# Ariel Dynamics Inc. Media Library - Video 

## Output Pack Assembly



| Code | adi-vid-01182 |
| ---: | :--- |
| Title | Output Pack Assembly |
| Subject | Activities |
| Duration | 00:59:01 |
| URL | https://arielweb.com/videos/play/adi-vid- |
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## Video Synopsis

The video is a detailed tutorial on the assembly of a hydraulic valve system. The speaker explains the process step by step, emphasizing the importance of cleanliness, precision, and the correct use of tools and materials.

The assembly process includes:

1. Ensuring all parts are free of burrs from machining.
2. Pressing a pin into a hole on the top face of the valve body.
3. Installing check valves and a cone spring.
4. Inserting a retaining ring with the sharp edge facing upward.
5. Installing O-rings in specific grooves.
6. Preparing the valve stem, which should be free from the thread and able to go through a gauge of a 440 .
7. Applying a job of lock tight, a red color strong but not permanent adhesive.
8. Inserting the valve stem into the valve body.
9. Preparing the mounting block for the motor, ensuring it's clean and free of burrs.
10. Installing more O-rings and backup rings in specific locations.
11. Assembling the spool and sleeve, ensuring they are paired correctly.
12. Installing a brass fitting check valve plug.
13. Installing a hydraulic plug.
14. Installing a nipple and an elbow for the pressure transducer.

The speaker also provides tips and tricks to avoid common mistakes, such as ensuring the O-rings are properly lubricated to prevent leakage and using the correct amount of Teflon tape on the threads of the fittings.

## Video Synopsis

The video is a detailed guide on how to assemble and adjust a hydraulic valve system. The speaker provides step-by-step instructions on how to assemble the parts, emphasizing the importance of cleanliness and precision.

Key steps include:

1. Assembling the elbow and ensuring it is tight but not overly so.
2. Preparing the parts by cleaning them and avoiding touching the grease.
3. Inserting the parts carefully, paying attention to the orientation of the holes.
4. Applying lock tight and adjusting the flange.
5. Adjusting the spool and ensuring it is not too far in.
6. Assembling the motor and attaching the ground wire.
7. Assembling the accumulator and ensuring it is on the correct side.
8. Installing the hydraulic cylinder and attaching the fittings.
9. Filling the system with oil and attaching the linear transducer.

The speaker also provides tips on how to troubleshoot potential issues, such as adjusting the spool if it is too far in, and the importance of never forcing parts into place. The video ends with the speaker demonstrating how to install the final parts and fill the system with oil.

## Audio transcription

| Frame |  | Time | Spoken text |
| :--- | :--- | :--- | :--- | :--- |



| \# | Time | Spoken text |
| ---: | :--- | :--- |
| 31. | $\mathbf{0 0 : 0 2 : 5 8}$ | Let me see it. |
| 32. | $\mathbf{0 0 : 0 3 : 1 0}$ | Okay. |
| 33. | $\mathbf{0 0 : 0 3 : 2 8}$ | Press this pin in. |
| 34. | $\mathbf{0 0 : 0 3 : 3 0}$ | Okay. |


35. 00:03:56 Make sure, where did you put the pins?
36. 00:03:58 It has to be flush.
37. 00:04:00 Okay.
38. 00:04:01 These are the check valves.
39. 00:04:02 Check valve.

40. 00:04:04 On this end, where the ball goes in.
41. 00:04:06 Jump in.
42. 00:04:08 Hold on to this.
43. 00:04:09 Make sure the ball can release it.
44. 00:04:12 Okay.

45. 00:04:13 Then you get a spring cone spring.
46. 00:04:17 A small end of the cone going in first.
47. 00:04:21 Okay.
48. 00:04:23 That's the spring.
49. 00:04:25 Let's sit like that.

50. 00:04:27 And the retaining ring.
51. 00:04:29 There's two sides.
52. 00:04:30 You look closely.
53. 00:04:31 One has a round edge.
54. 00:04:33 One has a sharp edge.

55. 00:04:35 The sharp edge is the edge facing upward.
56. 00:04:45 Let me.
57. 00:04:56 Okay.
58. 00:04:58 The retaining ring will go to the goo.
59. 00:05:01 Make sure it goes to the goo.

| 60. | $\mathbf{0 0 : 0 5 : 0 3}$ | Okay. |
| :--- | :--- | :--- |
| 61. | $\mathbf{0 0 : 0 5 : 0 5}$ | Get a screwdriver. |
| 62. | $\mathbf{0 0 : 0 5 : 0 7}$ | Here. |



| \# | Time | Spoken text |
| ---: | :--- | :--- |
| 63. | $\mathbf{0 0 : 0 5 : 1 6}$ | Sure. |
| 64. | $\mathbf{0 0 : 0 5 : 1 8}$ | They go in. |

65. 00:05:19 Make sure they don't go further in too far in.
66. 00:05:23 Make sure they're just in the goo.
67. 00:05:25 Okay.
68. 00:05:26 Now everything should be there.
69. 00:05:28 Okay.
70. 00:05:29 And you can get something like a pencil that decides soft.
71. 00:05:34 Let me.
72. 00:05:41 Something like this.
73. 00:05:42 Soft material.
74. 00:05:44 Push on the ball.

75. 00:05:45 And you can see it bouncing.
76. 00:05:47 Okay.
77. 00:05:49 There are four of them like several.
78. 00:05:51 Okay.
79. 00:05:52 Now.

80. 00:05:54 This is number 16 O-ring.
81. 00:06:00 Number 16.
82. 00:06:04 Okay.
83. 00:06:06 The whole ring goes on this groove.
84. 00:06:08 Make sure it's clean.

85. 00:06:09 Make sure no burr, no soft edge.
86. 00:06:11 Go over that.
87. 00:06:13 Number 16.
88. 00:06:15 Number 16.
89. 00:06:17 Make sure it goes into the groove.


\# Time Spoken text
90. 00:08:22 Where is your hand?
91. 00:08:23 I'm going so close.
92. 00:08:25 Okay.
93. 00:08:26 Here it is.
94. 00:08:28 Okay.
95. 00:08:29 So this screw is doing what?

96. 00:08:30 It's holding the any thread rod into this puppet.
97. 00:08:38 Okay.
98. 00:08:39 Then just get a wrench.
99. 00:08:44 Okay.
100. 00:08:45 Out in the wrench, just screw it in tight.

101. 00:08:51 And you screw it in turn around.
102. 00:08:54 That's holding what?
103. 00:08:55 Holding this section.
104. 00:08:57 I see.
105. 00:08:58 Okay.

106. 00:08:59 Fine.
107. 00:09:00 Okay.
108. 00:09:01 When you screw it in, use this sort and tighten it.
109. 00:09:03 So even though it's screwed in, you still have to hold it with a pin.
110. 00:09:07 No.

111. 00:09:08 When you screw it in, this, this set screw will wrap on there.
112. 00:09:12 Oh, there is no, there is no thread on the other side.
113. 00:09:15 No.
114. 00:09:16 Okay.
115. 00:09:17 Now this is done.


| \# | Time | Spoken text |
| ---: | :--- | :--- |
| 159. | $\mathbf{0 0 : 0 9 : 3 8}$ | The preferred clearing area between the oldie of the spool and the sleeve should be |

160. 00:09:46 around four or three thousand, ten of a thousand per side.
161. 00:09:53 For me, it's Greek, but it's okay.
162. 00:09:55 We don't understand.
163. 00:09:56 Yeah.
164. 00:09:58 For me, it worked great.

165. 00:10:00 It's somewhere around eight to one thousand, eight-tenth of a thousand to one thousand.
166. 00:10:05 Okay.
167. 00:10:06 This one, Jerry has, it's around two-tenth of a thousand.
168. 00:10:09 Two and a half-tenth of a thousand.
169. 00:10:12 But I think it's okay.

170. 00:10:13 It's a little tight, but it's still okay.
171. 00:10:17 Okay.
172. 00:10:18 Now.
173. 00:10:20 Next thing we're prepared is putting the o-ring in here.
174. 00:10:24 Oh, yeah.

175. $\quad \mathbf{0 0 : 1 0 : 2 5} \quad$ This is the one that was missing?
176. 00:10:26 Yes.
177. 00:10:27 Okay.
178. 00:10:28 This is number eighteen o-ring.
179. 00:10:30 Two of them.

| 180. | $\mathbf{0 0 : 1 0 : 3 2}$ | Okay. |
| :--- | :--- | :--- |
| 181. | $\mathbf{0 0 : 1 0 : 3 3}$ | I see. |
| 182. | $\mathbf{0 0 : 1 0 : 3 4}$ | Okay. |
| 183. | $\mathbf{0 0 : 1 0 : 3 5}$ | I see now. |
| 184. | $\mathbf{0 0 : 1 0 : 3 7}$ | Two o-ring. |





| \# | Time | Spoken text |
| ---: | :--- | :--- |
| 259. | 00:12:33 | It's inside. |

260. 00:12:34 That's the one.
261. 00:12:35 That's the one that will stop the oil coming from the screw out.
262. 00:12:39 Right.
263. 00:12:40 Okay.
264. 00:12:41 Two backup.

265. 00:12:43 What number is this?
266. 00:12:46 Number ten backup and number ten.
267. 00:12:48 Okay.
268. 00:12:49 Two backup and one o-ring.
269. 00:12:50 That's a standard number ten.

