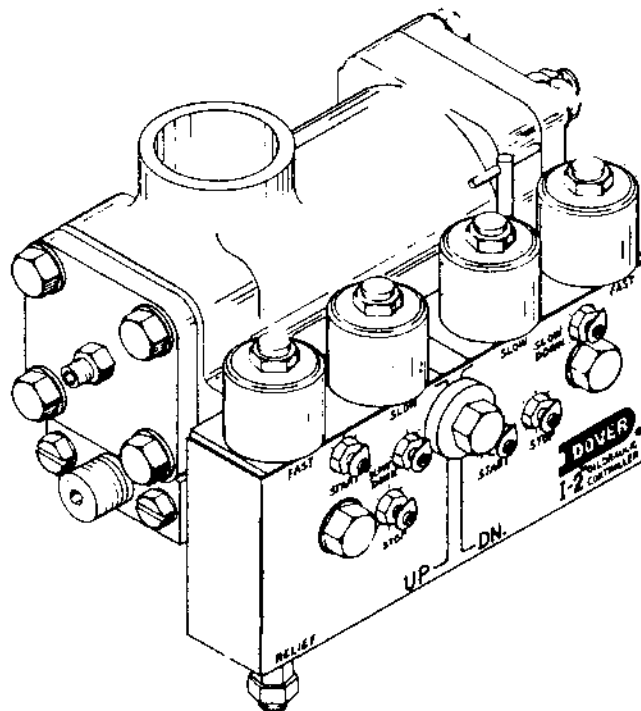


I-2 & I-3 OILDRAULIC® CONTROLLER ADJUSTMENTS

Division	4
Section	P
Page	1



I-2 SHOWN I-3 SIMILAR

1. A good understanding of the way the I-2 or I-3 "Oildraulic" controller operates will be a big help when adjusting. We suggest you become familiar with the sequence of operation - Division 4, Section P, Pages 13 through 20 of the Service Manual.
2. Adjustment of the up side does not affect the down side nor vice versa, however, note that certain individual adjustments within the up side and down side do affect one another, and must be adjusted together and in the order given for proper operation. Understanding these points will save considerable time in the adjusting procedures.
3. All hatch switches and cams shown in Installation Manual Division 1, Section G should be installed before adjusting the valve.
4. The power unit location should be heated and ventilated to maintain a room temperature between 50°F and 80°F.

Variations in the temperature of the hydraulic oil will cause the valve to perform differently, so the closer you can approximate the expected operating temperature of the oil when making adjustments, the more stable the operation will be.

If you do not have viscosity control on the power unit, make the initial valve adjustments with the oil temperature between 80°F and 110°F. Since oil temperature is affected by machine room temperature, pump output, frequency of operation, etc., it may be necessary to readjust the valve as the environmental and operational characteristics change.

5. Be extremely careful while making adjustments with the pump running.

I-2 & I-3 OILDRAULIC[®] CONTROLLER

ADJUSTMENTS

6. If at any point in the adjusting procedure the valve fails to respond as indicated, call the Factory Service Department for assistance.
7. NOTE: IF THE VALVE IS ASSEMBLED ON A POWER UNIT SHIPPED FROM THE FACTORY, YOU SHOULD BEGIN WITH STEP III FINAL ADJUSTMENTS.

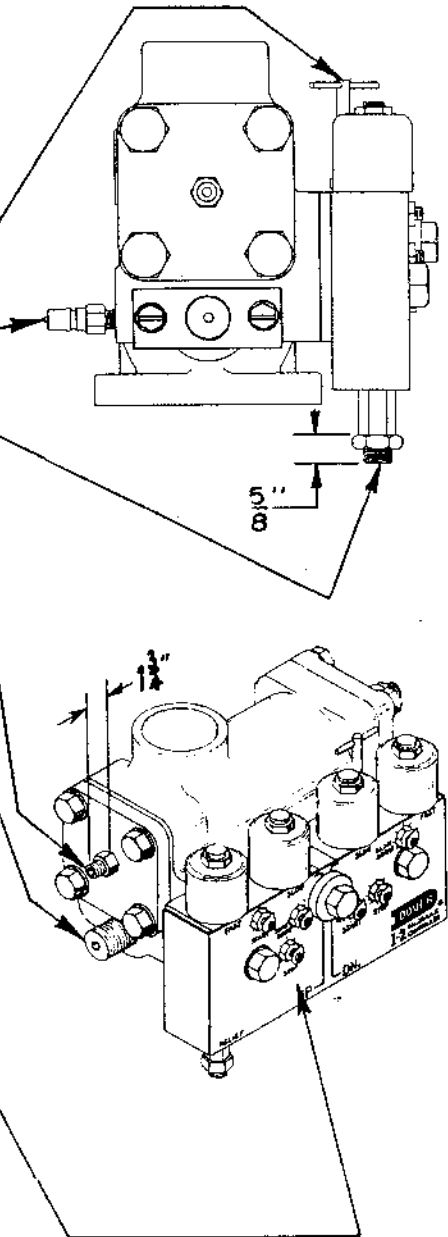
I. INITIAL SETTINGS (SET WITH AN EMPTY CAR)

