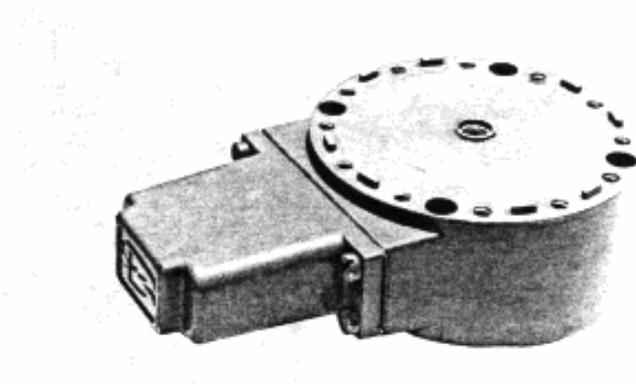


(S)X-4200  
Revision 01

**INSTALLATION  
& OPERATING  
INSTRUCTIONS**

**Model 4200 Adjustor**



**WARNING**

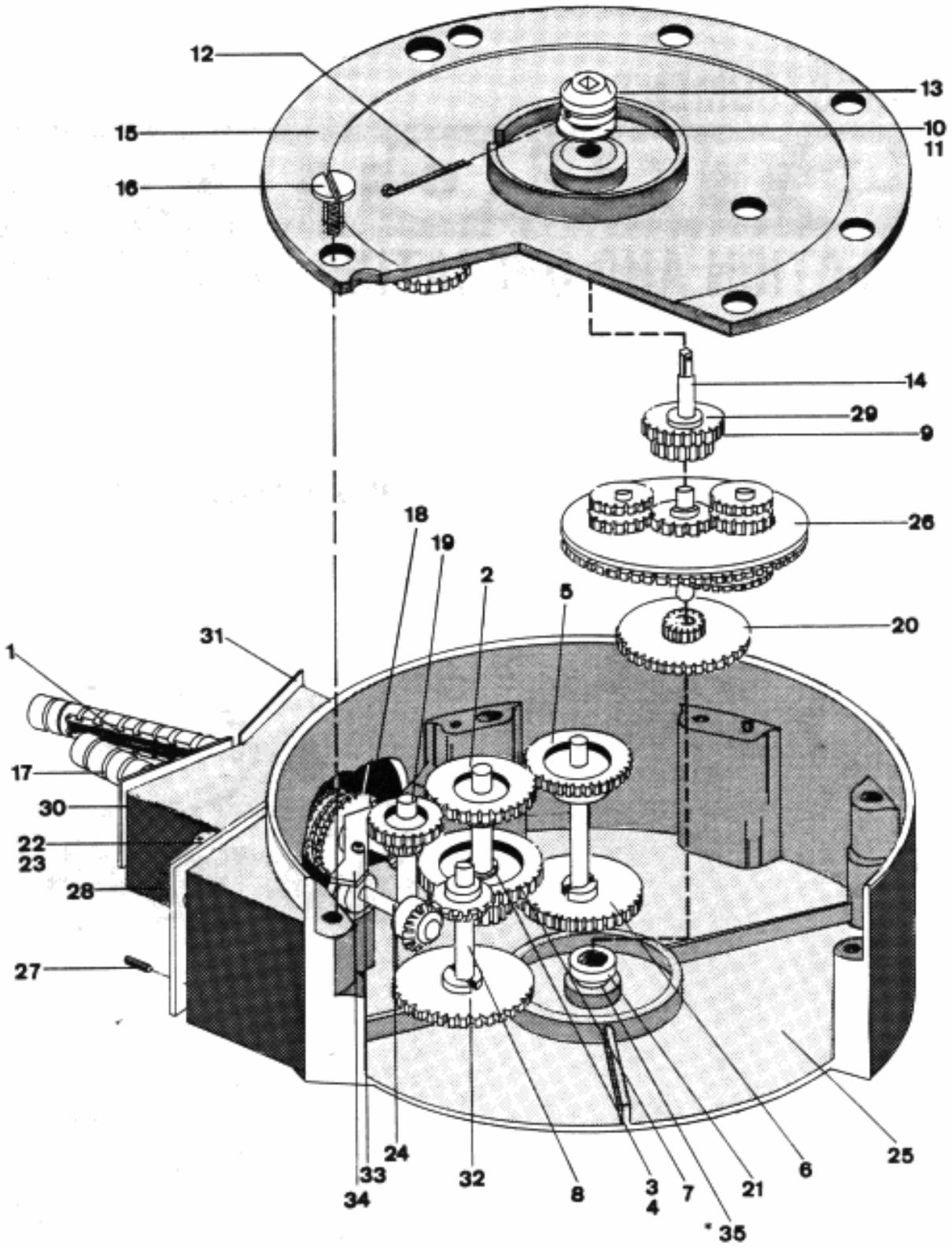
This publication must be read in its entirety before performing any operation. Failure to understand and follow these instructions could result in serious personal injury and/or damage to the equipment.

