



PTO CONVERSION KIT

872-0640-003()

ADDS PTO AND NEUTRAL
TO TC-38
873-0009-001 & -011 ONLY

!! WARNING !!

Bearing end play adjustment shims must be retained as instructed in step 2.D and shown on page 9 or major transfer case failure can occur!

151 Lawrence Drive Livermore, Ca 94551 Office: (925) 454-9500 Fax: (925) 454-9501 www.fabcoautomotive.com	BY: K. HAUGEN	DRAWING OR PART NUMBER	REV
	DATE: 12/10/07	872-0640-003	()

PTO FIELD INSTALLATION INSTRUCTIONS

These instructions have been included with a PTO kit that is designed to mount on a Fabco TC-38 Air Shift Transfer Case, Part Number **873-X009-001 AND 873-X009-011 ONLY**.

1. Refer to pages 9-10.

A. The PTO conversion kit you have received includes:

1. Indicator light switch.
2. Oil pump.
3. Pump mounting bracket.
4. Oil suction line.
5. Oil delivery lines.
6. All necessary oil line fittings.
7. A spacer to properly locate the PTO unit.
8. Necessary mounting hardware.
9. The additional shift cylinder parts to add neutral.
10. Air fittings, lines, and valves.

B. The PTO unit has been assembled at Fabco. It has the shift cylinder assembly already installed. The lube pump (item # 317) will require mounting on the provided bracket (item # 300) using hardware (item # 301, 312, and 319) as shown on page 10.

C. Check the orientation of the lube pump per picture on page 10 and insure that the hoses and fittings do not interfere with other parts on the transfer case.

2. PTO Installation

A. Make sure the transfer case is free of dust, dirt, and oil.

B. The PTO may be installed on the case while the case is still mounted on the vehicle or on a bench or pallet.

C. Drain the oil from the case.

D. Refer to pages 8 and 9. Remove the transfer case input shaft rear cover. The shims found between the cap and the housing are to be reused between the PTO adapter ring (item # 315) and the housing. Use Loctite 515 liquid gasket on adapter ring opposite shim side. **DO NOT USE RTV SILICONE BASE LIQUIDS.**

E. Apply Loctite 272 or equivalent to all bolt threads and Permatex #2 to all pipe threads. **DO NOT APPLY TO COLORED SHIMS.**

F. Mount the PTO in place with the (4) replacement bolts (item # 302).

151 Lawrence Drive Livermore, Ca 94551 Office: (925) 454-9500 Fax: (925) 454-9501 www.fabcoautomotive.com	BY: K. HAUGEN	DRAWING OR PART NUMBER	REV
	DATE: 12/10/07	872-0640-003	()

- G. Install the (2) twelve-point cap screws (item # 313) through the PTO housing and into the case.
- H. Torque bolts and cap screws to 40-45 lbs-ft.

3. Convert High-Underdrive Shift to Include Neutral as Follows:

- A. Note the locations where the neutral cylinders are to be added, see page 6.
- B. Refer to page 7. Remove and discard the (4) cylinder cap bolts from the high-underdrive shift cylinder. Remove the cap and the cylinder tube, retain for use in step "H".
- C. Remove the existing nut and washer now exposed. Install the washer (item # 86) and nut (item # 45). Install the locking set screw (item #49A). Starting with the new nut, torque both the nut and set screw to 28-32 lbs-ft.
- D. Slip the original cylinder tube over the piston and the adapter that remains on the case, ensuring that it is clean and well lubricated.
- E. Slip the small o-ring (item # 74) over the neutral shift shaft (item # 70). Put the piston (item # 59), and the washer and nut removed in step "C", on the shaft. The piston's larger recess and deeper groove must face outward. Tighten the nut to 28-32 lbs-ft.
- F. Add the o-rings to the neutral cylinder adapter (item # 81) and to the piston (item # 59). Be sure to coat the cylinder walls and o-rings with heavy grease or oil. Add the felt strip (item # 17) to the piston after soaking with transfer case oil for approximately 10 minutes or until felt will conform to the circumference of the groove.
- G. Position the adapter (item # 81) with the shift ports oriented in the best direction to accept the air line that will be installed later.
- H. Put the new cylinder tube (item # 80), the nylon stop ring (item # 55), and the piston shaft assembly (assembled in step "F") in place. Install the shift cap (removed in step "B"), the studs (item # 75), and nuts (item # 42) Tighten the nuts evenly to 10-12 lbs-ft.
- I. Check transfer case input shaft end play. End play should be 0.003" to 0.008" in and out.
- J. Refer to pages 13 and 14 for the recommended air line fittings, and valve arrangement.
CAUTION: DO NOT CONNECT TO AIR BRAKE SYSTEM. Refer to the appropriate bodybuilders data book for designated air system tap in points.
- K. Route air line with the supplied tyrap. Keep plastic lines away from heat sources, sharp edges, and moving parts.
- L. Mount the inversion valves (item # 27) near transfer case on frame rail or transfer case mounting bracket.