- A. Lower the car onto the buffers by opening the manual lowering valve.
- B. Close manual lowering valve.
- C. Install pressure gauge on quick connector provided on far side of valve.
- D. UP SIDE

1. RELIEF PRESSURE ADJUSTMENT
 - a. Turn OUT until 5/8" of the screw extends beyond the relief assembly housing.
 - b. Tighten lock nut.
2. LOW PRESSURE ADJUSTMENT
 - a. Turn OUT until 1-3/4" of the screw extends beyond the cover plate.
 - b. Then turn IN by hand until it just touches the regulator piston.
3. UP LEVELING SPEED ADJUSTMENT
 - a. Turn adjusting screw OUT until it stops.
 - b. Then turn IN 4 turns.
4. ADJUSTMENT NEEDLES

NOTE: The nut on the adjustment needle assembly is not a lock nut. Do not loosen to make any adjustments. It should be snug against the valve body at all times.

- a. Turn the up-start, up-stop, and up-slowdown adjustment needles IN to fully closed and stopped position.
- b. Then turn up-start needle OUT 9 turns.
- c. Turn up-stop needle OUT 3 turns.
- d. The up-slowdown needle should remain closed at this point.



I-2 & I-3 OILDRAULIC® CONTROLLER

ADJUSTMENTS

Division 4

Section P

Page 3

E. DOWN SIDE

1. LOWERING AND LEVELING SPEED ADJUSTMENT

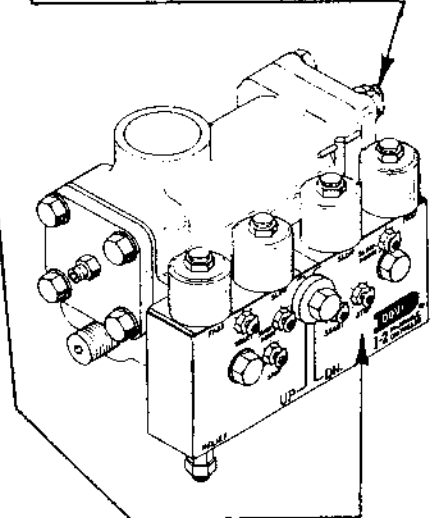
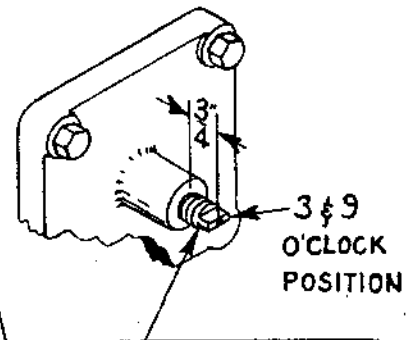
(SET WITH CAR ON BUFFERS)

- Adjust so that 3/4" of the screw extends beyond the body and flat end of screw points to 9 o'clock and 3 o'clock.
- Tighten locknut.

2. ADJUSTMENT NEEDLES

NOTE: The nut on the adjustment needle assembly is not a lock nut. Do not loosen to make any adjustments. It should be snug against the valve body at all times.

- Turn the down-start, down-stop, and down-slowdown adjustment needles IN to fully closed and stopped position.
- Then turn down-start needle OUT 9 turns.
- Turn down-stop needle OUT 3 turns.
- Down-slowdown needle should remain closed at this point.