Should this equipment require repair or adjustment, contact the nearest Sales Office. It is important that servicing be performed only by trained and qualified service personnel. If this equipment is not properly serviced, serious personal injury and/or damage to the equipment could result.



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Install shims between bushing shoulder (item 21) and main housing to allow for .010 maximum vertical movement of output bushing.

Item	Part No.	Req.	Name
1	4290	1	Coarse Adj. Shaft and Gear Assembly
2	4235	1	Coarse Adj. Jackshaft Assembly
3	156484	1	Spring Clip
4	152518	1	Shim Washer
5	4245	1	Coarse Adj. Lay shaft Assembly (24T)
6	4295	1	Coarse Adj. Wheel Assembly (32T)
7	4270	1	Coarse Adj. Output Gear Assembly (30T x 16T)
8	4285	1	Fine Adj. Jackshaft Assembly (16T)
9	4080	1	Input Sun Gear Assembly (22T x 18T)
10	152516	1	Shim .010 (Alternative)
11	152503	1	Shim .015 (Alternative)
12	153901	1	Cotter Pin
13	4125	1	Coupling
14	4241	1	Input Drive Shaft
15	4215	1	Base Assembly
16	150632	5	Screws
17	4231	2	Adjustment Sleeve Assembly
18	4025-002	1	Gear Stack Assembly
19	4110	1	Input Jackshaft Assembly (22Tx 16T)
20	4255	1	Upper Planetary Sun Gear Assembly (37T x 11T)
21	4267	1	Output Drive Bushing
22	150526	2	Screws
23	152104	2	Washers
24	4230	1	Adj. Shaft Gear Assembly
25	4207	1	Adjustor Housing
26	4275	1	Main Planetary Assembly
27	153682	4	Groove Pins
28	4250	1	Adj. Gear Housing and Gear Assembly
29	151891	1	Washer
30	4049	1	Adjustment Clip - Left
31	4048	1	Adjustment Clip - Right
32	4280	1	Fine Adjustment Wheel Assembly (37T)
33	156141	2	Screws
34	4222	1	Bearing Cap
35	152532	1	Shim (.005)
	152533	1	Shim (.010)
	152534	1	Shim (.015)

## Service

The Model 4200 Adjustor should be inspected and cleaned at regularly scheduled intervals. At these times all parts should be thoroughly cleaned in kerosene or solvent; all gears, shafts and bushings checked for excessive wear. Any defective or doubtful parts should be replaced.

## To Disassemble Adjustor

1. Take out the five 150632 screws (item 16) and remove 4215 base assembly (item 15) leaving the 4125 coupling (item 13) intact.
2. The following parts and assemblies may now be removed: 4285 Jack shaft, 4280 Gear, 4210 Jackshaft, 4235 Jackshaft, 4270 Gear, 4245 Shaft, 4295 Wheel and the 4275 Main Planetary Assembly.

**NOTE:** If the replacement of a 4080 Input Gear (item 9) is necessary, remove the 4125 coupling on top side of 4215 base.

Further disassembly should not be necessary.

## Reassemble Adjustor

Lubricate all metal gears, shafts and bushings sparingly with Aero Lubricate before replacing.

