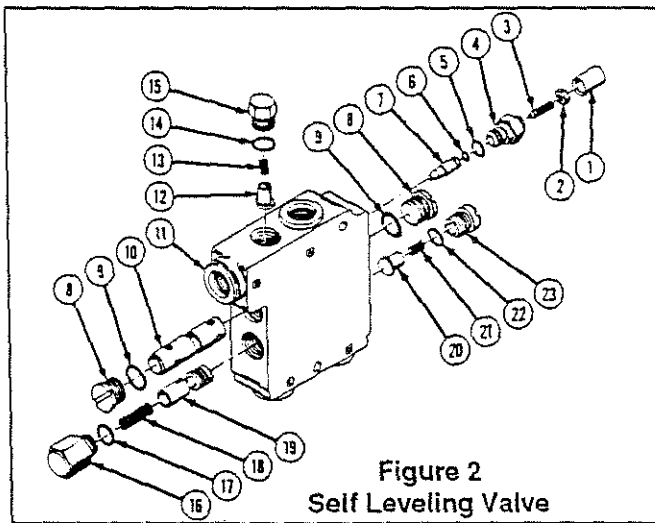
3. Tighten counter nut and reinstall cover on set screw. Start tractor engine and test self-leveling circuit. If circuitry still does not perform correctly, repeat self-leveling adjustment procedure.

SELF-LEVELING VALVE SERVICE

Self-leveling valve (Figure 3) is designed to be reliable and easy to service. Valve body or spools are not sold as separate repair items because each valve body is factory honed to fit its spools. If a valve should malfunction during warranty period, return complete valve assembly, without disassembling, to your authorized service department or contact your authorized service department for instructions. Unauthorized disassembly of valve in warranty period will **VOID WARRANTY**.

Following is an outline procedure for disassembly, inspection and reassembly of self-leveling valve. Replace any damaged or worn-out parts.

NOTE: *It is advisable to mark or tag all hoses and parts before disassembling so they can be reinstalled properly.*



VALVE DISASSEMBLY

NOTE: *Discard used o-rings as they are removed.*

1. Plug all ports and thoroughly clean outside of valve.
2. Unscrew plug (16), carefully to remove spring (18) and unloading spool (19). Remove o-ring (17) from plug (16).
3. Unscrew plugs (8) to remove flow divider spool (10). Remove o-rings (9) from plugs (8).
4. Carefully unscrew plug (23) to remove spring (21) and plunger (20). Remove o-ring (22) from plug (23). Repeat for plug (15), spring (13), plunger (12) and o-ring (14).
5. Remove protective cover (1) from adjustment cap (4) to access set screw (3) and jam nut (2). Unscrew jam nut (2) and set screw (3) from adjustment cap (4). Unscrew adjustment cap (4) from valve body (11).
6. Remove adjustment pin (7) from cap (4) and remove o-rings (5 & 6) from adjustment cap (4) and pin (7).

VALVE PARTS INSPECTION

NOTE: *Remove any nicks or burrs from all parts except valve body bores and spools with a fine emery cloth. Clean emery cloth dust from parts before reinstalling.*

1. Clean all parts, including valve body in a suitable cleaning solvent, then use air pressure to blow any dirt or excess solvent from all parts.
2. Inspect valve body bores (11) for scoring or foreign material.
3. Examine valve spools (10 & 19) for nicks and burrs. Outer diameters should be smooth and free of scratches. Make sure dampening orifice in unloading spool (19) is free of foreign material.
4. Inspect plunger seats in valve body (11) and plungers (12 & 20) for excessive wear, burrs or roughness.
5. Examine tapered portion of adjustment pin (7) for damage.
6. Inspect all springs (13, 18 & 21) for excessive wear or damage.
7. Replace all worn or damaged parts.

NOTE: *Valve body or spools are not sold as separate repair items because each body is factory honed to fit its spools. If valve body or either spool is damaged, it is necessary to replace entire valve.*

VALVE REASSEMBLY

1. Lubricate all parts, including replacement o-rings with clean Ford 134 hydraulic fluid (same as used in tractor hydraulic system).
2. Install replacement o-rings (9, 14, 17 & 22) onto all plugs (8, 15, 16 & 23). Install o-rings (6 & 5) into outer grooves of adjustment pin (7) and cap (4).
3. Install unloading spool (19), spring (18) and plug (16).
4. Install flow divider spool (10) making sure internal orifice is toward port "B." Install plugs (8).
5. Install plungers (12 & 20), springs (13 & 21) and plugs (15 & 23).
6. Press adjustment pin (7) into adjustment cap (4) and install into valve body (11). Screw adjustment screw (3) approximately 5/16" into adjustment cap (4), then install, but do not tighten, jam nut (2).
7. After valve has been installed and plumbed to loader and proper flow split has been achieved (see instructions in "Self Leveling Adjustments" section), tighten jam nut (2) to keep valve in adjustment, then press protective cover (1) onto adjustment cap (4).