II. INITIAL ADJUSTMENTS (SET WITH AN EMPTY CAR)

A. UP SIDE

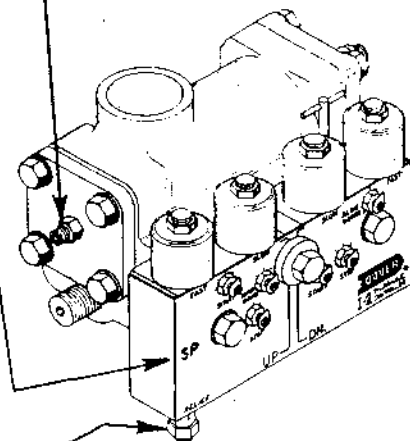
1. LOW PRESSURE ADJUSTMENT

- Turn power off.
- De-energize the up-slow solenoid by disconnecting V41 wire from controller.
- Put control on "inspection" and turn power on.
- Start motor with "Up" inspection button and check for correct rotation.
- Turn IN on low pressure adjustment until car moves slowly up. Be certain that car moves up far enough to allow access to line shutoff valve if located in the pit.
- Turn OUT on low pressure adjustment until car stops. Turn OUT an additional 1/2 turn.

f(SP). (SPECIAL REGULATOR PISTON)

Turn OUT 3 turns on low pressure adjustment. Check for too much time delay upon motor starting. Turn in on adjustment until excessive delay is eliminated. Car MUST be stopped and started to check setting.

- Tighten locknut.
- Stop motor and turn power OFF.
- Reconnect V41 wire to controller.



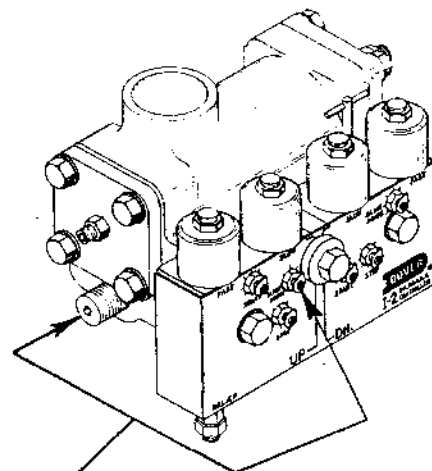
Use Only When "SP" Stamped On Cover Plate Of I-2 Only.

2. RELIEF PRESSURE ADJUSTMENT

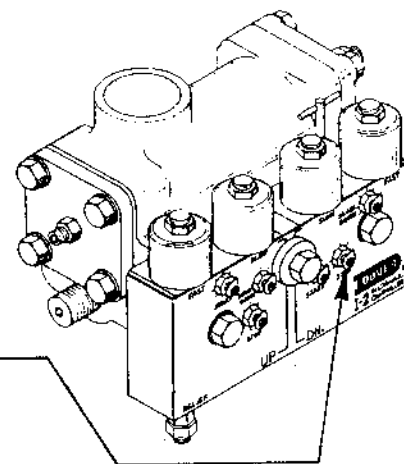
- Close line shutoff valve.

I-2 & I-3 OILDRAULIC® CONTROLLER ADJUSTMENTS

- b. Put control on "inspection" and turn power ON.
- c. Start power unit with "Up" inspection button and read pressure. Stop power unit immediately if pressure exceeds 500 PSI.
- d. Adjust relief valve to relieve at pressure indicated on the power unit nameplate. To increase relief pressure, turn IN the relief valve adjustment screw. To decrease relief pressure, turn OUT adjustment screw.
- e. Tighten locknut and recheck relief pressure.
- f. Stop power unit.
- g. Open line shutoff valve.



3. UP-SLOWDOWN AND UP-LEVELING SPEED ADJUSTMENTS
 - a. Turn up-slowdown adjustment OUT 10 turns.
 - b. Put control on "Inspection".
 - c. Start power unit with "Up" inspection button.
 - d. Turn IN the up-slowdown adjustment until car moves at 10 to 12 FPM.
 - e. Run car up to landing above.



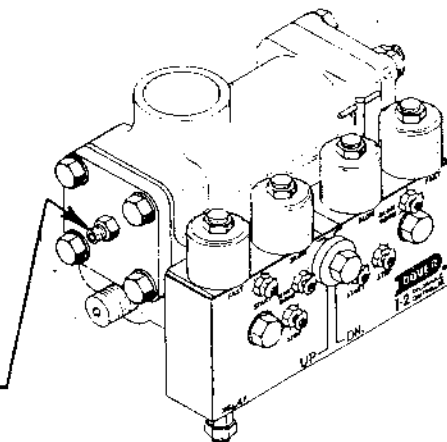
B. DOWN SIDE

1. With control on "Inspection", start car down.
2. It may be necessary to turn the down-stop adjustment IN to get the car to move. Adjust the down-stop until the speed is 10 to 12 FPM. Turn IN to increase speed.
3. Check to see that car will stop. If it does not stop, turn the down-stop adjustment OUT in small increments until you get a positive stop.