Do not lubricate the plastic gears.

1. Replace 4267 bushing (item 21) into 4207 housing (item 25) with side up as shown in Figure 1.
2. Replace 4255 gear (item 20) onto 4275 Main Planetary (item 26) shaft and fit into the 4267 bushing (item 21).
3. Replace 4280 gear (item 32) with slotted side up and 4285 Jackshaft (item 8).
4. Replace 4210 Jackshaft (item 19). It has no gear on bottom.
5. Assemble 4235 shaft (item 2), which has the 156484 clip and 152518 washer (items 3 and 4). Add the 4270 gear (item 7) and fit into 3rd hole from right.
6. Replace 4295 gear (item 6) on the 4245 shaft (item 5).

**NOTE:** Be certain the pin in the shafts (4285 and 4245) are fully engaged by the slot in the gear hub.

7. Align the holes on the 4215 base (item 15) with the 4207 housing (item 25) and install five 150632 screws (item 16) and tighten.
8. With all screws and 4125 coupling in place, check the adjustor for freeness of operation. The adjustor must operate without binds or catches when turned by the 4125 coupling. Allow coupling to hang freely while turning.

## ACCURACY ADJUSTMENT

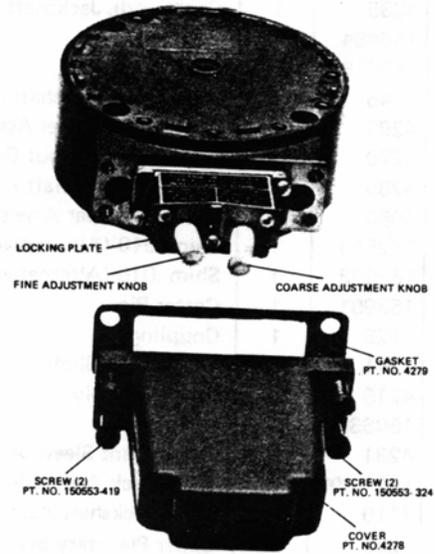
BiRotor Meters are adjusted for accuracy by changing the gear ratio between the meter packing shaft and the counter until the counter registers the amount of liquid measured.

The Model 4200 Adjustor accomplishes this change in positive and definite increments with its two adjusting knobs—one for coarse adjustments and one for fine adjustments.

To make an adjustment, lift locking plate and push knob IN TO DECREASE counter reading or pull knob OUT TO INCREASE counter reading.

Each Groove of Fine Adjustment = .05 (1/20) percent of volume delivered  
 = .0005 gals. per gallon delivered  
 = .116 cu. in. (U.S.) per gallon delivered  
 = .064 oz. (U.S.) per gallon delivered  
 = .139 cu. in. (Br. Imp.) per gal. delivered  
 = .50 c.c. per liter delivered

Each Groove of Coarse Adjustment = .60 (6/10) percent of volume delivered  
 = .006 gals. per gallon delivered  
 = 1.386 cu. in. (U.S.) per gallon delivered  
 = .786 oz. (U.S.) per gal. delivered  
 = 1.665 cu. in. (Br. Imp.) per gal. delivered  
 = 6 c.c. per liter delivered

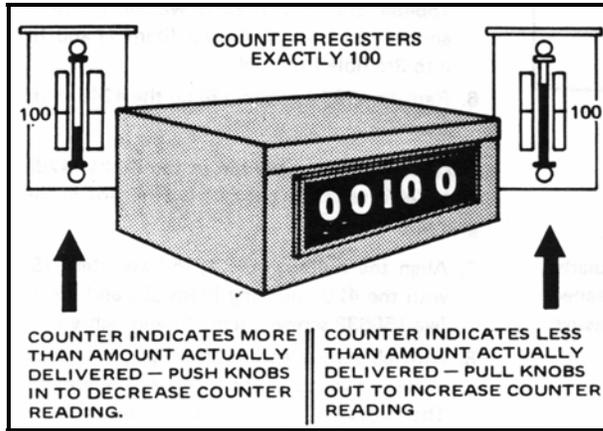


## Calibrating Meter into Prover Tank

Make a run into the prover to wet lines and tank. Drain tank.