270. 00:12:52 Right.
271. 00:12:53 Yeah.
272. 00:12:54 Okay.
273. 00:12:55 Oh yeah.
274. 00:12:56 Oh, you need both of them.

275. 00:12:57 Okay.
276. 00:12:58 Oh, it's a one that is cut in the middle of something?
277. 00:13:00 It's called a scar cut.
278. 00:13:01 Okay.
279. 00:13:02 They already cut it for you.

280. 00:13:03 When you bought it.
281. 00:13:04 The scar cut.
282. 00:13:05 I didn't have this on the old pocket.
283. 00:13:07 No, the other one.
284. 00:13:08 You use a seal.


| 285. | $\mathbf{0 0 : 1 3 : 0 9}$ | That seal is difficult to get. |
| :--- | :--- | :--- |
| 286. | $\mathbf{0 0 : 1 3 : 1 0}$ | Yes. |
| 287. | $\mathbf{0 0 : 1 3 : 1 1}$ | And it's more difficult to in place it without backing it up. |
| 288. | $\mathbf{0 0 : 1 3 : 1 5}$ | Yeah. |
| 289. | $\mathbf{0 0 : 1 3 : 1 6}$ | That's the Thomas secrets. |

290. 00:13:18 Yeah.

291. 00:13:53 Inside the hole.
292. 00:13:54 So it's a backup o-ring backup.
293. 00:13:56 Very good.
294. 00:13:57 Very good.
295. 00:13:58 If you look carefully.


\# Time Spoken text
296. 00:14:56 You use a silicone.
297. 00:14:57 Silicone grease.
298. 00:14:58 Yeah.
299. 00:14:59 Okay.
300. 00:15:00 Make sure you apply silicone grease.
301. 00:15:03 Okay.
302. 00:15:05 Doesn't need to be that much.
303. 00:15:10 All right.
304. 00:15:13 And apply it a little.
305. 00:15:15 So when it goes in, it doesn't grab on any sharp edge.
306. 00:15:20 And it got cut on the o-ring.
307. 00:15:22 Then it becomes a leakage.
308. 00:15:25 At this point you might as well apply some.
309. 00:15:29 Okay.
310. 00:15:30 So this is prepared.
311. 00:15:32 And in fact.
312. 00:15:33 What do you call this piece?
313. 00:15:35 This one is a mounting block for the motor.
314. 00:15:37 Okay.
315. 00:15:38 Mounting block.
316. 00:15:39 And in fact, when you gather enough o-ring for 10 set.

317. 00:15:44 Okay.
318. 00:15:45 Yeah.
319. $\mathbf{0 0 : 1 5 : 4 6}$ So that in the little part, separate them, pump some oil, put some hydraulic oil that we use
320. 00:15:51 and wow.
321. 00:15:52 That will lubricate it.

322. 00:15:53 That way you can, for sure, you already lubricate it.
323. 00:15:57 You don't need to put grease.
324. 00:15:58 Okay.
325. 00:15:59 Yes.
326. 00:16:00 I mean, next thing is number 28.
327. 00:16:04 O-ring.

328. 00:17:12 Since we increase our check valve in.

\# Time Spoken text
329. 00:17:16 Since we don't have oil on the O-ring, we apply some grease.
330. 00:17:20 Okay.
331. 00:17:21 The ball angle in first.
332. 00:17:23 You just drop it in.

333. 00:17:24 Yes.
334. 00:17:26 Press it in.
335. 00:17:27 You just feel the sound.
336. 00:17:29 Yes.
337. 00:17:30 Second one.

338. 00:17:32 Apply some grease.
339. 00:17:36 Drop it in.
340. 00:17:39 Push.
341. 00:17:40 I didn't hear the click.
342. 00:17:43 Not yet.

343. 00:17:44 I didn't get to push it.
344. 00:17:46 I need something to push it.
345. 00:17:49 Thanks.
346. 00:17:52 I need something to push it in.
347. 00:17:55 Okay.

348. 00:17:56 This one got a little harder.
349. 00:17:58 Hold on.
350. 00:17:59 You know what l'm thinking.
351. 00:18:12 You felt that it didn't click.
352. 00:18:13 That's why you avoid.


| 450. | $\mathbf{0 0 : 1 8 : 1 4}$ | Right? |
| :--- | :--- | :--- |
| 451. | $\mathbf{0 0 : 1 8 : 1 5}$ | Yes. |
| 452. | $\mathbf{0 0 : 1 8 : 1 6}$ | After a look, make sure there's not a sharp corner. |
| 453. | $\mathbf{0 0 : 1 8 : 1 8}$ | Okay. |
| 454. | $\mathbf{0 0 : 1 8 : 1 9}$ | Okay. |


\# Time Spoken text
459. 00:18:25 Two more.
460. 00:18:26 Yeah.
461. 00:18:27 Same thing.
462. 00:18:28 Same procedure.
463. 00:18:29 Okay.
464. 00:18:30 Great.

465. 00:18:31 Good.
466. 00:18:32 All right.
467. 00:18:33 Okay.
468. 00:18:34 Next thing.
469. 00:18:36 Great.

470. 00:18:44 Good.
471. 00:18:45 All right.
472. 00:18:47 Okay.
473. 00:18:48 Next thing is you clunk everything around.
474. $\quad \mathbf{0 0 : 1 8 : 5 1} \quad$ No, no, it doesn't go with the tripod.

475. 00:18:54 Yeah.
476. 00:18:55 Because I have to adjust all the time when you move it.
477. 00:18:57 Okay.
478. 00:18:58 Okay.
479. 00:18:59 What do you need?

480. 00:19:00 Teflon tape is tape.
481. 00:19:07 Teflon tape.
482. 00:19:09 Teflon tape.
483. 00:19:10 Okay.
484. 00:19:11 Teflon tape.

485. 00:19:12 All the plug.
486. 00:19:15 Okay.
487. 00:19:16 These are the plugs on the outside that before we had the leak, right?
488. 00:19:19 Is that the one?
489. 00:19:20 So we had the liquid?




| \# | Time | Spoken |
| ---: | :--- | :--- |
| 558. | $\mathbf{0 0 : 2 1 : 3 1}$ | Yeah. |
| 559. | $\mathbf{0 0 : 2 1 : 3 2}$ | Okay. |


565. 00:21:39 Put it in the sleeve.
566. 00:21:41 Take out the spool, but very careful.
567. 00:21:44 Put it in the clean area.
568. 00:21:46 Don't drop.
569. 00:21:47 Don't do anything to it.

570. 00:21:49 And don't mix it with any other because they are hung and lapped to fit in pair.
571. 00:21:54 The main part.
572. 00:21:56 Okay.
573. 00:21:57 Oh, oh.
574. 00:21:58 So each spool going with particular sleeve.

575. 00:22:00 Yes.
576. 00:22:01 You cannot mix them up.
577. 00:22:02 Yeah.
578. 00:22:03 Don't mix them up.
579. 00:22:04 Wow.
580. 00:22:05 Okay
581. 00:22:06 Now that one has no o-ring with the groove.
582. 00:22:08 Yes.
583. 00:22:09 Please in this point.
584. 00:22:10 Going down.

585. 00:22:11 Shake it a little.
586. 00:22:12 I understand.
587. 00:22:13 That's the confusion that was the one that he said no o-rings.
588. 00:22:16 Mm-hmm.
589. 00:22:17 Was interpreted as no o-rings on the whole thing.

| 590. | $\mathbf{0 0 : 2 2 : 2 0}$ | Yeah. |
| :--- | :--- | :--- |
| 591. | $\mathbf{0 0 : 2 2 : 2 1}$ | Is that possible? |




| \# | Time | Spoken text |
| ---: | :--- | :--- |
| 628. | $\mathbf{0 0 : 2 3 : 3 3}$ | The OD of the school or the parties, there's a run now is too great. |
| 629. | $\mathbf{0 0 : 2 3 : 4 1}$ | I can get it too. |

630. 00:23:43 Okay.
631. 00:23:44 Oh, we got it.
632. 00:23:45 Okay.
633. 00:23:46 In fact, it's good.
634. 00:23:47 It wasn't a bit tough.

635. 00:23:48 Right.
636. 00:23:49 Now, it goes through this one.
637. 00:23:51 Yes.
638. 00:23:52 It's about flush.
639. 00:23:53 It's okay.

640. 00:23:54 Yes.
641. 00:23:55 Okay.
642. 00:23:56 This side is flush.
643. 00:23:57 Yes.
644. 00:23:58 With the school.

645. 00:23:59 Okay.
646. 00:24:00 Now flip it all over.
647. 00:24:01 Stand them up.
648. 00:24:02 It's stick out on the other side.
649. 00:24:03 Yeah.

650. 00:24:04 Stick out.
651. 00:24:05 This one.
652. 00:24:06 No. 18.
653. 00:24:07 Or ring.
654. 00:24:08 Yes.

655. 00:24:09 Wrap around it.
656. 00:24:10 Whoa.
657. 00:24:11 That's new.
658. 00:24:12 Okay.
659. 00:24:13 That's important.

\# Time Spoken text
660. 00:24:15 This is important.
661. 00:24:17 Yeah.
662. 00:24:18 You forgot that one too?
663. 00:24:20 Okay.
664. 00:24:21 Say what it is.