III. FINAL ADJUSTMENT (SET WITH AN EMPTY CAR)

Final up and down adjustments may be made simultaneously to save time, but this is not necessary. They MUST, however, be made in the order given, and it is important that you be completely satisfied with each adjustment before you continue to the next.

NOTE: If valve is on a power unit shipped from the factory and you are starting your adjustment at this point, the low pressure must be adjusted. Please complete initial low pressure adjustment as outlined in II - A - 1 before proceeding.



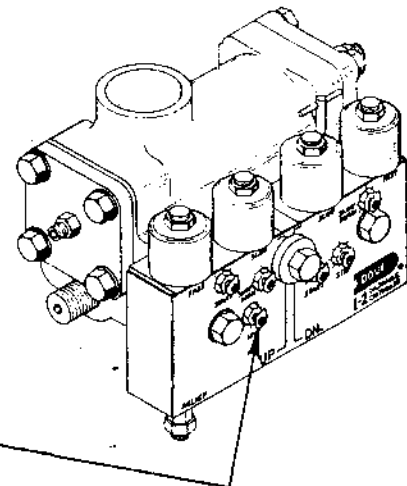
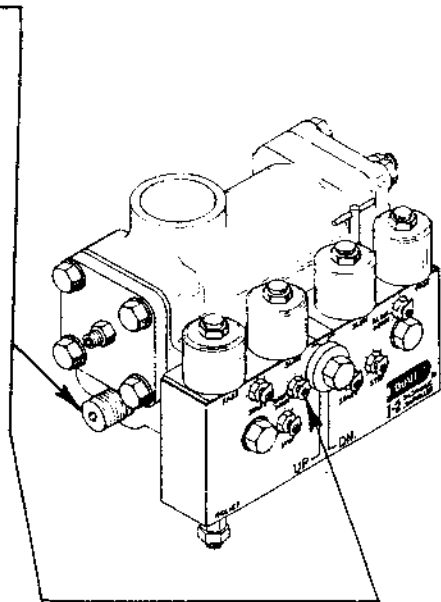
I-2 & I-3 OILDRAULIC® CONTROLLER ADJUSTMENTS

A. UP SIDE

1. UP-LEVELING SPEED AND UP-SLOWDOWN ADJUSTMENTS

NOTE: These adjustments affect each other. Turning IN the up-slowdown adjustment will make the up-slowdown softer and will increase the up-leveling speed. Turning IN the up-leveling speed adjustment will increase the up-leveling speed and will also make the up-slowdown softer.

- a. Put control on "Automatic" operation.
- b. Bring car to lowest landing.
- c. Run the car to the floor above and observe the leveling zone.
- d. Adjust the up-slowdown needle until you have 3 to 4 inches of leveling before final stop. Turning IN on the up-slowdown adjustment will shorten the leveling zone and will also increase the leveling speed. Turning OUT on the up-slowdown adjustment will lengthen the leveling zone and will also decrease the leveling speed.
- e. Each time you adjust the up-slowdown, you must recheck the up-leveling speed with the control on "Inspection" and adjust it accordingly. Turning IN the up-leveling speed adjustment increases leveling speed. Turning OUT on the up-leveling speed adjustment decreases leveling speed.
- f. The desired final adjustment should be a leveling speed of 10 to 12 FPM and 3 to 4 inches of leveling before final stop.



2. UP-STOP ADJUSTMENT

NOTE: The up-stop adjustment affects the up-start and must be adjusted before the up-start.