151 Lawrence Drive Livermore, Ca 94551 Office: (925) 454-9500 Fax: (925) 454-9501 www.fabcoautomotive.com	BY: K. HAUGEN	DRAWING OR PART NUMBER	REV
	DATE: 12/10/07	872-0640-003	()

4. Suggested parts and wiring arrangements for an indicator light and pump are shown on pages 15 and 16. Connect fused side of indicator light to accessory terminal of ignition switch or equivalent 12-volt source. Wire the positive pump lead, including in-line fuse, to a switchable 12-volt source. Wire the second pump lead to the PTO indicator switch. Tape terminals watertight with plastic electrical tape.
5. Install PTO output yoke or flange on shaft. Torque retaining nut to 150-200 lbs-ft. Check end play on shaft with a dial indicator. PTO shaft end play should be 0.005" to 0.010". If end play is greater than 0.010" recheck PTO yoke nut torque.
6. Install lubrication fittings and lines. Refer to pages 8 to 12.
 - A. Refer to page 12. Remove pipe plug on input shaft seal carrier. Install fitting (item # 308) into the input carrier. **DO NOT OVER TIGHTEN THIS FITTING.**
 - B. Connect the hose adapter fittings to the PTO and pump as shown on pages 10 and 11.
 - C. Install oil suction line (item # 309).
 - D. Connect the delivery lines (item # 310 and 311).
7. Pour about one pint of oil into the PTO through the indicator switch hole. Fill the transfer case to the proper oil level.
8. Check oil pump operation by engaging PTO and running the unit at 2100 rpm for 5 minutes. Put vehicle transmission into neutral or turn off vehicle. Disconnect the lubrication supply line at the input shaft to make sure there was oil flow, see page 12. If there appears to be no lubrication flow, check that the pump leads are connected to the proper locations. Reconnect supply line before further operation.

151 Lawrence Drive Livermore, Ca 94551 Office: (925) 454-9500 Fax: (925) 454-9501 www.fabcoautomotive.com	BY: K. HAUGEN	DRAWING OR PART NUMBER	REV
	DATE: 12/10/07	872-0640-003	()

PTO SPECIFICATIONS ON TC-38

TC-38 PTO SPECIFICATIONS	
RATIO	1.00:1
MAXIMUM TORQUE	2220 FT-LBS
MAXIMUM HORSEPOWER	250 HP
MAXIMUM SPEED	3,500 RPM
METHOD OF ENGAGEMENT	AIR SHIFT
OUTPUT SHAFT SPLINES **	1½-10 PARALLEL SIDE SPLINES
SEAL INSIDE DIAMETER **	2 ¹ / ₈ "
LENGTH UNDER WASHER **	2" (THROUGH HOLE OF YOKE OR FLANGE)
STANDOUT, BACK OF HOUSING TO YOKE/FLANGE RETAINING WASHER	9.91"

** THE YOKES AND FLANGES LISTED BELOW MEET THESE SPECIFICATIONS.

AVAILABLE PTO YOKES AND FLANGES		
1410	YOKE	3-4-3961-1
1480	YOKE	3-4-3111-1
1350/1410	FLANGE	3-1-2431
1350/1410	FLANGE	3-1-1151
1480/1550	FLANGE	4-1-2701

151 Lawrence Drive Livermore, Ca 94551 Office: (925) 454-9500 Fax: (925) 454-9501 www.fabcoautomotive.com	BY: K. HAUGEN	DRAWING OR PART NUMBER	REV
	DATE: 12/10/07	872-0640-003	()