665. 00:24:22 Wrap around this sleeve.
666. 00:24:25 Now the bottom cap.
667. 00:24:28 This.
668. 00:24:29 One minute.
669. 00:24:30 I have to see.


| 670. | $\mathbf{0 0 : 2 4 : 3 1}$ | All the washer. |
| :--- | :--- | :--- |
| 671. | $\mathbf{0 0 : 2 4 : 3 2}$ | Okay. |
| 672. | $\mathbf{0 0 : 2 4 : 3 3}$ | Okay. |
| 673. | $\mathbf{0 0 : 2 4 : 3 4}$ | Yeah. |
| 674. | $\mathbf{0 0 : 2 4 : 3 5}$ | Yeah. |


675. 00:24:36 Facing going in.
676. 00:24:37 Okay.
677. 00:24:38 Facing going in.
678. 00:24:41 What is that means?
679. 00:24:43 Okay.

680. 00:24:44 Or concave in.
681. 00:24:45 Okay.
682. 00:24:46 Okay.
683. 00:24:47 In.
684. 00:24:48 The center.


| 685. | $\mathbf{0 0 : 2 4 : 4 9}$ | Okay. |
| :--- | :--- | :--- |
| 686. | $\mathbf{0 0 : 2 4 : 5 0}$ | In. |
| 687. | $\underline{\mathbf{0 0} 24: 51}$ | Go in. |
| 688. | $\mathbf{0 0 : 2 4 : 5 2}$ | Okay. |
| 689. | $\mathbf{0 0 : 2 4 : 5 3}$ | I see. |





| Frame | $\#$ | Time | Spoken text |
| :---: | ---: | :--- | :--- |
|  | 789. | $\mathbf{0 0 : 2 7 : 4 8}$ | We just use a regular MPT. |


790. 00:27:49 We'll be fine.
791. 00:27:50 Regular MPT.
792. 00:27:51 Regular MPT.
793. 00:27:52 We'll be fine.
794. 00:27:53 What happened in this hole?

795. 00:27:54 Why this hole exist?
796. 00:27:55 This hole is to drill the hole as a passage.
797. 00:27:59 After you drill the hole, you have to plug it.
798. 00:28:01 It creates a passage.
799. 00:28:02 Okay.

800. 00:28:03 Connect the valve.
801. 00:28:04 This tube valve together to center where the outlet is.
802. 00:28:06 I see.
803. 00:28:07 Okay.
804. 00:28:08 Turn it.

805. 00:28:16 This one, you might want to put somewhere around 68.
806. 00:28:20 62 to 68.
807. 00:28:22 Each panel.
808. 00:28:24 An inch mark.
809. 00:28:26 You have a transducer in your muscle?

810. 00:28:31 Okay.
811. 00:28:32 The next.
812. 00:28:33 This one.
813. 00:28:34 This side.
814. 00:28:35 Okay.

\# Time Spoken text
819. 00:28:44 Yeah.
820. 00:28:45 If you use up, you have to buy at oils.
821. 00:28:46 You have to fit and end it up without.
822. 00:28:48 You know what happened?
823. 00:28:49 That was what I was saying.
824. 00:28:50 I didn't know that you could use them again.

825. 00:28:53 Yeah.
826. 00:28:54 I don't use that again.
827. 00:28:55 As long as you use the same tube.
828. 00:28:57 Okay.
829. 00:28:58 Now, that's on top of the other shack valves up and down.

830. 00:29:02 Where's the nut?
831. 00:29:03 At least you have to get a whole new assembly.
832. 00:29:07 Okay.
833. 00:29:08 But anyway, get whatever.
834. 00:29:10 Put it that way.

835. 00:29:13 Okay.
836. 00:29:15 This one, let me get the wrench.
837. 00:29:18 Because the metal to metal, it will not go anywhere.
838. 00:29:23 It's already sealed anyway.
839. 00:29:25 So it was sealed.


| 840. | $\mathbf{0 0 : 2 9 : 2 7}$ | All right. |
| :--- | :--- | :--- |
| 841. | $\mathbf{0 0 : 2 9 : 3 0}$ | Now, this end, I believe is. |
| 842. | $\mathbf{0 0 : 2 9 : 3 3}$ | So now you have the shack valves in. |
| 843. | $\mathbf{0 0 : 2 9 : 3 5}$ | You have the spooler in. |
| 844. | $\mathbf{0 0 : 2 9 : 3 6}$ | You have the sleeve in. |
|  |  |  |
|  |  |  |
| 845. | $\mathbf{0 0 : 2 9 : 3 7}$ |  |
| It's almost there. |  |  |
| 847. | $\mathbf{0 0 : 2 9 : 3 9}$ | Okay. |
| 848. | $\mathbf{0 0 : 2 9 : 2 9 : 4 2}$ | Actually, the spooler you don't have yet. |


| Frame | \# | Time | Spoken text |
| :--- | ---: | :--- | :--- |
|  | 849. | $\mathbf{0 0 : 2 9 : 4 3}$ | The school you don't have yet. |



| 850. | $\underline{\mathbf{0 0}: 29: 45}$ | This is so good. |
| :--- | :--- | :--- |
| 851. | $\underline{\mathbf{0 0}: 29: 46}$ | All right. |
| 852. | $\underline{\mathbf{0 0}: 29: 47}$ | You too. |
| 853. | $\mathbf{0 0 : 2 9 : 4 8}$ | Let's do it. |
| 854. | $\mathbf{0 0 : 2 9 : 4 9}$ | And quickly and continue with it. |



## 855. 00:29:51 That's the one on the bottom, huh?

856. 00:29:53 Yeah.
857. 00:29:54 This is on the bottom side.
858. 00:29:56 These are all tapered, the screws, huh?
859. 00:29:59 Yeah.

860. 00:30:00 That's why you put.
861. 00:30:01 You have a fun tape?
862. 00:30:05 Yeah.
863. 00:30:06 Yeah.
864. 00:30:07 Yeah.

865. 00:30:08 That's loaded on top of that.
866. 00:30:16 It's loaded on top of the other shack valve.
867. 00:30:20 Mm-hmm.
868. 00:30:47 All right.
869. 00:30:49 Now, bump up this face.

870. 00:30:51 Ready on this face?
871. 00:30:53 Now, this face.
872. 00:30:55 This one is a hydraulic plug that's shorter.
873. 00:30:59 Okay.
874. 00:31:00 Hydraulic valve and shorter on this side.


| 875. | $\mathbf{0 0 : 3 1 : 0 2}$ | Hydraulic plug. |
| :--- | :--- | :--- |
| 876. | $\mathbf{0 0 : 3 1 : 0 3}$ | Yeah. |
| 877. | $\mathbf{0 0 : 3 1 : 0 4}$ | Yeah, high pressure. |
| 878. | $\mathbf{0 0 : 3 1 : 0 5}$ | This MPT plug is shorter. |
| 879. | $\mathbf{0 0 : 3 1 : 0 8}$ | Mm-hmm. |
|  |  |  |
| 880. | $\mathbf{0 0 : 3 1 : 0 9}$ | Okay. |


\# Time Spoken text
881. 00:31:10 That's because this hood one is going against.
882. 00:31:12 Yeah.
883. 00:31:13 Put six to eight round of tough one tape.
884. 00:31:17 And this one, you have to turn until the plug flush bottom.

885. 00:31:23 All right.
886. 00:31:24 Cannot fit into.
887. 00:31:31 One second, I have to record.
888. 00:31:33 Okay.
889. 00:31:34 What is next?

890. $\mathbf{0 0 : 3 1 : 3 5}$ The top of it.
891. 00:31:36 Now, this face, it's prepared.
892. 00:31:38 This one, you leave it next because you put the,
893. 00:31:41 the accumulator into this hole.
894. 00:31:44 Yes.

895. 00:31:45 So, this one done, prepare.
896. 00:31:46 This one done, done, prepare.
897. 00:31:48 This one is finished preparing.
898. 00:31:49 This one is finished.
899. 00:31:51 Okay.

900. 00:31:52 This one is finished.
901. 00:31:53 Now, this face.
902. 00:31:54 That's the most important one.
903. 00:31:55 Okay.
904. 00:31:56 Nipple.

905. 00:31:57 Mm-hmm.
906. 00:31:58 Not like a woman.
907. 00:32:00 This one has two sides.
908. 00:32:01 For me, it's the same.
909. 00:32:04 Oh.

| 910. | $\mathbf{0 0 : 3 2 : 0 9}$ | All right. |
| :--- | :--- | :--- |
| 911. | $\mathbf{0 0 : 3 2 : 1 0}$ | Seven, six, ten. |
| 912. | $\mathbf{0 0 : 3 2 : 1 7}$ | There you go. |



| \# | Time | Spoken text |
| ---: | :--- | :--- |
| 913. | $\mathbf{0 0 : 3 2 : 2 4}$ | Okay. |
| 914. | $\mathbf{0 0 : 3 2 : 2 5}$ | Now, put this nipple in. |

915. 00:32:28 I'm not going to tie it because you have to put in your elbow.
916. 00:32:31 Otherwise, it's different over here than your elbow.
917. 00:32:34 You tie this with an elbow.
918. 00:32:36 The elbow is the one that Jerry showed him.
919. 00:32:39 Yes.
920. 00:32:40 You already are.
921. 00:32:41 That's for the pressure that we do so.
922. 00:32:42 Uh-huh.
923. 00:32:43 Now, with the transducer, I'm not going to put this,
924. 00:32:50 because this one I can show you.

