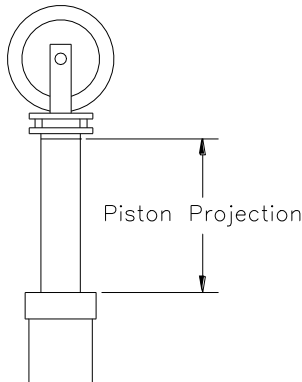


Piston Projection Calculations

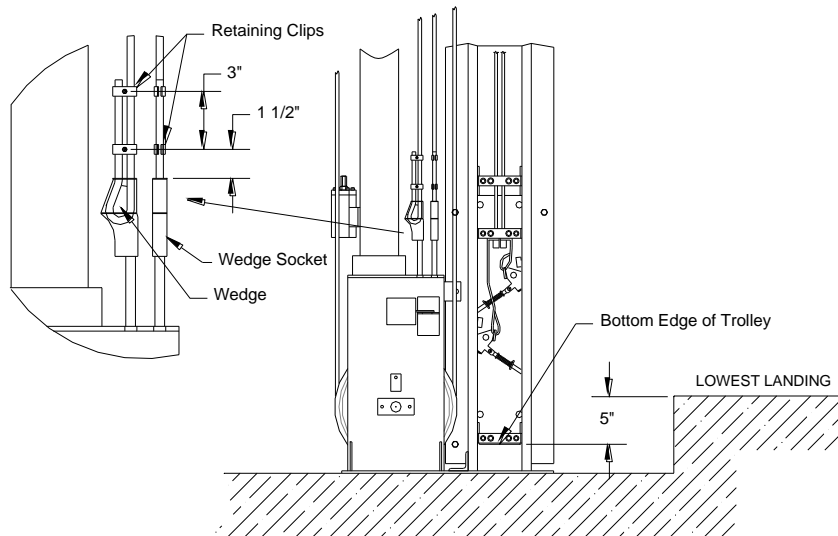
Purpose: To extend the hydraulic plunger so that the plunger runs into the stop ring BEFORE it pushes the elevator car through the ceiling.



Verify Supplied Equipment

1. Measure the hydraulic cylinder, pit, travel, and overhead in the hoistway.
2. The hydraulic cylinder is measured in inches from the bottom. Confirm the jack size from the chart below and the original Inclinator order form.
3. Verify (see Table 1) that the hydraulic cylinder is not too long for the existing hoistway and that the elevator will reach the top floor.

Procedure



1. Use a 'C' clamp to position the slide trolley so the lower axle is 5" from the lowest floor served. (see sketch above)
2. Calculate the piston projection from Table II below or Calculate the projection with the formula provided at the end of Table II.
3. Use the hoist contactor to jog the plunger from the cylinder the Piston Projection (see sketch above) from Table II or calculated length.
4. With the proper Piston Projection pull the wire ropes as tight as possible with the wedge socket nuts towards the end of the threaded rod. Adjust the tension on the wire ropes with the wedge socket adjusting nuts.
5. Remove the platform and verify the cylinder stops 2" above the upper floor.
6. Make any necessary adjustments and cut the excess rope.
7. Install all cotter pins, retaining clips and apply seizing wire.

TABLE I (Max. travel for typical Jacks)

Jack Size	Maximum Travel	Minimum Shaft *
65	10'-6"	14'-5"
93	15'-2"	20'-1"
120	19'-8"	23'-7"
147	24'-2"	28'-1"
180	29'-8"	33'-5"
205	33'-10"	37'-9"
228	37'-8"	41'-8"

*Shaft as measured from pit floor to ceiling.