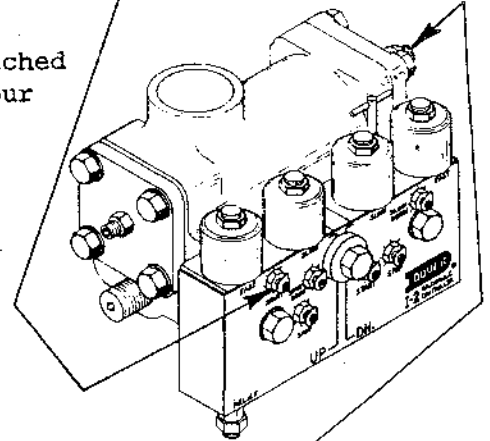
- a. Adjust the up-stop for a soft but positive stop. Turning IN on the adjustment makes the up-stop softer and also makes the up-start firmer.

I-2 & I-3 OILDRAULIC® CONTROLLER

ADJUSTMENTS

3. UP-START ADJUSTMENT

- Adjust the up-start for a smooth but positive start. Turning IN the adjustment makes the up-start smoother.
- Check to be certain full up speed is reached on a one floor run. This may require your making the UP-START more positive.

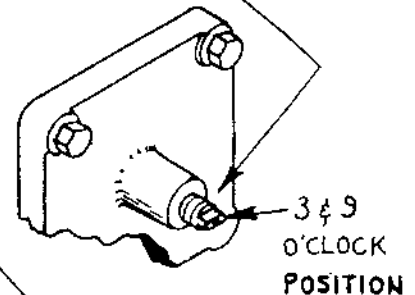


B. DOWN SIDE

NOTE: To prevent damage to valve seats, lowering and leveling speed adjustments must be made only while the car is in motion. (Up or Down)

1. LOWERING SPEED ADJUSTMENT

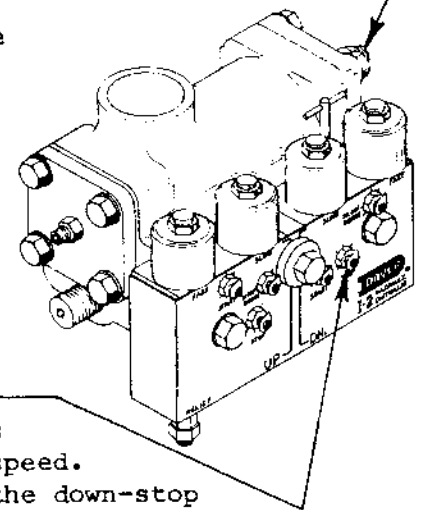
- Put control on "Automatic".
- Refer to the layout drawing and set the lowering speed with empty car by turning the lowering speed adjustment in 1/2 turn increments - leaving the ends of the screw pointing to 9 and 3 o'clock after each adjustment. Turning OUT on the lowering speed adjustment increases the lowering speed.



2. DOWN-LEVELING SPEED AND DOWN-STOP ADJUSTMENT

NOTE: The Down-leveling speed and the down-stop must be adjusted together since the down-stop affects the down-leveling speed. The down leveling speed, however, does not affect the down-stop.

- Put control on "Inspection" and adjust down-leveling speed to 10 to 12 FPM by turning the down-leveling speed adjustment in increments of a few degrees from the lowering speed setting. Turning OUT on the down-leveling speed adjustment increases the leveling speed.
- Adjust the down stop for a positive stop. Turning IN on the down-stop adjustment makes the stop softer and increases the leveling speed. If a softer stop is desired, do not adjust the down-stop before turning in all the way on the down slowdown adjustment. After desired down-stop is attained, readjust down slowdown.
- Check to see that down-leveling speed is set to 10 to 12 FPM.
- Tighten locknut on down-leveling speed adjustment.
- Recheck down-leveling speed.



I-2 & I-3 OILDRAULIC® CONTROLLER ADJUSTMENTS

Division	4
Section	P
Page	7

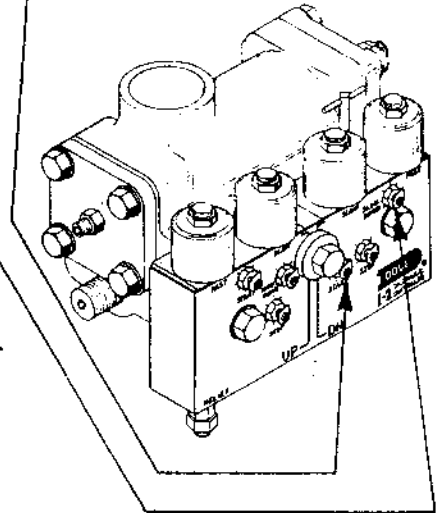
3. DOWN-START ADJUSTMENT

- a. Put control on "Automatic".
- b. Adjust the down-start adjustment to obtain a smooth start. Turning IN on down-start adjustment makes the start smoother.
- c. Check to be certain full down speed is reached on a one floor run. This may require your making the down-start more positive.