925. 00:32:52 You don't have to put one.
926. 00:32:53 Okay.
927. 00:32:54 Put teflon tape over here.
928. 00:32:56 Okay.
929. 00:32:57 Teflon tape over this thing.

930. 00:33:01 Make sure you put teflon tape, because this one is a 17-4 stainless steel.
931. 00:33:06 Plus, all the high pressure is there.
932. 00:33:08 Yeah.
933. 00:33:09 Uh-huh.
934. 00:33:10 So, make sure you have teflon tape around four rounds is good enough.


| 935. | $\mathbf{0 0 : 3 3 : 1 4}$ | Okay. |
| :--- | :--- | :--- |
| 936. | $\mathbf{0 0 : 3 3 : 1 6}$ | And this one ties into this high pressure fitting. |
| 937. | $\mathbf{0 0 : 3 3 : 2 0}$ | Okay. |
| 938. | $\mathbf{0 0 : 3 3 : 2 1}$ | For adapter. |
| 939. | $\mathbf{0 0 : 3 3 : 2 2}$ | And then you have an elbow. |
|  |  |  |
|  |  |  |
| 940. | $\mathbf{0 0 : 3 3 : 2 4}$ | Yeah. |
| 941. | $\mathbf{0 0 : 3 3 : 2 6}$ | Call it inch amputee. |
| 942. | $\mathbf{0 0 : 3 3 : 2 7}$ | Uh-huh. |
| 943. | $\mathbf{0 0 : 3 3 : 2 8}$ | So, one eighth amputee. |
| 944. | $\mathbf{0 0 : 3 3 : 3 0}$ | There is a female female elbow. |

944. 00:33:30 There is a female female elbow.
945. 00:33:32 You tie this into this tight.
946. 00:33:36 Make sure don't grab on any of this.
947. 00:33:38 Use a wrench to grab on this hex flash service.
948. 00:33:42 And this hex flash service to tighten it.

\# Time Spoken text
949. 00:33:45 Let me show you.

950. 00:34:04 Use a vise to grab on the fitting, not the transducer.
951. 00:34:08 No, I haven't.
952. 00:34:10 And you have this.
953. 00:34:11 Okay.
954. 00:34:12 Yeah.

955. 00:34:13 Now, next step.
956. 00:34:14 Talk again about the elbow.
957. 00:34:15 I lost it on the other thing.
958. 00:34:16 Okay.
959. 00:34:17 Make sure this.

960. 00:34:18 Mound into the elbow first before you're down in this.
961. 00:34:20 Yes.
962. 00:34:21 Once you're down in the butt, make sure it's tight.
963. 00:34:23 Yes.
964. 00:34:24 Yes.

965. 00:34:25 This one.
966. 00:34:26 Don't go too tight.
967. 00:34:27 It's only a quarter inch.
968. 00:34:28 I mean, one eighth amputee.
969. 00:34:29 Yes.

970. 00:34:30 As soon as you see the hex right here.
971. 00:34:32 Yes.
972. 00:34:33 It's not touching.
973. 00:34:34 It should be good enough.
974. 00:34:35 Okay.
975. 00:34:36 A quarter turn have a turn should be enough.
976. 00:34:38 Okay.
977. 00:34:39 Because the one eighth amputee is only take like around 28 to 32 inch pound.

\# Time
Spoken text
978. 00:34:43 Okay.
979. 00:34:44 Same thing right here.

980. 00:34:52 After this, prepare.
981. 00:34:54 All right.
982. 00:34:55 This, prepare.
983. 00:34:56 Be careful.
984. 00:34:57 Try to avoid touching the grease on this.

985. 00:35:00 Because you're going to apply a lock tight with grease if it doesn't feel good.
986. 00:35:05 Make sure you clear the center where there's no grease.
987. 00:35:10 Before you insert in, pay attention.
988. 00:35:12 This hole facing this port so it can be served in the future.
989. 00:35:18 So, insert in carefully through the center.

990. 00:35:23 Okay.
991. 00:35:24 Mmm.
992. 00:35:25 Okay.
993. 00:35:26 Two little hole match it.
994. 00:35:28 Mmm.


| 1005. | $\mathbf{0 0 : 3 5 : 2 9}$ | What else? |
| :--- | :--- | :--- |
| 1006. | $\mathbf{0 0 : 3 5 : 3 0}$ | Yes. |
| 1007. | $\mathbf{0 0 : 3 5 : 3 1}$ | Right here. |
| 1008. | $\mathbf{0 0 : 3 5 : 3 2}$ | All the grease. |
| 1009. | $\mathbf{0 0 : 3 5 : 3 3}$ | Wipe it off. |



| 1010. | $\mathbf{0 0 : 3 5 : 3 4}$ | Apply the back around. |
| :--- | :--- | :--- |
| 1011. | $\mathbf{0 0 : 3 5 : 3 6}$ | Okay. |
| 1012. | $\mathbf{0 0 : 3 5 : 3 7}$ | I'm not going to put the. |
| 1013. | $\mathbf{0 0 : 3 5 : 4 2}$ | I'm not going to put the. |
| 1014. | $\mathbf{0 0 : 3 5 : 4 5}$ | Spoon. |



\# Time Spoken text
1050. 00:36:50 That's why you need a longer one in order to clean it.
1051. 00:36:52 Yeah.
1052. 00:36:53 Good.
1053. 00:36:54 Okay.
1054. 00:36:55 Now, next process.

1055. 00:36:56 Okay.
1056. 00:36:57 Yes.
1057. 00:36:58 In this case, I don't sew lock tight.
1058. 00:36:59 In the future case, once you're comfortable,
1059. 00:37:01 you put one job of lock tight about the center.

1060. 00:37:04 Not right here.
1061. 00:37:05 Not at the end.
1062. 00:37:06 About the center.
1063. 00:37:07 Okay.
1064. 00:37:08 Now, the end.

1065. 00:37:10 Long.
1066. 00:37:11 Flange.
1067. 00:37:12 Move first.
1068. 00:37:13 Doesn't have thread.
1069. 00:37:15 We go further in.

1070. 00:37:17 And turn.
1071. 00:37:18 Yeah.
1072. 00:37:19 I remember that.
1073. 00:37:20 But how far it.
1074. 00:37:21 No.

1075. 00:37:22 I'm going to tell you.
1076. 00:37:23 You need to add your measurement.
1077. 00:37:25 Okay.
1078. 00:37:26 Yes.
1079. 00:37:28 Okay.

1080. 00:37:29 Yes.
1081. 00:37:30 You see?
1082. 00:37:31 You can see that set screw.
1083. 00:37:34 Only one thread away.
1084. 00:37:36 Yes.
1085. 00:37:37 At that point, you can stop.

\# Time Spoken text
1086. 00:37:39 In this case, that last thread, it got stuck.
1087. 00:37:44 Yeah.
1088. 00:37:45 But it's okay.
1089. 00:37:47 Now.


| 1090. | $\mathbf{0 0 : 3 7 : 4 8}$ | So that's how you're going all the way. |
| :--- | :--- | :--- |
| 1091. | $\mathbf{0 0 : 3 7 : 5 0}$ | All the way. |
| 1092. | $\mathbf{0 0 : 3 7 : 5 1}$ | Okay. |
| 1093. | $\mathbf{0 0 : 3 7 : 5 2}$ | With my valve, the old one, you didn't go all the way. |
| 1094. | $\mathbf{0 0 : 3 7 : 5 5}$ | I'll tell you. |


1095. 00:37:56 I knew what happened.
1096. 00:37:57 That's very important.
1097. 00:37:58 Okay.
1098. 00:37:59 This step, put in this screw should do it right after this step.
1099. 00:38:03 This is not crucial.

1100. 00:38:05 Okay.
1101. 00:38:06 So I'm going to take it back out in the future.
1102. 00:38:09 Put in the screw into the body after this step.
1103. 00:38:13 I see.
1104. 00:38:14 Okay.

1105. 00:38:15 Because we need to use the same screw to measure the gap that is opening.
1106. 00:38:20 Yes.
1107. 00:38:21 I'll tell you when.
1108. 00:38:22 All right.
1109. 00:38:23 Triangle.

1110. 00:38:24 Okay.
1111. 00:38:26 Hold this thing with your finger.
1112. 00:38:28 Push it all the way down.
1113. 00:38:30 Okay.
1114. 00:38:31 Now.
1115. 00:38:32 Let me put some grease.
1116. 00:38:33 I know that's dried up already.
1117. 00:38:35 Add some oil, not grease.

\# Time Spoken text
1118. 00:38:37 Next in the future, put some oil.
1119. 00:38:39 Grease is too thick for the valve.
1120. 00:38:41 In this case, I put a very thin layer.
1121. 00:38:44 Okay.
1122. 00:38:46 Okay.
1123. 00:38:53 Now, with your finger, push this all the way.
1124. 00:39:01 Hold on to it.

1125. 00:39:03 And you push all the way in.
1126. 00:39:05 You see the valve is too fine.
1127. 00:39:08 Close.
1128. 00:39:09 You can buy.
1129. 00:39:10 Does it lock?