TABLE II Jack Extension (when roping)

Jack Size	Travel	Jack Extension	Jack Size	Travel	Jack Extension
65	4'-0"	39"	180	24'-0"	34"
	4'-6"	36"		24'-6"	31"
	5'-0"	33"		25'-0"	28"
	5'-6"	30"		25'-6"	25"
	6'-0"	27"		26'-0"	22"
	6'-6"	24"		26'-6"	19"
	7'-0"	21"		27'-0"	16"
	7'-6"	18"		27'-6"	13"
	8'-0"	15"		28'-0"	10"
	8'-6"	12"		28'-6"	7"
	9'-0"	9"		29'-0"	4"
	9'-6"	6"		29'-6"	1"
	10'-0"	3"		29'-8"	0"
10'-6"	0"				
93	10'-0"	31"	205	29'-0"	29"
	10'-6"	28"		29'-6"	26"
	11'-0"	25"		30'-0"	23"
	11'-6"	22"		30'-6"	20"
	12'-0"	19"		31'-0"	17"
	12'-6"	16"		31'-6"	14"
	13'-0"	13"		32'-0"	11"
	13'-6"	10"		32'-6"	8"
	14'-0"	7"		33'-0"	5"
	14'-6"	4"		33'-6"	2"
	15'-0"	1"		33'-10"	0"
	15'-2"	0"			

Handout D

120	15'-0"	28"		228	33'-0"	28"
	15'-6"	25"			33'-6"	25"
	16'-0"	22"			34'-0"	22"
	16'-6"	19"			34'-6"	19"
	17'-0"	16"			35'-0"	16"
	17'-6"	13"			35'-6"	13"
	18'-0"	10"			36'-0"	10"
	18'-6"	7"			36'-6"	7"
	19'-0"	4"			37'-0"	4"
	19'-8"	0"			37'-6"	1"
					37'-8"	0"
147	19'-0"	31"				
	19'-6"	28"				
	20'-0"	25"				
	20'-6"	22"				
	21'-0"	19"				
	21'-6"	16"				
	22'-0"	13"				
	22'-6"	10"				
	23'-0"	7"				
	23'-6"	4"				
	24'-0"	1"				
	24'-2"	0"				

$$\text{JACK EXTENSION} = (\text{JACK SIZE} - 2'') - (\text{TOTAL TRAVEL}/2)$$

Total Travel = Distance from Lower floor level to Upper floor level

Jack Size = (Jack) Piston Stroke (maximum)

Example: Jack Size – 120
Total Travel – 18'-0"

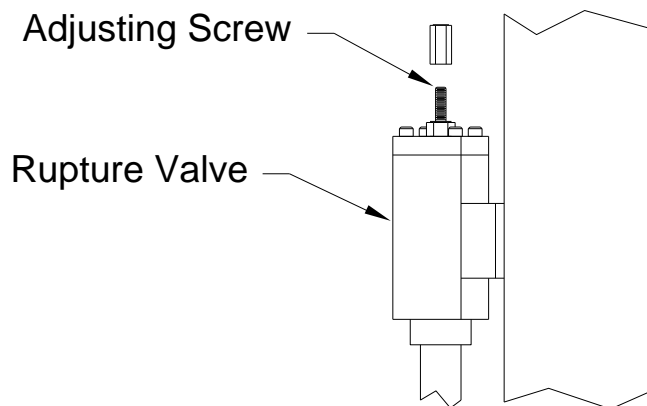
$$\text{Jack Extension} = (120 - 2) - (18 \times 12 / 2) = \underline{\mathbf{10}}'$$

RUPTURE VALVE ADJUSTMENT

IMPORTANT – The Rupture Valve must be adjusted after the car is installed and adjustment to the car down speed has been completed.

NOTE: Adjusting the Rupture Valve requires a 4mm Hex key wrench and a 13mm wrench to loosen or tighten the lock nut.

1. Load the car to full capacity.
2. Send the car to the top floor.
3. Loosen lock nut with 13mm wrench. Screw the Adjusting screw out (counterclockwise) to stop.
4. Call elevator down at full contract speed. Rupture valve should not trip.
5. Send the car to the top floor.
6. Screw the Adjusting screw in two (2) turns and call elevator down. If the rupture valve does not trip, repeat steps 5 and 6 until it does trip.
7. When the Rupture valve trips, send car to top floor and screw the adjustment screw out (CCW) 3 turns.
8. Call the car down and the Rupture valve should not trip.
9. Tighten lock nut holding adjustment screw at the same time. Note – lock nut is also a seal nut, do not over- tighten. Replace the cap onto screw.



IMPORTANT: The rupture valve must close at no less than 110% or no more than 140% of the normal down speed.

A TACHOMETER MUST BE USED TO ACCRUATELY MEASURE THE SPEED OF THE CAR IN THE DOWN DIRECTION.