TC-38 PTO AND NEUTRAL SHIFT DETAILS

FABCO AUTOMOTIVE CORPORATION

Engineering Report

12/6/07

Page 1

M 872-0151-020 - 872-0151-020 - KIT NEUTRAL CYL, PTO ASSY, AIR SHIFT

REV **AL**

DRAWING NUMBER/REV: **872-0151-000 / AL**

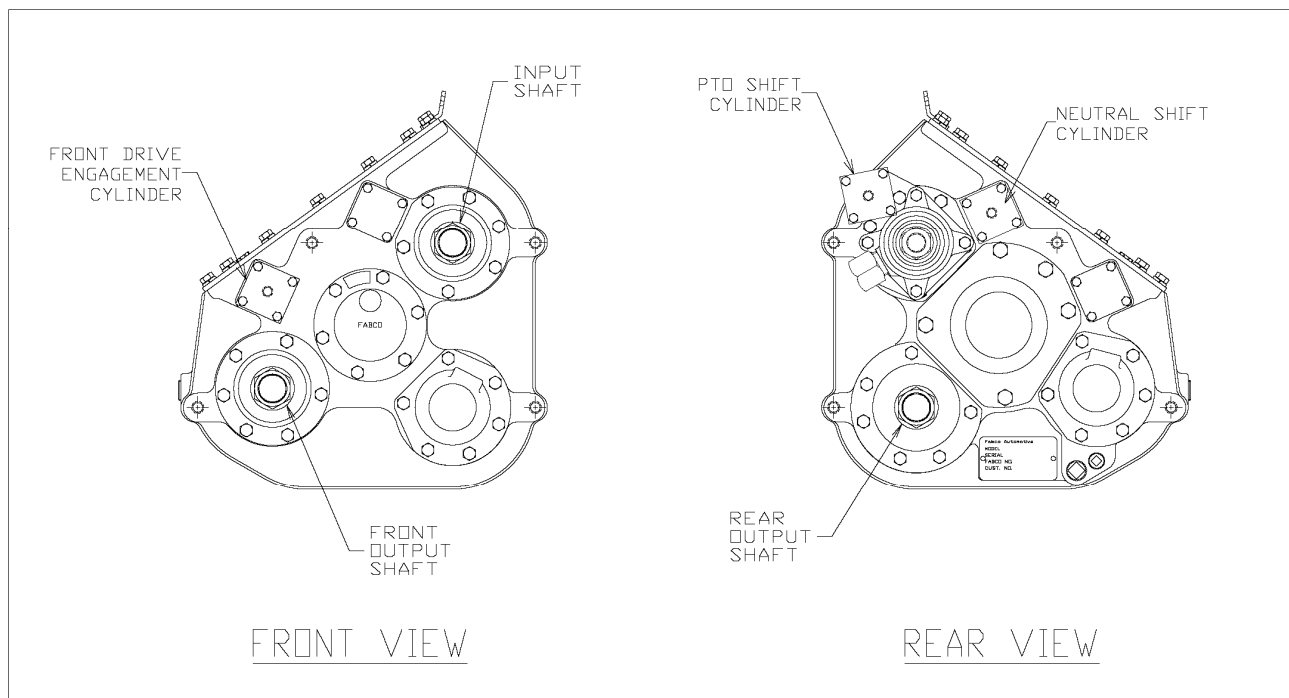
ITEM PART NUMBER - DESCRIPTION

QTY

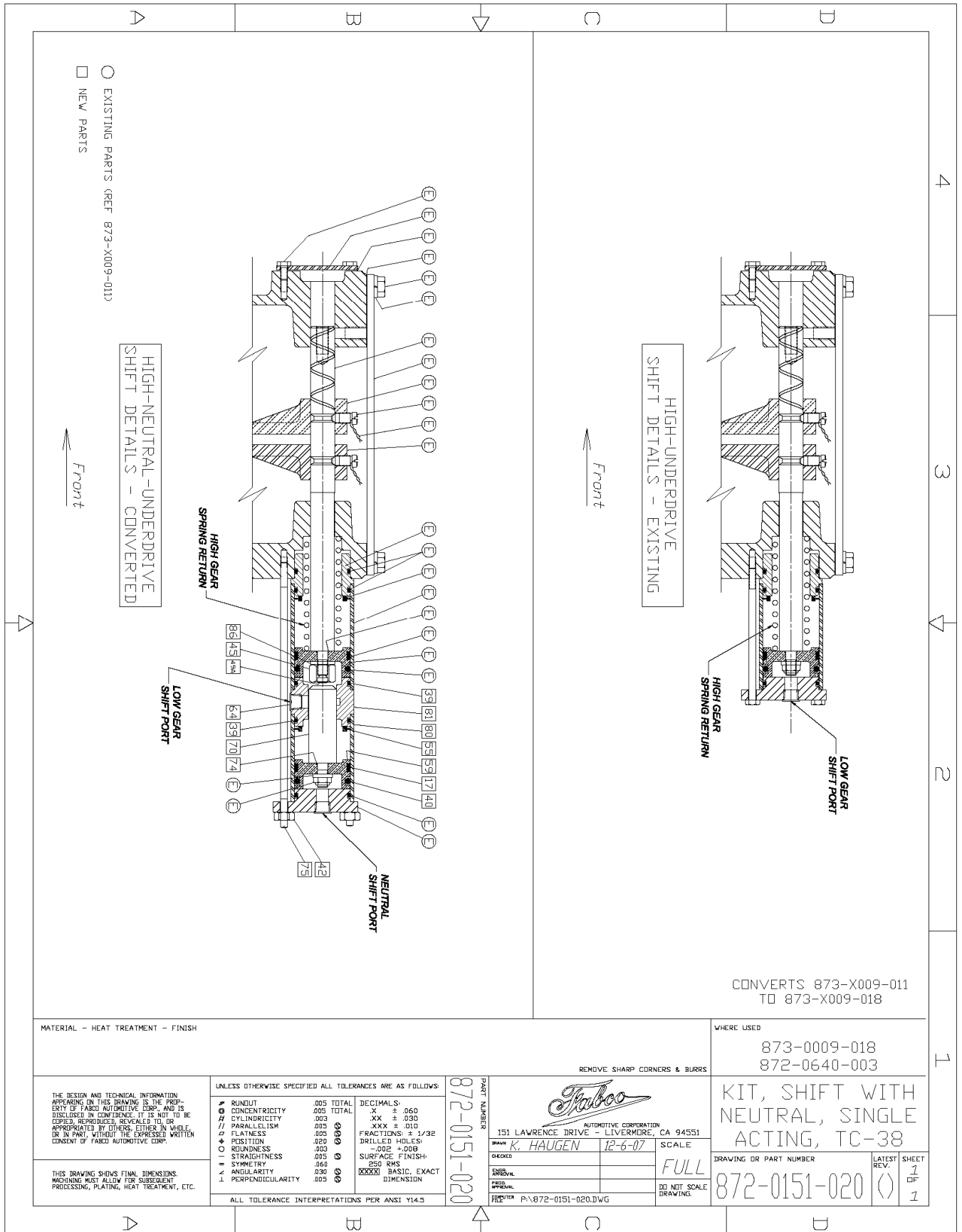
KIT FOR ADDING NEUTRAL TO SINGLE ACTING HIGH LOW. FOR USE ON UNITS WITH ELECTRIC LUBE PUMP.