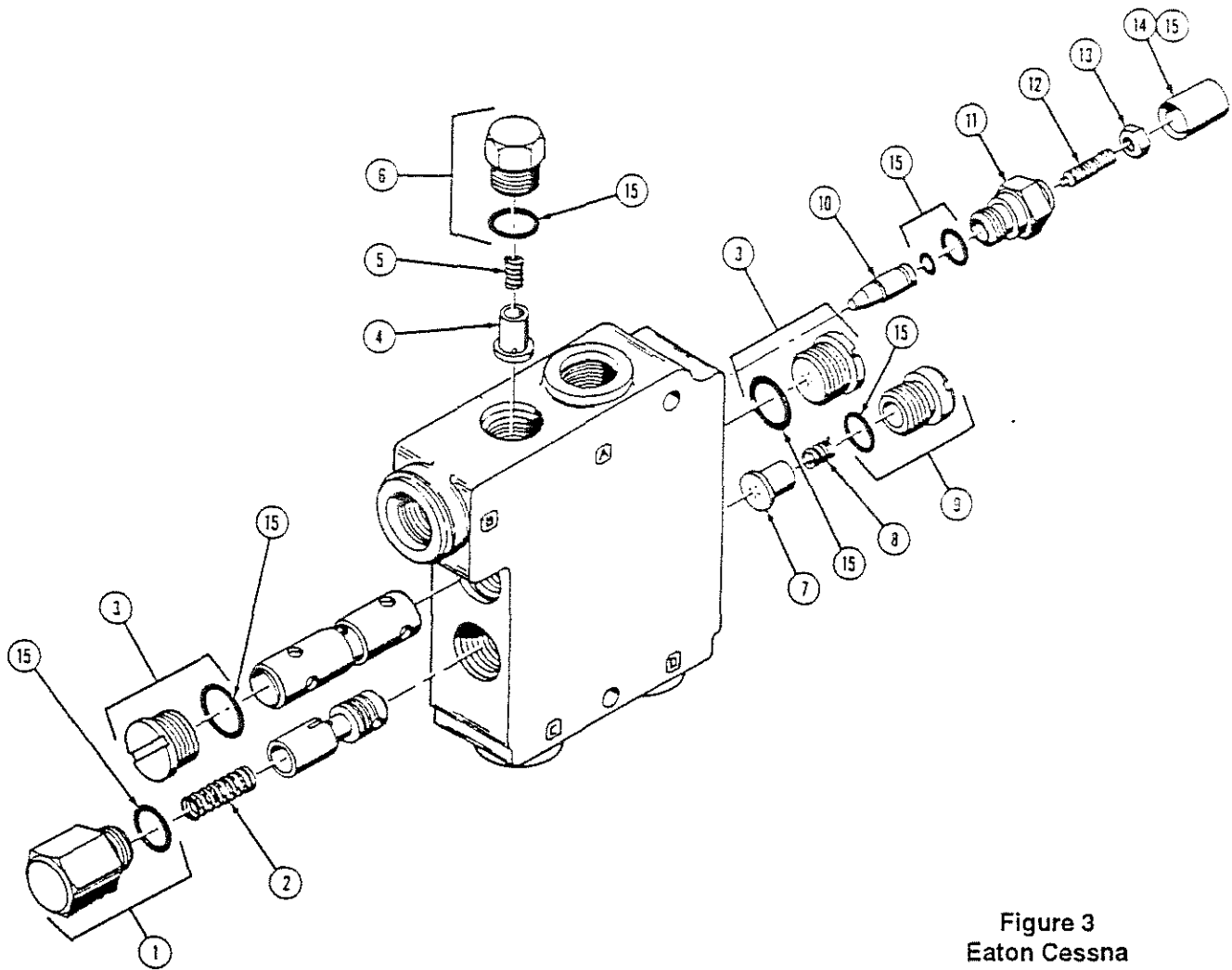


Figure 3
Eaton Cessna
Self-Leveling Valve

PARTS LIST - SELF LEVELING VALVE (37135)

ITEM	PART NO.	DESCRIPTION	QTY.
1	37797	PLUG KIT, Unloading Spool	1
2	37798	SPRING, Unloading Spool	1
3	37803	PLUG KIT, Flow Divider Spool	2
4	37818	PLUNGER, Load Check	1
5	37819	SPRING, Load Check	1
6	37802	PLUG KIT, Load Check	1
7	37799	PLUNGER, Load Check	1
8	37800	SPRING, Load Check	1
9	37801	PLUG KIT, Load Check	1
10	37804	PIN, Adjustment	1
11	37805	CAP, Adjustment	1
12	17937-10	SCREW, Set, 1/4-28 x 1	1
13	G120613	NUT, Jam, 1/4-28	1
14	37806	COVER, Adjustment	1
15	37807	REPAIR KIT, Seal	-

INSTALLATION INSTRUCTIONS