4. DOWN-SLOWDOWN ADJUSTMENT

NOTE: The effect of the down slow-down adjustment is opposite to previous adjustments. Turning OUT on the down-slowdown adjustment will shorten the leveling zone. Turning IN on the down-slowdown adjustment will lengthen the leveling zone. This adjustment should be made in small increments. The car will overshoot the landing if the adjustment is turned out too far.

- a. Turn OUT on down-slowdown adjustment in small increments until car has a leveling zone of 3 to 4 inches.



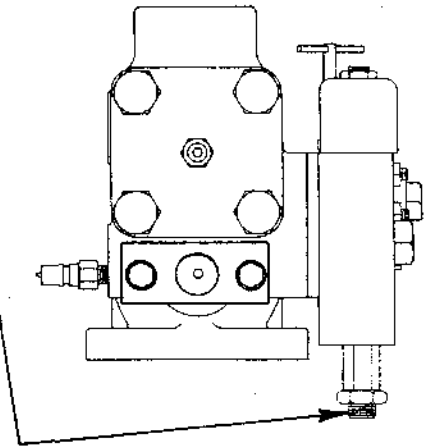
IV. PERFORMANCE CHECK WITH FULL LOAD

- A. Put capacity load on car.
- B. Run car on "Automatic" and check performance at all floors. All valve functions will become firmer. If adjustments are necessary, remember any change with full load will affect the empty car performance you had.
- C. The down-leveling speed will increase and the down-leveling zone will be shorter. It may be necessary to change the down-slowdown adjustment to be certain there is at least 2" of leveling. If necessary to increase the leveling zone, turn IN the down-slowdown adjustment. See Final Adjustments, Section III - B - 4.
- D. The up-leveling speed will increase. The up-leveling zone will change (it could be more or less) between no load and full load. Do not change any adjustments made with no load if you have at least 1" of up-leveling with full load. If necessary to increase the up-leveling zone, turn OUT on the up-slowdown adjustment. See Final Adjustments, Section III - A.
- E. Check that car is obtaining full speed in both directions on a one floor run.
- F. Record working pressure in the UP direction.
- G. Remove capacity load from car.