M 872-0151-020 - 872-0151-020 - KIT NEUTRAL CYL, PTO ASSY, AIR SHIFT

17	----	339-0223 FELT WIPER	1
39	----	675-0224-B46 O-RING	2
40	----	675-0326-B46 O-RING	1
42	----	688-0323 NUT, .25-28	4
45	----	688-0643 NUT SPECIAL HNU SHIFTER	1
49A	----	724-0582 SCREW, SET 3/8-24 x 1/4 HEX SOCKET	1
55	----	736-0747 RING, STOP, PISTON	1
57A	----	744-4322 *SHIM, RED .002	2
59	----	753-0232 PISTON, SHIFT	1
64	----	758-0338 PLUG, 1/4 NPT, PLASTIC	1
70	----	769-0286 SHAFT	1
74	----	782-0288 O-RING, PISTON	1
75	----	788-0546-006 STUD, .25-20 x .25-28 x 9.50	4
80	----	883-0887-007 TUBE, SHIFT CYLINDER 3.125 LG.	1
81	----	883-0893 TUBE, SHIFT CYLINDER ADAPTER	1
86	----	927-0643 WASHER, SHIFT SHAFT, 3/8 I.D.	1



151 Lawrence Drive Livermore, Ca 94551 Office: (925) 454-9500 Fax: (925) 454-9501 www.fabcoautomotive.com	BY: K. HAUGEN	DRAWING OR PART NUMBER	REV
	DATE: 12/10/07	872-0640-003	()



151 Lawrence Drive Livermore, Ca 94551 Office: (925) 454-9500 Fax: (925) 454-9501 www.fabcoautomotive.com	BY: K. HAUGEN	DRAWING OR PART NUMBER	REV
	DATE: 12/10/07	872-0640-003	()

TC-38 LUBRICATION AND MISC PARTS

FABCO AUTOMOTIVE CORPORATION

Engineering Report

M 737-0603-001 - 737-0603-001 - KIT, LUBE PIPING, TC-38

REV ()

DRAWING NUMBER/REV: /

ITEM PART NUMBER - DESCRIPTION

5/18/07

Page 1

QTY

M 737-0603-001 - 737-0603-001 - KIT, LUBE PIPING, TC-38

300	----	249-0248	BRACKET, ELECTRIC PUMP, TC-38	1
301	----	265-0278	BOLT, 1/4-28 x 1" GR5 HH	4
302	----	265-0368	BOLT, 7/16-14 x 1-3/4 GR5 HH	4
303	----	357-0238	ADAPTER, STEEL, .38 MNPT x #8AN.	1
304	----	357-0239	ADAPTER, STR, 1/2 MNPT x # 8M JIC 37.	1
305	----	357-0287	ADAPTER, 1/4 MNPT x #6 AN	1
306	----	357-0327	ELBOW, 90 DEG, .38 MNPT x #8 AN	1
307	----	357-0797	ADAPTER, 1/4 MNPT x #8 AN	1
308	----	357-0948	ELBOW, LONG, 1/4 MNPT X #6 AN	1
309	----	469-0823-009	HOSE ASSY, #8, 10.25in LONG	1
310	----	469-0823-010	HOSE ASSY, #8, 11.25in LONG	1
311	----	469-0826	HOSE ASSY, #6, 30in LONG	1
312	----	688-0677	NUT, .25-28 , LOCK	4
313	----	724-0757	SCREW, CAP 7/16-14 x 5 , HEX SOCKET	2
314	----	737-0285	PIPE NIPPLE BLK, 1/4 x CLOSE (7/8)	1
315	----	756-0272	RING, SPACER	1
316	----	758-0232	PLUG, SOC. HD., 0.25 NPT.	2
317	----	786-0325	PUMP, ELECTRIC	1
318	----	824-0245	TEE, BLACK PIPE, 125 LB, 1/4 FNPT	1
319	----	927-0732	WASHER, 1/4 SAE PLAIN	8

151 Lawrence Drive Livermore, Ca 94551 Office: (925) 454-9500 Fax: (925) 454-9501 www.fabcoautomotive.com	BY: K. HAUGEN	DRAWING OR PART NUMBER	REV
	DATE: 12/10/07	872-0640-003	()