1130. 00:39:11 This is open.
1131. 00:39:12 You see the gap?
1132. 00:39:13 It closed the triangle 100\%.
1133. 00:39:15 Yeah.
1134. 00:39:16 If you push all the way, this is too far in.

1135. 00:39:18 Yeah.
1136. 00:39:19 It's too far in the face.
1137. 00:39:21 Yeah.
1138. 00:39:22 No, sticking out of the face is fine.
1139. 00:39:24 It doesn't leak.

1145. 00:39:30 I'm good.
1146. 00:39:31 They give a problem of the step to close it is too long.
1147. 00:39:36 And if you put this in this case like this, it will take 500 steps in order to close.
1148. 00:39:41 Right.
1149. 00:39:42 We cannot go over 450.

\# Time Spoken text
1150. 00:39:43 Yeah.
1151. 00:39:44 So you don't want to do it.
1152. 00:39:45 Now with this case, now what you can do at this point, you adjust it from here.
1153. 00:39:51 Oh, I see.
1154. 00:39:53 You are for sure doing what you need to do.


| 1155. | $\mathbf{0 0 : 3 9 : 5 6}$ | Okay. |
| :--- | :--- | :--- |
| 1156. | $\mathbf{0 0 : 3 9 : 5 7}$ | Move with the hand a little bit so I can take a picture of them. |
| 1157. | $\mathbf{0 0 : 4 0 : 0 0}$ | Okay. |
| 1158. | $\mathbf{0 0 : 4 0 : 0 1}$ | So now you adjust it from the other end. |
| 1159. | $\mathbf{0 0 : 4 0 : 0 3}$ | Yes. |



| 1160. | $\mathbf{0 0 : 4 0 : 0 4}$ | You're churning it. |
| :--- | :--- | :--- |
| 1161. | $\mathbf{0 0 : 4 0 : 0 7}$ | Very nice. |
| 1162. | $\mathbf{0 0 : 4 0 : 0 8}$ | It's hard to churn because the last thread, the last thread is almost churning now. |
| 1163. | $\mathbf{0 0 : 4 0 : 1 3}$ | Wait. |
| 1164. | $\mathbf{0 0 : 4 0 : 1 4}$ | Hold on. |



| 1165. | $\mathbf{0 0 : 4 0 : 1 5}$ | There's a little scooter. |
| :--- | :--- | :--- |
| 1166. | $\mathbf{0 0 : 4 0 : 1 6}$ | When you're churning this. |
| 1167. | $\mathbf{0 0 : 4 0 : 1 8}$ | You bring the piston out. |
| 1168. | $\mathbf{0 0 : 4 0 : 2 0}$ | You put, but it's stuck. |
| 1169. | $\mathbf{0 0 : 4 0 : 2 2}$ | The last thread has problem. |


1170. 00:40:25 Let me do it.
1171. 00:40:26 I know how to do it.
1172. 00:40:27 You have a Q-tips?
1173. 00:40:29 I think it's a burr.
1174. 00:40:31 No.

1175. 00:40:32 Let me see.
1176. 00:40:33 Okay.
1177. 00:40:35 Okay.
1178. 00:40:40 l'm back and I'll let you clean.
1179. 00:40:42 Okay.


| 1180. | $\mathbf{0 0 : 4 0 : 4 3}$ | I'm ready. |
| :--- | :--- | :--- |
| 1181. | $\mathbf{0 0 : 4 0 : 4 4}$ | Go. |
| 1182. | $\mathbf{0 0 : 4 0 : 4 5}$ | Okay. |
| 1183. | $\mathbf{0 0 : 4 0 : 4 6}$ | Explain what you're doing. |


| Frame | \# | Time | Spoken text |
| ---: | ---: | :--- | :--- |
|  | 1184. | $\mathbf{0 0 : 4 0 : 4 7}$ | Try and put back the spool in. |


1185. 00:40:50 Yes.
1186. 00:40:55 Earlier we can see there was a big gap.
1187. 00:40:59 It's still stuck right there.
1188. 00:41:04 It's okay.
1189. 00:41:05 Now you can turn it.


| 1190. | $\mathbf{0 0 : 4 1 : 0 7}$ | Yeah. |
| :--- | :--- | :--- |
| 1191. | $\mathbf{0 0 : 4 1 : 0 8}$ | Try. |
| 1192. | $\mathbf{0 0 : 4 1 : 0 9}$ | Now since I know that was a big gap, so I screwed it in. |
| 1193. | $\mathbf{0 0 : 4 1 : 1 3}$ | This file will go further. |
| 1194. | $\mathbf{0 0 : 4 1 : 1 5}$ | Okay. |



| 1195. | $\mathbf{0 0 : 4 1 : 1 6}$ | Now with this, I put some hydraulic oil. |
| :--- | :--- | :--- |
| 1196. | $\mathbf{0 0 : 4 1 : 2 3}$ | I mean transmission oil into it. |
| 1197. | $\mathbf{0 0 : 4 1 : 2 7}$ | I'm going to snap it in. |
| 1198. | $\mathbf{0 0 : 4 1 : 3 0}$ | And I hold this down. |
| 1199. | $\mathbf{0 0 : 4 1 : 3 2}$ | That's important. |

1199. 00:41:32 That's important.

1200. 00:41:34 Push this down.
1201. 00:41:35 Hold on to a block.
1202. 00:41:38 So much dust.
1203. 00:41:41 Do you see the opening?
1204. 00:41:43 If I push it all the way, it goes too far.

1205. 00:41:46 Right now it's going too far.
1206. $\quad \mathbf{0 0 : 4 1 : 4 8} \quad$ This is the end of it.
1207. 00:41:50 You see it?
1208. 00:41:51 Yes.
1209. 00:41:52 If I pass over one line,

\# Time Spoken text
1210. 00:42:02 Okay.
1211. 00:42:09 So much.
1212. 00:42:10 Those things need to be played.
1213. 00:42:26 Never force it in.
1214. 00:42:32 Hold on to this.
1215. 00:42:40 I give it a few more turns.

1216. 00:42:42 I can see the piston turning.
1217. 00:42:44 So I give it a few more turns.
1218. 00:42:46 I try it again.
1219. 00:42:47 Look.
1220. 00:42:48 It reached halfway.

1221. 00:42:49 But how do I know that it's exactly 350?
1222. 00:42:52 No.
1223. 00:42:53 How do you know if it's...
1224. 00:42:54 I look at this gap.
1225. $\quad \mathbf{0 0 : 4 2 : 5 6}$ This first ring and the bottom of this.

1226. 00:42:59 If I see the tips of this triangle,
1227. 00:43:05 it's reaching the middle of this, that's good enough.
1228. 00:43:09 Okay.
1229. 00:43:10 If you reach the first line, that's already too much.
1230. 00:43:14 If it reaches the edge of the first line, it's still fine.

1231. 00:43:17 If it thinks too much, just back it up a little.
1232. 00:43:20 That's what we had the problem with the other world.
1233. 00:43:23 Nice close.
1234. 00:43:25 You see it?
1235. 00:43:26 Now, the nice thing about this, you can turn it and try it again.


| 1240. | $\mathbf{0 0 : 4 3 : 3 2}$ | Back it up. |
| :--- | :--- | :--- |
| 1241. | $\mathbf{0 0 : 4 3 : 3 4}$ | Back it up. |
| 1242. | $\mathbf{0 0 : 4 3 : 3 5}$ | You see it further in? |
| 1243. | $\underline{\mathbf{0 0}: 43: 36}$ | Yeah. |
| 1244. | $\mathbf{0 0 : 4 3 : 3 7}$ | You can tell you. |


\# Time Spoken text
1245. 00:43:38 You see how far I go in?
1246. 00:43:39 Right.
1247. $\quad \mathbf{0 0 : 4 3 : 4 0}$ You pass the first line.
1248. 00:43:42 This is the first line.
1249. 00:43:44 This is the bottom.


| 1250. | $\mathbf{0 0 : 4 3 : 4 5}$ | You pass the first line. |
| :--- | :--- | :--- |
| 1251. | $\mathbf{0 0 : 4 3 : 4 7}$ | Okay. |
| 1252. | $\mathbf{0 0 : 4 3 : 4 8}$ | That's too much. |
| 1253. | $\mathbf{0 0 : 4 3 : 4 9}$ | If you turn it, moves. |
| 1254. | $\mathbf{0 0 : 4 3 : 5 1}$ | You go this way. |


1255. 00:43:52 You can basically see it backing it up.
1256. 00:43:54 Yes.
1257. 00:43:55 You see it?
1258. 00:43:56 Mm-hmm.
1259. 00:43:57 But if you put some grease onto it, it will grab.

1260. 00:44:01 You can give enough crap.
1261. 00:44:02 Okay.
1262. 00:44:03 And turn it.
1263. 00:44:04 Then you can adjust it.
1264. 00:44:05 Right here.

1265. 00:44:06 Yeah.
1266. 00:44:07 Yeah.
1267. 00:44:08 All right.
1268. 00:44:09 As long as it's still on the piston, you can adjust it.
1269. 00:44:10 A lot of time I put this.