**NOTE:** Drain tank the same length of time for each run. Make at least two calibrating runs into prover that agree closely.

The sketch below illustrates counter over-registration (short gallon) and counter under-registration (long gallon)



Each Coarse Groove Equals: .6% of Vol. Delivered	Each Fine Groove Equals: .05% of Vol. Delivered
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### U.S. MEASUREMENT

6 gals.	In	1000 gals.	1/2 gals.	In	1000 gals.
3 gals.	In	500 gals.	57.8 cu. in.	In	500 gals.
138.6 cu. In.	In	100 gals.	11.6 cu. in.	In	100 gals.
69.3 cu. In.	In	50 gals.	5.8 cu. in.	In	50 gals.
34.7 cu. In.	In	25 gals.	2.9 cu. in.	In	25 gals.
13.9 cu. In.	In	10 gals.	1.2 cu. in.	In	10 gals.

### IMPERIAL MEASUREMENT

6 gals.	In	1000gals.	1/2 gals.	In	1000gals.
3 gals.	In	500 gals.	69.4 cu. in.	In	500 gals.
166.5cu.in.	In	100gals.	13.9cu.in.	In	100gals.
83.3 cu. in.	In	50 gals.	6.9 cu. in.	In	50 gals.
41.6 cu. in.	In	25 gals.	3.5 cu. in.	In	25 gals.
16.65 cu. in.	In	10 gals.	1.4 cu. in.	In	10 gals.

### METRIC MEASUREMENT

6 liters	in	1000 liters	2.5 liters	in	5000 liters
30 liters	in	5000 liters	1500 c.c.	in	3000 liters
181 liters	in	3000 liters	1500 c.c.	in	1000 liters
3 liters	in	500 liters	250 c.c.	in	500 liters
1200 c.c.	in	200 liters	100 c.c.	in	200 liters
600 c.c.	in	100 liters	50 c.c.	in	100 liters

Record adjustor setting before making an adjustment by counting grooves from end of knobs to locking plate.

**LIMITED WARRANTY**

Seller warrants that the Goods manufactured by Seller will be free from defects in materials or workmanship under normal use and service until the expiration of the earlier of twelve (12) months from the date of initial installation or eighteen (18) months from the date of shipment by Seller. Consumables, including, without limitation, glass parts and electrodes, membranes, liquid junctions, electrolytes and reagents, o-rings, plastic tubing, etc. are warranted to be free from defects in material and workmanship under normal use and service for a period of ninety (90) days from the date of shipment by Seller. If, within thirty (30) days after Buyer's discovery of any warranty defects during the applicable warranty period, Buyer notifies Seller thereof in writing, Seller shall, at its option, promptly correct any errors that are found by Seller to exist in the Software, or repair or replace F.O.B. point of manufacture, that portion of the Goods or Software found by Seller to be defective. All replacements or repairs necessitated by inadequate preventive maintenance, or by normal wear and usage, or by fault of Buyer, or by unsuitable power sources or by attack or deterioration under unsuitable environmental conditions, or by abuse, accident, alteration, misuse, improper installation, modification, repair, storage or handling, or any other cause not the fault of Seller are not covered by this limited warranty, and shall be at Buyer's expense. Seller shall not be obligated to pay any costs or charges incurred by Buyer or any other party except as may be agreed upon in writing in advance by an authorized Seller representative. All costs of dismantling, reinstallation and freight and the time and expenses of Seller's personnel for site travel and diagnosis under this warranty clause shall be borne by Buyer unless accepted in writing by Seller. Goods repaired and parts replaced during the warranty period shall be in warranty for the remainder of the original warranty period or ninety (90) days, whichever is longer. This limited warranty is the only warranty made by Seller and can be amended only in a writing signed by an authorized representative of Seller. There are no representations or warranties of any kind, express or implied, as to merchantability, fitness for particular purpose, or any other matter with respect to any of the goods or software.