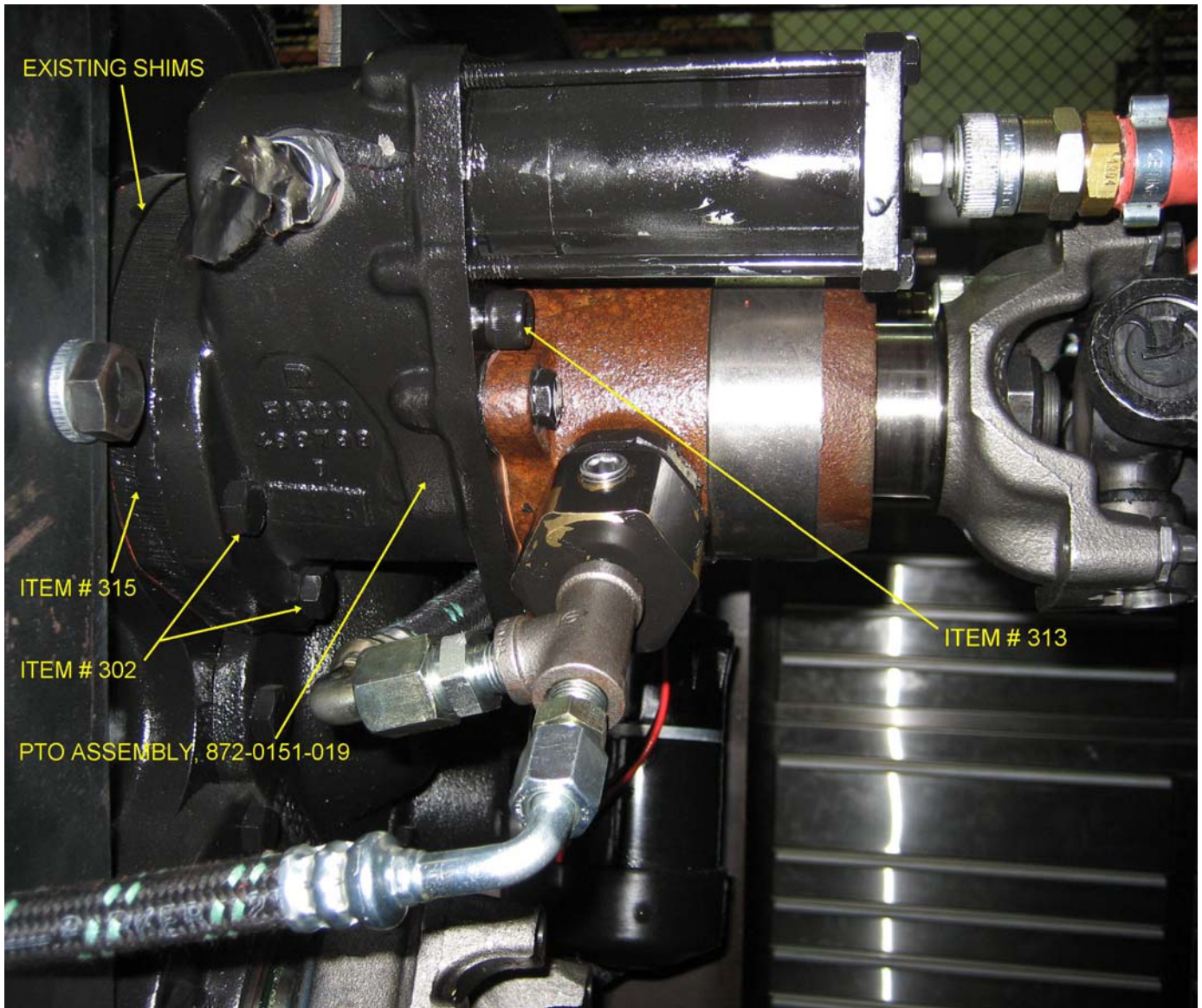


FIGURE TC-38 PTO MOUNTING

!! WARNING !!

Bearing end play adjustment shims must be retained as instructed in step 2.D and shown on page 9 or major transfer case failure can occur!

151 Lawrence Drive Livermore, Ca 94551 Office: (925) 454-9500 Fax: (925) 454-9501 www.fabcoautomotive.com	BY: K. HAUGEN	DRAWING OR PART NUMBER	REV
	DATE: 12/10/07	872-0640-003	()