1270. 00:44:11 I don't want to twist the wire.
1271. 00:44:12 Yeah, I understand.
1272. 00:44:13 I put it on the table.
1273. 00:44:14 Oh, yeah.
1274. $\quad \mathbf{0 0 : 4 4 : 1 5} \quad$ That's the hole that sold the wire down to it.

1275. 00:44:17 Exactly.
1276. 00:44:18 How many wire you bought?
1277. 00:44:19 I can see it already too.
1278. 00:44:20 No, I didn't break them for doing that.

| Frame | $\#$ | Time | Spoken text |
| :--- | ---: | :--- | :--- |
|  | 1279. | $\mathbf{0 0 : 4 4 : 2 2}$ | I broke them trying to get it out. |


1280. 00:44:24 See?
1281. 00:44:25 Right here?
1282. 00:44:26 Yeah.
1283. 00:44:27 You can turn.
1284. 00:44:28 Yeah.

1285. 00:44:29 And you can see it turning along with it.
1286. 00:44:30 That will also up and down.
1287. 00:44:32 Okay.
1288. 00:44:33 Further in.
1289. 00:44:34 Further in.

1290. 00:44:35 Out.
1291. 00:44:36 Out.
1292. 00:44:37 Out.
1293. 00:44:38 Out.
1294. 00:44:39 Okay.

1295. 00:44:40 You can see it.
1296. 00:44:43 Now we cannot turn.
1297. 00:44:46 Yes.
1298. 00:44:47 For me to adjust it in the middle between the first gap and this edge.
1299. 00:44:56 This edge right here in the first gap.


| 1300. | $\mathbf{0 0 : 4 5 : 0 0}$ | Yes. |
| :--- | :--- | :--- |
| 1301. | $\mathbf{0 0 : 4 5 : 0 1}$ | Right in the middle of it. |
| 1302. | $\mathbf{0 0 : 4 5 : 0 3}$ | You always do that. |
| 1303. | $\mathbf{0 0 : 4 5 : 0 4}$ | So you put the triangle where? |
| 1304. | $\mathbf{0 0 : 4 5 : 0 6}$ | The tip of the triangle. |


1305. 00:45:08 The end of the triangle.
1306. 00:45:10 On the middle of this.
1307. 00:45:15 Between the first group and the end.
1308. 00:45:18 You can go further in.
1309. 00:45:20 You can go the tips of the triangle to the right at this edge.

\# Time Spoken text
1310. 00:45:28 Okay.
1311. 00:45:29 First group.
1312. 00:45:30 First group.
1313. 00:45:31 Yeah.
1314. 00:45:32 Not many servers into this.


| 1315. | $\mathbf{0 0 : 4 5 : 3 3}$ | Yes. |
| :--- | :--- | :--- |
| 1316. | $\mathbf{0 0 : 4 5 : 3 4}$ | Another variable. |
| 1317. | $\mathbf{0 0 : 4 5 : 3 5}$ | Okay. |
| 1318. | $\mathbf{0 0 : 4 5 : 3 6}$ | Yeah. |
| 1319. | $\mathbf{0 0 : 4 5 : 3 7}$ | The most important is the gap. |


1320. 00:45:38 Not the gap.
1321. 00:45:39 Yeah.
1322. 00:45:40 Yeah.
1323. 00:45:42 But I was trying to get a place where we could repeat it all the time.
1324. 00:45:46 All the way you're going to be able to do that is when you put the spacer.

1325. 00:45:50 The spacer is white.
1326. 00:45:52 Make a spacer.
1327. 00:45:54 Okay.
1328. 00:45:55 Make a spacer to fit in.
1329. 00:46:01 Right there.

1330. 00:46:02 Okay.
1331. 00:46:03 Try to grind the spacer.
1332. 00:46:04 Try it step by step.
1333. 00:46:06 How do you get it?
1334. 00:46:08 The end.

1335. $\mathbf{0 0 : 4 6 : 1 0}$ The first group to the end is right here.
1336. 00:46:17 Yeah.
1337. 00:46:18 So we want to be in between now.
1338. 00:46:20 Yeah.
1339. 00:46:21 Okay.


| 1340. | $\mathbf{0 0 : 4 6 : 2 2}$ | At least. |
| :--- | :--- | :--- |
| 1341. | $\mathbf{0 0 : 4 6 : 2 3}$ | This is a triangle. |
| 1342. | $\mathbf{0 0 : 4 6 : 2 5}$ | Yeah. |
| 1343. | $\mathbf{0 0 : 4 6 : 2 6}$ | Okay. |
| 1344. | $\mathbf{0 0 : 4 6 : 2 7}$ | Let's assume that this is a spool. |

1345. 00:46:29 Okay.

\# Time Spoken text

| 1346. | $\mathbf{0 0 : 4 6 : 3 0}$ | This is a spool. |
| :--- | :--- | :--- |
| 1347. | $\mathbf{0 0 : 4 6 : 3 5}$ | Okay. |
| 1348. | $\mathbf{0 0 : 4 6 : 3 7}$ | Too far now. |
| 1349. | $\mathbf{0 0 : 4 6 : 4 4}$ | Too far now. |


1350. 00:47:15 Somewhere there.
1351. 00:47:18 Yeah.
1352. 00:47:19 Okay.
1353. $\quad \mathbf{0 0 : 4 7 : 2 0} \quad$ Now if the tips get to, this is center line.
1354. 00:47:27 Oh.

1355. 00:47:28 Okay.
1356. 00:47:31 Okay.
1357. 00:47:32 Okay.
1358. 00:47:33 Okay.
1359. 00:47:34 Okay.

1360. 00:47:35 Okay.
1361. 00:47:36 Back.
1362. 00:47:37 Come here again.
1363. 00:47:39 No wrinkle mean.
1364. 00:47:43 Is it in the hole?

1365. 00:47:45 The reason we disassemble it is because we had to adjust the spool on it.
1366. 00:47:49 Because we didn't know where the spool would be.
1367. 00:47:52 Right.
1368. 00:47:53 I know that I just put it for the tape.
1369. 00:47:55 Okay.


| 1370. | $\mathbf{0 0 : 4 7 : 5 6}$ | Okay. |
| :--- | :--- | :--- |
| 1371. | $\mathbf{0 0 : 4 7 : 5 7}$ | Put it in like that. |
| 1372. | $\mathbf{0 0 : 4 7 : 5 9}$ | Right. |
| 1373. | $\mathbf{0 0 : 4 8 : 0 0}$ | Okay. |
| 1374. | $\mathbf{0 0 : 4 8 : 0 2}$ | Okay. |

1375. 00:48:03 Okay.
1376. 00:48:04 Put it in like that.
1377. 00:48:05 Okay.
1378. 00:48:06 Okay.


| Frame | \# | Time | Spoken text |
| :---: | ---: | :--- | :--- |
|  | 1409. | $\mathbf{0 0 : 4 9 : 0 3}$ | That way. |



| 1410. | $\mathbf{0 0 : 4 9 : 0 4}$ | And also put a job of oil. |
| :--- | :--- | :--- |
| 1411. | $\mathbf{0 0 : 4 9 : 0 6}$ | So it can be easy to go back into the spool. |
| 1412. | $\mathbf{0 0 : 4 9 : 1 0}$ | Never force it in. |
| 1413. | $\mathbf{0 0 : 4 9 : 1 1}$ | Always shake it to get in. |
| 1414. | $\mathbf{0 0 : 4 9 : 1 3}$ | That's why we have a wire. |


1415. 00:49:14 Shake it.
1416. 00:49:15 Okay.
1417. 00:49:16 Now press it in.
1418. 00:49:17 You can see it.
1419. 00:49:18 More straight.


| 1420. | $\mathbf{0 0 : 4 9 : 1 9}$ | Now it's a number 10. |
| :--- | :--- | :--- |
| 1421. | $\mathbf{0 0 : 4 9 : 2 1}$ | It's a 1024 one inch long screw. |
| 1422. | $\mathbf{0 0 : 4 9 : 2 4}$ | Okay. |
| 1423. | $\mathbf{0 0 : 4 9 : 2 6}$ | Add a little squeeze. |
| 1424. | $\mathbf{0 0 : 4 9 : 3 4}$ | What do you mean the paper? |



| 1425. | $\mathbf{0 0 : 4 9 : 3 6}$ | I think I put it in the metal. |
| :--- | :--- | :--- |
| 1426. | $\mathbf{0 0 : 4 9 : 3 8}$ | I mean the pass force thing. |
| 1427. | $\mathbf{0 0 : 4 9 : 3 9}$ | How do you press it? |
| 1428. | $\mathbf{0 0 : 4 9 : 4 0}$ | Yeah. |
| 1429. | $\mathbf{0 0 : 4 9 : 4 1}$ | Okay. |


1430. 00:49:42 Put this in.
1431. 00:49:43 Tight it.
1432. 00:49:44 Make sure you tight it.
1433. 00:49:46 Cross.
1434. 00:49:47 Okay.


| 1435. | $\mathbf{0 0 : 4 9 : 4 8}$ | You tight it. |
| :--- | :--- | :--- |
| 1436. | $\mathbf{0 0 : 4 9 : 4 9}$ | Okay. |
| 1437. | $\mathbf{0 0 : 4 9 : 5 0}$ | You loosen it. |
| 1438. | $\mathbf{0 0 : 4 9 : 5 2}$ | Okay. |
| 1439. | $\mathbf{0 0 : 4 9 : 5 3}$ | I'm just doing the motion. |



| \# | Time | Spoken text |
| ---: | :--- | :--- |
| 1440. | $\mathbf{0 0 : 4 9 : 5 5}$ | Yeah. |
| 1441. | $\mathbf{0 0 : 4 9 : 5 6}$ | Okay. |
| 1442. | $\mathbf{0 0 : 4 9 : 5 7}$ | Now this is done. |
| 1443. | $\mathbf{0 0 : 4 9 : 5 8}$ | Okay. |
| 1444. | $\mathbf{0 0 : 4 9 : 5 9}$ | Right here. |


1445. 00:50:00 Make sure you apply some grease.
1446. 00:50:02 Okay.
1447. 00:50:03 And you put the motor.
1448. 00:50:05 Okay.
1449. 00:50:06 Careful.


| 1450. $\mathbf{0 0 : 5 0 : 0 9}$ | Center of this spool. |  |
| :--- | :--- | :--- |
| 1451. | $\mathbf{0 0 : 5 0 : 1 2}$ | Here. |

1452. 00:50:13 That's all.
1453. 00:50:22 Okay.
1454. 00:50:23 You turn it until the plunger goes up.