I-2 & I-3 OILDRAULIC[®] CONTROLLER ADJUSTMENTS

V. FINAL RELIEF PRESSURE ADJUSTMENT

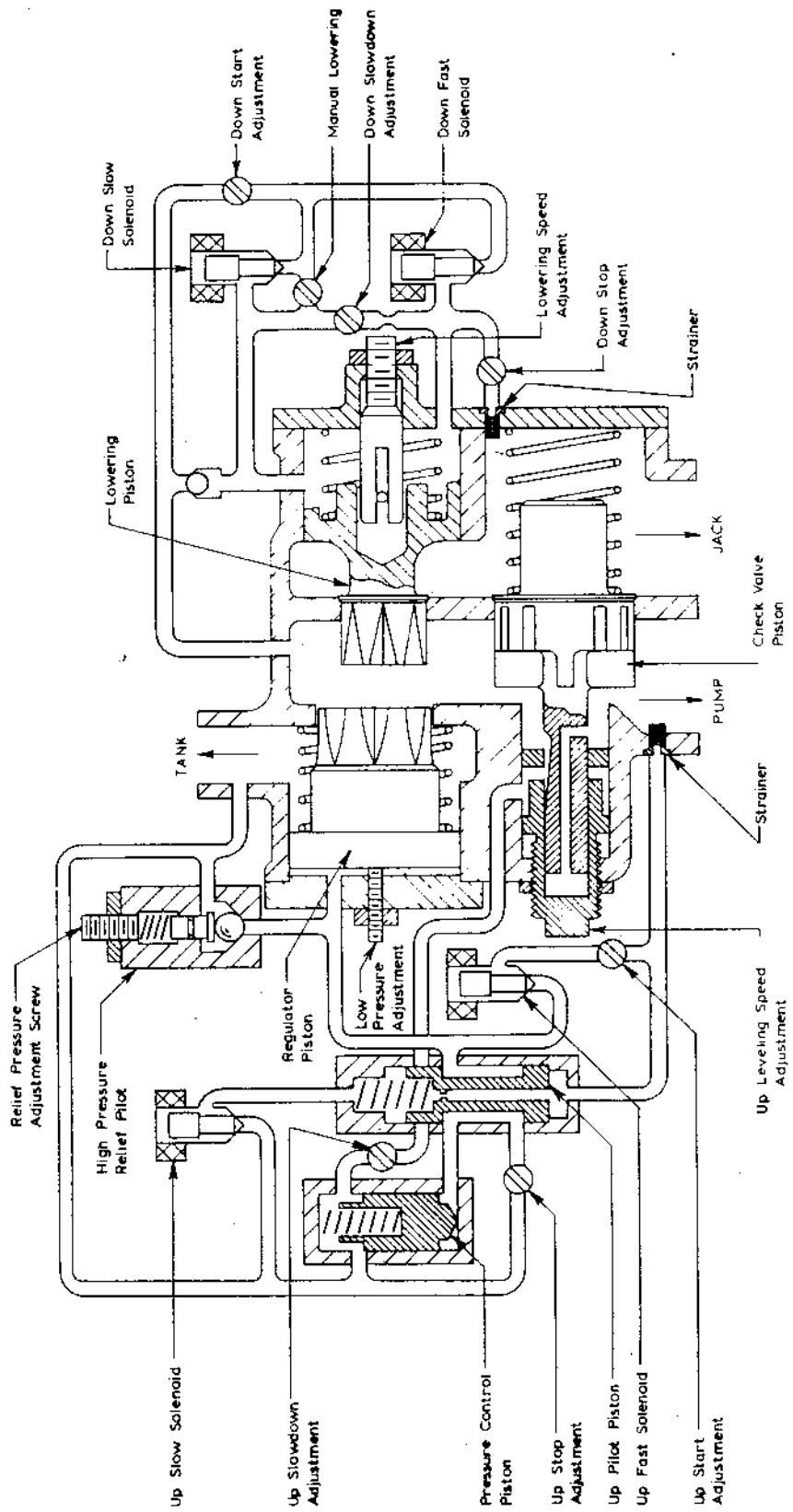
- A. Close line shutoff valve.
- B. Put control on "Inspection" and start pump with "Up" inspection button.
- C. Read relief pressure.
- D. Add 25% to the pressure recorded in Step IV - F and set relief valve to relieve at this pressure. To increase relief pressure, turn IN the adjustment screw. To decrease relief pressure, turn OUT the adjustment screw.
- E. Tighten locknut with pump running and recheck relief pressure.
- F. Stop power unit.
- G. Open line shutoff valve,