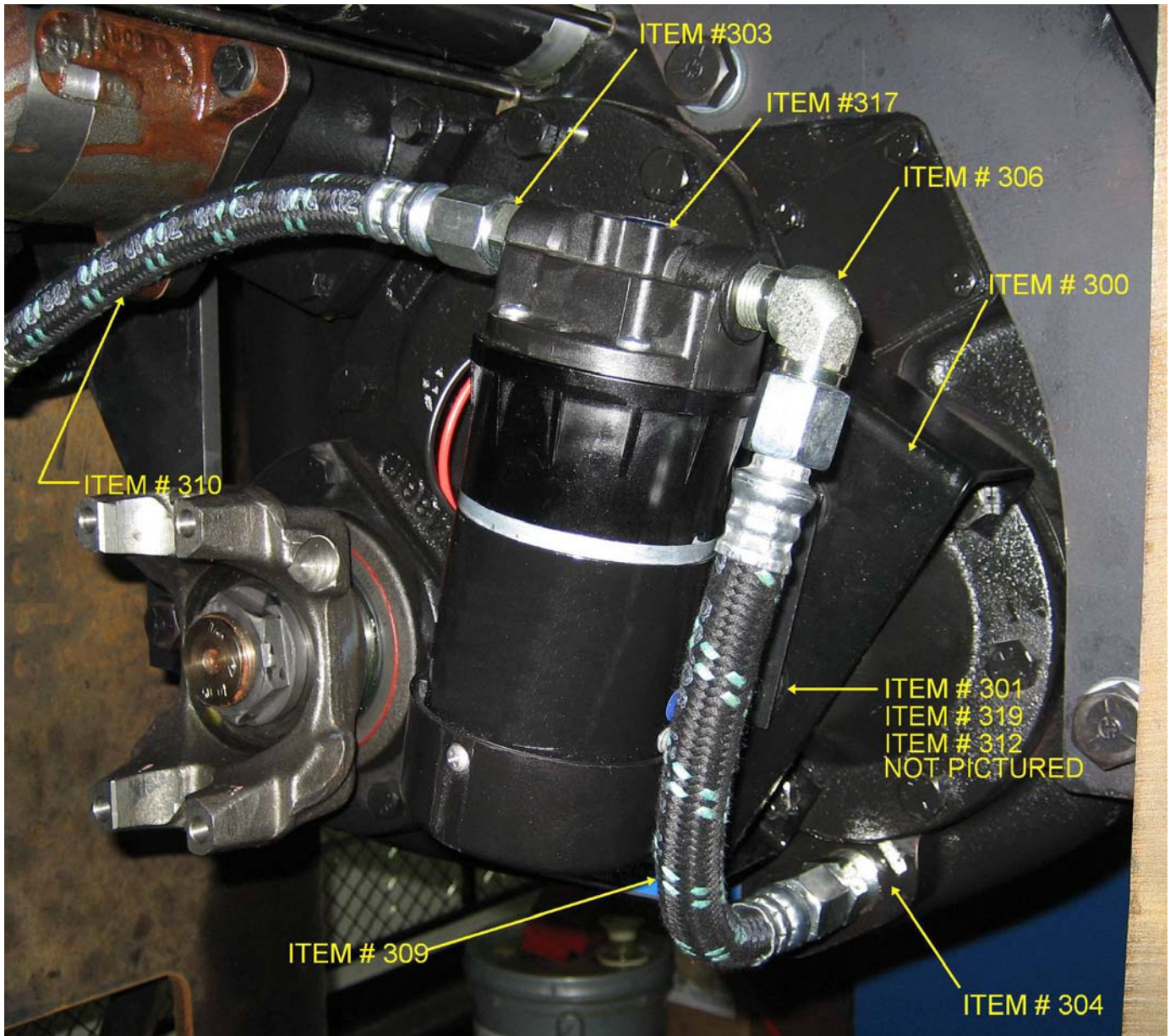


FIGURE TC-38 PUMP MOUNTING

151 Lawrence Drive Livermore, Ca 94551 Office: (925) 454-9500 Fax: (925) 454-9501 www.fabcoautomotive.com	BY: K. HAUGEN	DRAWING OR PART NUMBER	REV
	DATE: 12/10/07	872-0640-003	()

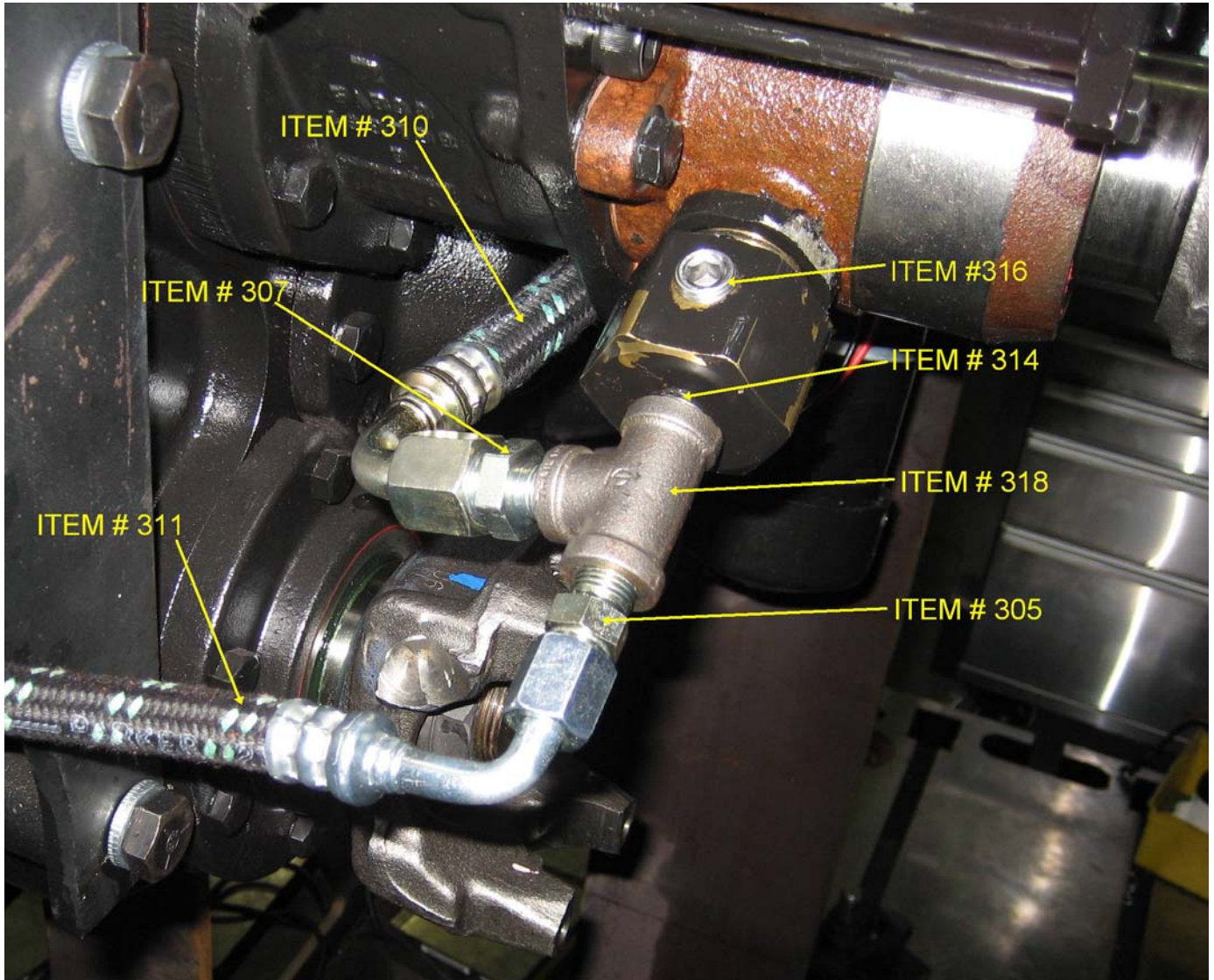


FIGURE TC-38 LUBRICATION INSTALLATION

151 Lawrence Drive Livermore, Ca 94551 Office: (925) 454-9500 Fax: (925) 454-9501 www.fabcoautomotive.com	BY: K. HAUGEN	DRAWING OR PART NUMBER	REV
	DATE: 12/10/07	872-0640-003	()