1455. 00:50:29 That way it's open for easy for you to fill oil.
1456. 00:50:33 You need to open the valve.
1457. 00:50:35 Right.
1458. 00:50:36 Okay.
1459. 00:50:37 Now since this.

1460. 00:50:39 That's important.
1461. 00:50:40 Yeah.
1462. 00:50:41 You have to take the motor off.
1463. 00:50:42 Yeah.
1464. 00:50:43 Yeah.


| 1465. | $\mathbf{0 0 : 5 0 : 4 4}$ | Yes. |
| :--- | :--- | :--- |
| 1466. | $\mathbf{0 0 : 5 0 : 4 5}$ | All right. |
| 1467. | $\mathbf{0 0 : 5 0 : 4 6}$ | You turn. |
| 1468. | $\mathbf{0 0 : 5 0 : 4 7}$ | Come out. |
| 1469. | $\mathbf{0 0 : 5 0 : 4 8}$ | Now this. |


| 1470. | $\mathbf{0 0 : 5 0 : 4 9}$ | You mount it here. |
| :--- | :--- | :--- |
| 1471. | $\mathbf{0 0 : 5 0 : 5 1}$ | And then. |
| 1472. | $\mathbf{0 0 : 5 0 : 5 2}$ | 1024. |
| 1473. | $\mathbf{0 0 : 5 0 : 5 3}$ | Half inch. |


\# Time Spoken text
1474. 00:50:54 12.
1475. 00:50:55 And motor.
1476. 00:50:58 Okay.
1477. 00:50:59 The ground wire.
1478. 00:51:01 Go here.
1479. 00:51:04 Right here is the tank.

1480. 00:51:07 The.
1481. 00:51:08 The.
1482. 00:51:09 The hydraulic.
1483. 00:51:10 The accumulator.
1484. 00:51:11 Right here.

1485. 00:51:12 Okay.
1486. 00:51:13 Now.
1487. 00:51:14 The motor.
1488. 00:51:15 I mean.
1489. 00:51:17 What is it?

1490. 00:51:19 The accumulator is supposed to go this way.
1491. 00:51:21 I have to unplug this.
1492. 00:51:23 Plug this side.
1493. 00:51:24 The accumulator.
1494. 00:51:25 Go this way.

1495. 00:51:26 Right.
1496. 00:51:27 Yes.
1497. 00:51:28 It could be also on the other side.
1498. 00:51:30 You know that.
1499. 00:51:31 Doesn't make difference.

1500. 00:51:32 But it's okay.
1501. 00:51:33 The accumulator go.
1502. 00:51:35 Oh no.
1503. 00:51:36 Has to go one side because.
1504. 00:51:38 I believe it's this side.
1505. 00:51:40 The accumulator.
1506. 00:51:41 Go this side.
1507. 00:51:42 Yeah.


| \# | Time | Spoken text |
| ---: | :--- | :--- |
| 1508. | $\mathbf{0 0 : 5 1 : 4 3}$ | The accumulator. |
| 1509. | $\mathbf{0 0 : 5 1 : 4 4}$ | That's a big port. |


1515. 00:51:52 Because.
1516. 00:51:53 The tank.
1517. 00:51:54 If you mount it.
1518. 00:51:55 The motor is facing out here.
1519. 00:51:57 The tank has to be facing up.


| 1520. | $\mathbf{0 0 : 5 1 : 5 9}$ | I have my accumulator facing up. |
| :--- | :--- | :--- |
| 1521. | $\mathbf{0 0 : 5 2 : 0 1}$ | So. |
| 1522. | $\mathbf{0 0 : 5 2 : 0 2}$ | I know this. |
| 1523. | $\mathbf{0 0 : 5 2 : 0 3}$ | I put it. |
| 1524. | $\mathbf{0 0 : 5 2 : 0 4}$ | This one. |


1525. 00:52:05 Yeah.
1526. 00:52:06 Because the back has got to be up against.
1527. 00:52:08 Yeah.
1528. 00:52:09 Up against the cylinder.
1529. 00:52:10 Okay.


| 1530. | $\mathbf{0 0 : 5 2 : 1 1}$ | We made an arrow in the accumulator side. |
| :--- | :--- | :--- |
| 1531. | $\mathbf{0 0 : 5 2 : 1 2}$ | So we have to remove the plug now. |
| 1532. | $\mathbf{0 0 : 5 2 : 1 4}$ | And put it on the bottom. |
| 1533. | $\mathbf{0 0 : 5 2 : 1 5}$ | Yeah. |
| 1534. | $\mathbf{0 0 : 5 2 : 1 6}$ | And put the accumulator on the top. |


1535. 00:52:17 Yeah.
1536. 00:52:18 The wire facing.
1537. 00:52:19 Going downward.
1538. 00:52:20 I'll post it on the hydraulic wire.
1539. 00:52:22 That's an accumulator.


| \# | Time | Spoken text |
| ---: | :--- | :--- |
| 1541. | $\mathbf{0 0 : 5 2 : 2 6}$ | You can ground it. |
| 1542. | $\mathbf{0 0 : 5 2 : 2 7}$ | On this tube. |
| 1543. | $\mathbf{0 0 : 5 2 : 2 9}$ | Okay. |
| 1544. | $\mathbf{0 0 : 5 2 : 3 9}$ | Again. |



| 1545. | $\mathbf{0 0 : 5 2 : 4 0}$ | Put some grease. |
| :--- | :--- | :--- |
| 1546. | $\mathbf{0 0 : 5 2 : 4 1}$ | It brings about a few at a time. |
| 1547. | $\mathbf{0 0 : 5 2 : 4 4}$ | Okay. |
| 1548. | $\mathbf{0 0 : 5 2 : 4 5}$ | Okay. |
| 1549. | $\mathbf{0 0 : 5 2 : 4 6}$ | Okay. |


1550. 00:52:47 You know all rings don't have a shell fly.
1551. 00:52:49 It does.
1552. 00:52:50 It's not on any bear.
1553. 00:52:51 No.
1554. 00:52:52 You have to know.

1555. 00:52:53 Depending on the material.
1556. 00:52:54 All the owner that we use is five years for the shell time.
1557. 00:52:57 Oh.
1558. 00:52:58 Five years.
1559. 00:52:59 Yeah.

1560. 00:53:00 Five years shell time.
1561. 00:53:01 If you expose to the light, it's two years.
1562. 00:53:03 Which one doesn't have it?
1563. 00:53:05 Five.
1564. 00:53:06 Go.

1565. 00:53:07 Okay.
1566. 00:53:08 We pluck it.
1567. 00:53:09 I unplug this.
1568. 00:53:10 I made a mistake.
1569. 00:53:11 We pluck it.
1570. 00:53:12 This is a three eight amputee.
1571. 00:53:13 Yes.
1572. 00:53:14 Pluck it.


| \# | Time | Spoken text |
| ---: | :--- | :--- |
| 1573. | $\mathbf{0 0 : 5 3 : 1 5}$ | This face prepare. |
| 1574. | $\mathbf{0 0 : 5 3 : 1 6}$ | This face prepare. |


1580. 00:53:25 Okay.
1581. 00:53:26 Now we put the accumulator.
1582. 00:53:28 Three eight.
1583. 00:53:30 Quarter.
1584. 00:53:31 Quarter.

1585. 00:53:32 Go in here.
1586. 00:53:33 Okay.
1587. 00:53:34 So you have to make an adapter here.
1588. 00:53:36 One.
1589. 00:53:37 It's a different size thread.

1590. 00:53:39 Yeah.
1591. 00:53:40 There's no one in there.
1592. 00:53:42 No one.
1593. 00:53:43 I have to get the right size.
1594. 00:53:45 Hold on.

1595. 00:53:46 Hold on.
1596. 00:53:47 I'll get the right size.
1597. 00:53:50 You need a quarter quarter?
1598. 00:53:51 Yeah.
1599. 00:53:52 You have it.
1600. 00:53:53 Yeah.
1601. 00:53:54 Over there.
1602. 00:53:55 Jerry doesn't have to take it out.
1603. 00:53:58 You just will tighten it.