VI. Recheck operation with an empty car.

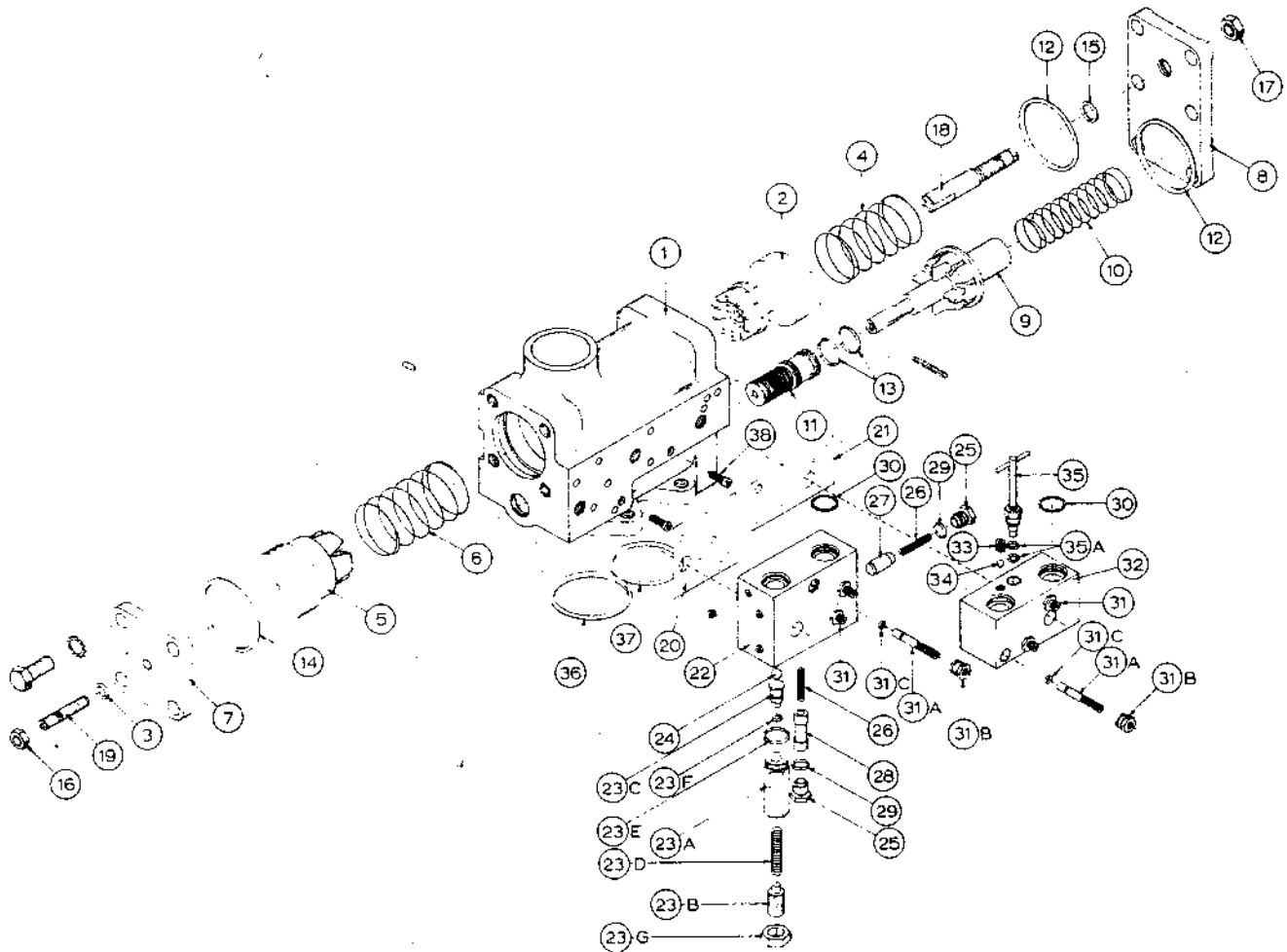
I-2 & I-3 OILDRAULIC® CONTROLLER SCHEMATIC

Division	4
Section	P
Page	9



I-2 & I-3 OILDRAULIC® CONTROLLER

EXPLODED VIEW



ITEM	DESCRIPTION	ITEM	DESCRIPTION
1	Valve Main Body (I-2 Shown)	23G	Hex Jam Nut
2	Lowering Piston	24	Relief Ball
3	"O" Ring	25	Up Pilot Cap
4	Lowering Spring	26	Up Pilot Spring
5	Regulator Piston	27	Pressure Control Piston
6	Regulator Spring	28	Up Pilot Piston
7	Regulator Cap	29	"O" Ring
8	Lower & Check Cap	30	Flange Seal
9	Check Valve Piston	*31	Adjustment Screw Assembly
10	Check Spring	31A	Adjustment Screw
11	Leveling Adjustor	31B	Adjustment Screw Cap
12	"O" Ring	31C	"O" Ring
13	"O" Ring	32	Down Pilot Body
14	"O" Ring	33	Pipe Plug
15	"O" Ring	34	Steel Ball
16	Sealing Nut	*35	Manual Lowering Valve
17	Hex Jam Nut	35A	"O" Ring
18	Lowering Adjust Screw	36	"O" Ring
19	Oval Point Socket Screw	37	"O" Ring
20	Up Pilot Gasket	38	Strainer
21	Down Pilot Gasket	*†39	Regulator Piston Assembly (Special)
22	Up Pilot Body	39A	Regulator Piston
*23	Relief Assembly	39B	Starter Spring
23A	Relief Body	39C	Starter Piston
23B	Relief Adjustment Screw	39D	Retaining Ring
23C	Relief Plunger	40	Leveling Adjustor Cap
23D	Relief Spring	41	Lockwasher
23E	"O" Ring	42	Slotted Hex Machine Screw
23F	"O" Ring		

*Where item number is followed by a letter, the item is included in the assembly identified by the item number alone.
†Used only when down speed exceeds up speed on I-2 controllers only.