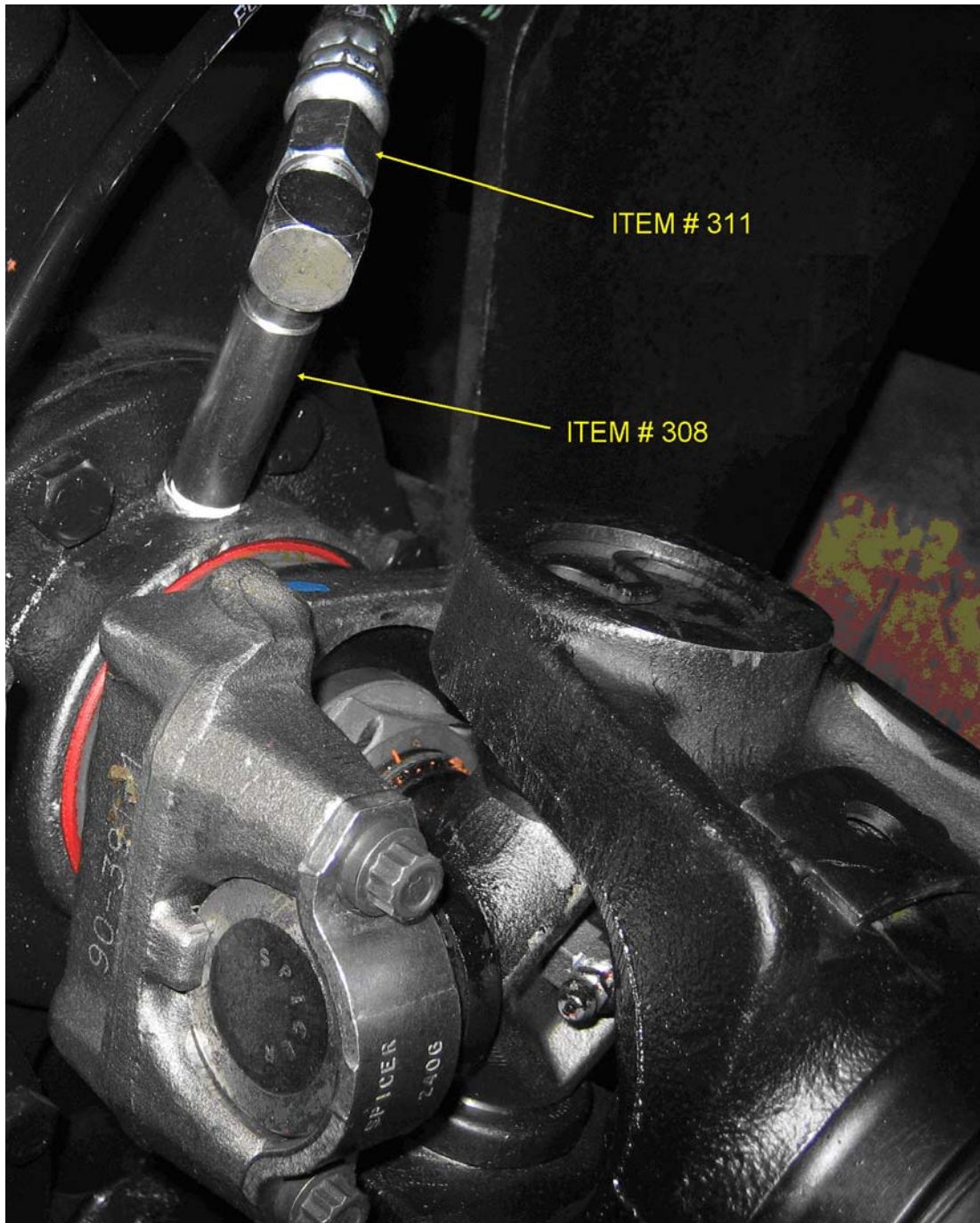


FIGURE TC-38 LUBRICATION INSTALLATION

151 Lawrence Drive Livermore, Ca 94551 Office: (925) 454-9500 Fax: (925) 454-9501 www.fabcoautomotive.com	BY: K. HAUGEN	DRAWING OR PART NUMBER	REV
	DATE: 12/10/07	872-0640-003	()

TC-38 PTO AND NEUTRAL AIR PIPING DETAILS

FABCO AUTOMOTIVE CORPORATION

Engineering Report

M 739-0691-014 - 739-0691-014 - KIT, SHIFT, PTO CONVERSION

REV ()