\# Time Spoken text
1604. 00:54:00 Yeah.


| 1605. | $\mathbf{0 0 : 5 4 : 0 1}$ | Okay. |
| :--- | :--- | :--- |
| 1606. | $\mathbf{0 0 : 5 4 : 0 2}$ | Make sure everything is clean. |
| 1607. | $\mathbf{0 0 : 5 4 : 0 4}$ | Okay. |
| 1608. | $\mathbf{0 0 : 5 4 : 0 5}$ | Inside is very clean. |
| 1609. | $\mathbf{0 0 : 5 4 : 0 6}$ | Inside is very important to be clean. |


| 1610. | $\mathbf{0 0 : 5 4 : 0 9}$ | And put the nipple. |
| :--- | :--- | :--- |
| 1611. | $\mathbf{0 0 : 5 4 : 1 4}$ | Okay. |
| 1612. | $\mathbf{0 0 : 5 4 : 1 5}$ | Before you put this in. |
| 1613. | $\mathbf{0 0 : 5 4 : 1 8}$ | Okay. |
| 1614. | $\mathbf{0 0 : 5 4 : 1 9}$ | Install this into the hydraulic cylinder. |


1615. 00:54:23 First.
1616. 00:54:25 Okay.
1617. 00:54:26 The reason for that.
1618. 00:54:28 Because you need access to type of feeling really tight.
1619. 00:54:32 Okay.


| 1620. | $\mathbf{0 0 : 5 4 : 3 4}$ | This. |
| :--- | :--- | :--- |
| 1621. | $\mathbf{0 0 : 5 4 : 3 6}$ | Elbow. |
| 1622. | $\mathbf{0 0 : 5 4 : 3 8}$ | Put half on tape, screw it into the cylinder. |
| 1623. | $\mathbf{0 0 : 5 4 : 4 3}$ | Okay. |
| 1624. | $\mathbf{0 0 : 5 4 : 4 6}$ | Like this. |

1624. 00:54:46 Like this.


| 1625. | $\mathbf{0 0 : 5 4 : 5 3}$ | You do the same on the back side. |
| :--- | :--- | :--- |
| 1626. | $\mathbf{0 0 : 5 4 : 5 5}$ | What? |
| 1627. | $\mathbf{0 0 : 5 4 : 5 6}$ | That's the easy part, right? |
| 1628. | $\mathbf{0 0 : 5 4 : 5 7}$ | Yeah. |
| 1629. | $\mathbf{0 0 : 5 4 : 5 8}$ | We don't know that either. |


| 1630. | $\mathbf{0 0 : 5 4 : 5 9}$ | Okay. |
| :--- | :--- | :--- |
| 1631. | $\mathbf{0 0 : 5 5 : 0 0}$ | Because we don't have any tubes. |
| 1632. | $\mathbf{0 0 : 5 5 : 0 1}$ | The tubes are in my shell. |
| 1633. | $\mathbf{0 0 : 5 5 : 0 4}$ | All right. |


\# Time Spoken text
1634. 00:55:07 Now, you cut the tube.

1635. 00:55:09 You put this in the tube.
1636. 00:55:11 There's another feeling.
1637. 00:55:12 Same thing right here.
1638. 00:55:13 Go into the tube.
1639. 00:55:14 Then you fit it in.

1645. 00:55:22 After you tighten all of this fitting.
1646. 00:55:25 Then you tie this into here.
1647. 00:55:27 Make sure you use a wrench to tie this end into here.
1648. 00:55:31 Hold on.
1649. 00:55:32 And tie this end into here.

1650. 00:55:34 You need to use a monkey wrench or a pipe wrench
1651. 00:55:36 to tie that.
1652. 00:55:37 Make sure you tie this.
1653. 00:55:38 Then you're ready to fill oil.
1654. 00:55:41 Okay.

1655. 00:55:42

Before fill oil, put the linear transducer connected to the hydraulic cylinder.
1656. 00:55:52 And the hydraulic cylinder, there's some adapter, ball, eyes, bearing.
1657. 00:55:56 You go into the machine and tie it to here.
1658. 00:56:00 Okay.
1659. 00:56:01 That's the easy part, Joey, right?

1660. 00:56:03 Hold the cylinder.
1661. 00:56:04 Make sure it's clean, just like I said.
1662. 00:56:07 This one's clean, put oil in.
1663. 00:56:09 Put some oil in here.
1664. 00:56:11 If you can't add the little grease.
1665. 00:56:14 Little grease.
1666. 00:56:16 Not so much, especially the edge at the beginning.
1667. 00:56:18 Don't put grease all over, just like the edge.
1668. 00:56:21 So it's when the first installation of the o-ring.

\# Time Spoken text
1669. 00:56:25 Okay.
1670. 00:56:26 Prepare installing the put oil.
1671. 00:56:29 And this one goes in.
1672. 00:56:32 This part and this are the same.
1673. 00:56:36 Okay.
1674. 00:56:37 Show me the two that are the same.

1675. 00:56:39 This right here, this one.
1676. 00:56:41 Yes.
1677. 00:56:42 And the other one.
1678. 00:56:43 And this right here.
1679. 00:56:44 I see.

1680. 00:56:45 Okay.
1681. 00:56:46 But the same thread hole is in the same screw.
1682. 00:56:48 It's a button hat.
1683. 00:56:50 1032.
1684. 00:56:51 Fan thread.

1685. 00:56:52 Short half inch long.
1686. 00:56:54 Yes.
1687. 00:56:55 Okay.
1688. 00:56:56 You put a number eight o-ring over it.
1689. 00:56:59 Yes.


| 1690. | $\mathbf{0 0 : 5 7 : 0 0}$ | We did it before. |
| :--- | :--- | :--- |
| 1691. | $\mathbf{0 0 : 5 7 : 0 1}$ | We did it. |
| 1692. | $\mathbf{0 0 : 5 7 : 0 2}$ | Yeah. |
| 1693. | $\mathbf{0 0 : 5 7 : 0 3}$ | Number eight o-ring. |
| 1694. | $\mathbf{0 0 : 5 7 : 0 5}$ | Okay. |



| 1695. | $\mathbf{0 0 : 5 7 : 0 6}$ | Yeah. |
| :--- | :--- | :--- |
| 1696. | $\mathbf{0 0 : 5 7 : 1 4}$ | Add some grease to it. |
| 1697. | $\mathbf{0 0 : 5 7 : 1 5}$ | That way, you can just shear the o-ring when you install it. |
| 1698. | $\mathbf{0 0 : 5 7 : 2 0}$ | Put some oil or grease. |
| 1699. | $\mathbf{0 0 : 5 7 : 2 3}$ | So it doesn't shear the o-ring when you, when the o-ring goes through those threads. |

1700. 00:57:27 Okay.
1701. 00:57:29 Put it in.
1702. 00:57:30 Here.
1703. 00:57:31 Okay.

\# Time Spoken text
1704. 00:57:32 Okay.
1705. 00:57:33 This one doesn't need to be really tight.
1706. 00:57:35 Okay.
1707. 00:57:36 It just, it's a lip port.
1708. 00:57:53 You don't need to be tight.
1709. 00:57:56 Like around 10 inch pounds good.

1710. 00:58:03 When you detect leak, it's open this and put the, the awning wrench and unscrew it to move.
1711. 00:58:10 To move the, the, this, uh, emit thread rod out of the plunger.
1712. 00:58:16 And another one of this with the o-ring.
1713. 00:58:19 Okay.
1714. 00:58:20 So if we go into here, you throw an o-ring on it really quick.


| 1720. | $\mathbf{0 0 : 5 8 : 2 5}$ | That's a lot of stuff. |
| :--- | :--- | :--- |
| 1721. | $\mathbf{0 0 : 5 8 : 2 8}$ | Did we have this in the old one? |
| 1722. | $\mathbf{0 0 : 5 8 : 3 0}$ | The top, top screw there? |
| 1723. | $\mathbf{0 0 : 5 8 : 3 1}$ | I don't think so. |
| 1724. | $\mathbf{0 0 : 5 8 : 3 2}$ | The leak, the leak, the leak screw? |



| 1725. | $\mathbf{0 0 : 5 8 : 3 5}$ | Yeah. |
| :--- | :--- | :--- |
| 1726. | $\mathbf{0 0 : 5 8 : 3 6}$ | But the different screw, the one you have is different. |
| 1727. | $\mathbf{0 0 : 5 8 : 3 9}$ | You know what? |
| 1728. | $\mathbf{0 0 : 5 8 : 4 0}$ | It's something with a, with a, something like that. |
| 1729. | $\mathbf{0 0 : 5 8 : 4 3}$ | And I modified it so it costs a few pennies instead of a dollar or two. |


| 1730. | $\mathbf{0 0 : 5 8 : 4 9}$ | Okay. |
| :--- | :--- | :--- |
| 1731. | $\mathbf{0 0 : 5 8 : 5 0}$ | Same thing. |
| 1732. | $\mathbf{0 0 : 5 8 : 5 1}$ | Create another set. |
| 1733. | $\mathbf{0 0 : 5 8 : 5 2}$ | All right. |
| 1734. | $\mathbf{0 0 : 5 8 : 5 3}$ | After you fill, well, on the final plot, you screw this in. |

1735. 00:58:58 Yes.
1736. 00:58:59 We know that.


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