DRAWING NUMBER/REV: **739-0691-014 / ()**

ITEM PART NUMBER - DESCRIPTION

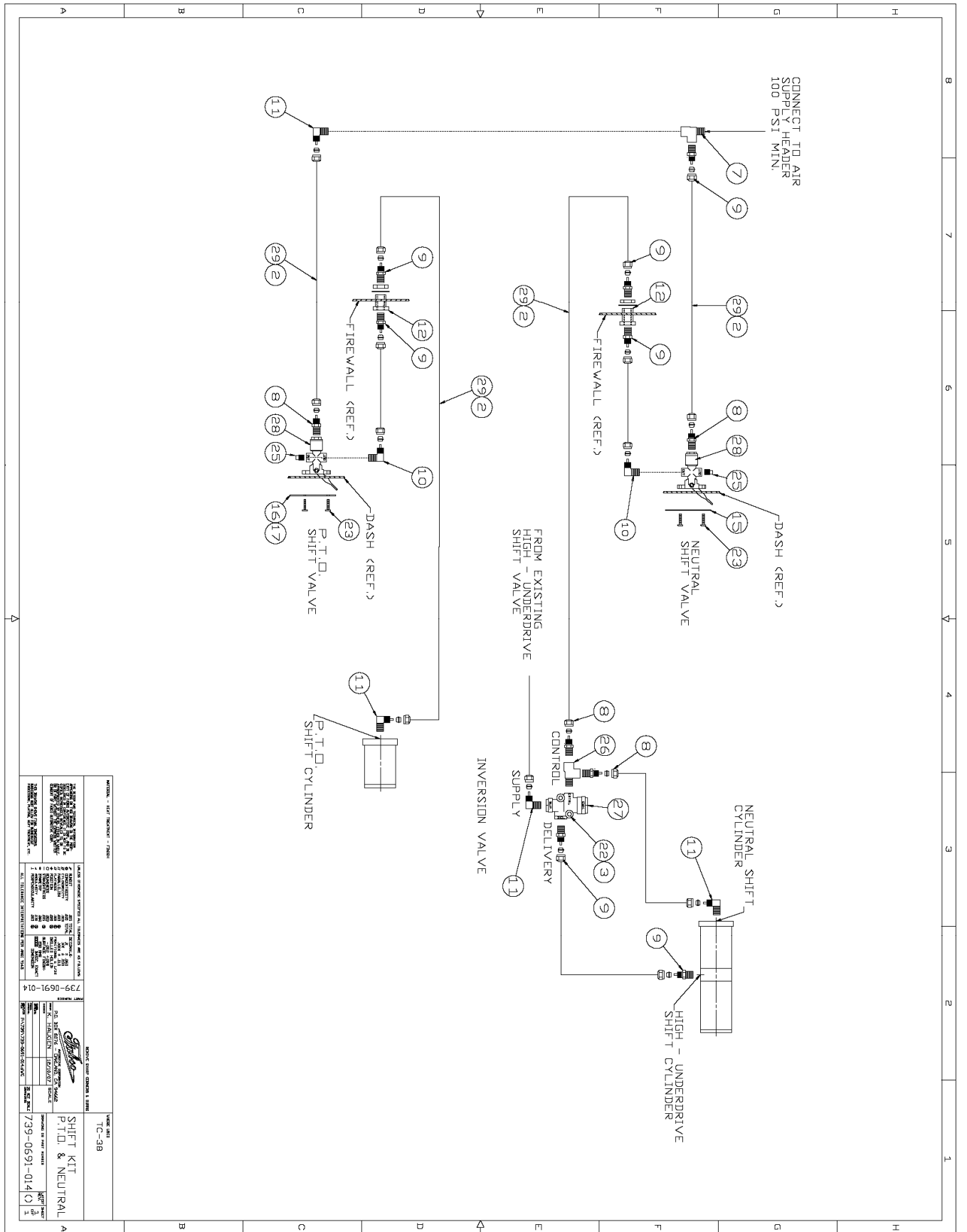
12/10/07

Page 1

QTY

M 739-0691-014 - 739-0691-014 - KIT, SHIFT, PTO CONVERSION

2	----	255-0392 TYRAP, 7 5/8in	24
3	----	265-0464 BOLT, 1/4-28 x 1-3/4 GR5 HH	2
7	----	355-0482 TEE, STREET, .25	1
8	----	355-0599 FITTING, .13 P x .25 T MALE	4
9	----	355-0622 FITTING, .25 P x .25 T, MALE	7
10	----	355-0632 FITTING, 90 DEG, .13 P x .25 T, MALE	2
11	----	355-0634 FITTING, 90 DEG, .25 P x .25 T, MALE	4
12	----	355-0646 FITTING, BULKHEAD, .25 P	2
15	----	535-0443 LABEL, NEUTRAL SHIFT	1
16	----	535-0445 LABEL, PTO SHIFT	1
17	----	535-0446 LABEL, PTO INSTRUCTIONS	1
22	----	688-0677 NUT, .25-28 , LOCK	2
25	----	758-0238 PLUG, METAL, 1/8 NPT	2
26	----	824-0297 TEE, STREET, .13 P	1
27	----	825-0633 VALVE, INVERSION	1
28/23	----	825-0729 VALVE, 2-WAY	2
29	----	883-0226 TUBE, NYLON, 1/4 OD.	40



<p>REVISIONS - SEE INQUIRY - FORM 1</p>	
<p>DATE: 12/10/07</p> <p>BY: K. HAUGEN</p>	<p>739-0691-014</p>
<p>SHIFT KIT P.T.O. & NEUTRAL</p>	
<p>TC-38</p>	

151 Lawrence Drive Livermore, Ca 94551 Office: (925) 454-9500 Fax: (925) 454-9501 www.fabcoautomotive.com	BY: K. HAUGEN	DRAWING OR PART NUMBER	REV
	DATE: 12/10/07	872-0640-003	()

TC-38 PTO CONVERSION ELECTRICAL DETAILS

FABCO AUTOMOTIVE CORPORATION

Engineering Report

M 798-0308-001 - 798-0308-001 - KIT, PTO INDICATOR LIGHT ELECTRICAL

REV **D**

DRAWING NUMBER/REV: **798-0302 / D**

ITEM PART NUMBER - DESCRIPTION

5/18/07

Page 1

QTY

M 798-0308-001 - 798-0308-001 - KIT, PTO INDICATOR LIGHT ELECTRICAL

501	----	353-0249 CONNECTOR, BUTT, 16 TO 14 WIRE GA.	2
502	----	353-0263 TERMINAL, RING, #10 STUD, 16-14 GA WIRE.	4
503	----	353-0267 TERMINAL, .25 RING	1
504	----	353-0592 FUSE, IN LINE, 14A.	1
505	----	535-0438 LABEL, PTO LIGHT, WARNING	1
506	----	544-0348 ASSY, LIGHT, WARNING.	1
507	----	724-0558 SCREW, .25 x .75, HEX HEAD	1
508	----	947-0268 WIRE, JUMPER, 16 GA X 4'	2

