



*Safety by Design*

## OPERATION MANUAL



**Automatic Transmission**

**Fluid Exchanger**

# ETF 3

## Introduction

Thank you for purchasing Symtech Corporations **ETF 3** Automatic Transmission Fluid Exchange System. The **ETF 3** is an economical solution for quickly performance of all required periodic maintenance services for automatic transmissions. It is extremely easy to operate, environmentally safe, and designed for high efficiency.

The Operations Manual is a **MUST** to be read and **COMPLETELY UNDERSTOOD** in order to properly operate the unit and experience the highest return on investment. Refer to the manual in the future for continued safe operation. If you encounter difficulties in the operation, understanding of procedures, or have general service questions, please do not hesitate to call us at **888-884-8182**.

Please record the purchase date, serial number and distributor purchased from below for future reference and assistance in technical issues.

Purchase Date: \_\_\_\_\_

Serial Number: **T3-** \_\_\_\_\_

Located on Back of Unit

Purchased From: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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## **1. GENERAL INFORMATION**

### **1.1 PACKING LIST**

Packaged ETF 3 contains the following:

#### QUANTITY / PART

- (1) Main Chassis
- (1) Accessory Carton (*INCLUDES*)
  - (2) Rear Wheels
  - (2) Front Casters
  - (1) Small Parts Bag for Axle Assembly
  - (1) Organizer with Adaptors
  - (2) Intermediate Sight Hoses
  - (1) Used Fluid Drain Hose
  - (1) Auxiliary Tank Adaptor Hose
  - (1) Operation Manual

### **1.2 ASSEMBLY PROCEDURE**

Assemble the ETF 3 Wheel Assembly according to the included instruction sheet.

NOTE: Assembly Illustration Enclosed in Machine

### **1.3 SAFETY PRECAUTIONS**

Please read and study the Operating Manual carefully. Be thoroughly familiar with the controls and proper use of the ETF 3 prior to operating the machine. Failure to follow these instructions completely could result in damage to the engine/transmission system or cause severe personal injury.

Many transmission systems operate under high pressure and high temperature. The procedures set forth throughout this manual require the disconnection and reconnection of various cooler lines. ALWAYS KEEP FIRE EXTINGUISHING DEVICE NEARBY WHEN WORKING WITH ANY FLAMMABLE LIQUID.

### **1.4 VENTILATE WORK AREA**

When choosing a location to perform Transmission services, keep in mind that the area should be well vented and away from all flammable materials. Avoid breathing harmful fumes and exhaust.

### **1.5 CHECK LUBRICATION AND COOLANT LEVELS**

Check engine oil level and coolant level. Refill if necessary. DO NOT PERFORM THE COOLANT FLUSH if ENGINE OIL LEVEL or COOLANT LEVEL is LOW.

### **1.6 CONNECT/DISCONNECT OF ETF 3 HOSES**

USE SAFETY GOGGLES WHEN CONNECTING OR DISCONNECTING ANY COOLER LINES AND CONNECTIONS TO OR FROM THE TRANSMISSION. Do not smoke or light matches when working with automatic transmission fluid or chemicals.

### **1.7 DURING OPERATION**

Clean up automatic transmission fluid and/or chemical spills immediately and use proper container for disposal.

Check all fittings and automatic transmission cooler lines for leaks before, during and after performing the ETF 3 Service.

Keep ETF 3 hoses and electrical cords away from hot manifolds and all moving components.

If you have any questions or problems which cannot be solved by reading this manual, please contact your authorized Distributor, Symtech Representative, or **Symtech Corporation** Customer Service Dept.

## 1.8 BATTERY CONNECTIONS

Batteries can produce explosive gases. To avoid a battery explosion and serious injury, follow these important safety precautions whenever connecting to or working near a battery.

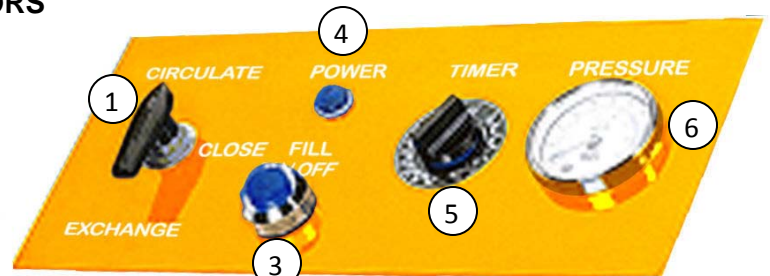
1. Be sure that the machine's Exchange / Circulate Selector is in "Circulate" position.
2. Connect the positive (Red) battery lead to the positive battery terminal. The negative (Black) lead should be attached to the negative battery terminal.

Keep lit cigarettes, open flames or other ignition sources away from the battery. NEVER SET TOOLS OR METAL COMPONENTS ON OR NEAR THE BATTERY.

## 2. COMPONENT FUNCTIONS

### 2.1 CONTROLS, SWITCHES & INDICATORS

- (1) CYCLE SELECTOR Select Exchange or Circulate Mode.
- (2) USED ATF DRAIN SELECTOR Select Used ATF Drain Mode.
- (3) FILL ON/OFF Turns on ETF 3 new fluid .
- (4) POWER LIGHT Indicates the ETF 3 is connected to the vehicle battery.
- (5) TIMER Sets desired Cycle time in minutes and to turn off buzzer.
- (6) PRESSURE GAUGE Indicates system operating pressure.
- (7) 10 AMP BREAKER Provides circuit protection.



### 2.2 CONNECTIONS

- (8) NEW FLUID HOSE (Red) Connects to Input side of a disconnected AT cooler line.



- (9) USED FLUID HOSE (BLACK) Connects to Output side of a disconnected transmission cooler line.
- (10) USED ATF DRAIN HOSE Connects to Used Fluid Drain Port.
- (11) TRANSPARENT Hose Connectors Located at end of new and used fluid hoses act as a sight glass to determine ATF condition.
- (12) NEW ATF TANK Supply new ATF.
- (13) USED ATF TANK Collect used ATF.
- (14) FEMALE NEW ATF SUPPLY Connect to Alternative New ATF QUICK COUPLER Supply source.
- (15) BATTERY CABLES Power input connections. Connect to 12 volt D.C. automotive type battery only!
- (16) QUICK COUPLERS Secures the ATF 3 hoses to the transmission system by way of the connecting adapters.  
NOTE: 4.3
- (17) USED FLUID DRAIN PORT Drain Used ATF.



### 3. GENERAL OPERATING INSTRUCTIONS

#### 3.1 LOCATING TRANSMISSION OIL COOLER LINES

Look for the Transmission Fluid Cooler Lines entering into and exiting out of the RADIATOR. Select ONLY One Oil Cooler Line with the most convenient location for disconnection. There are now two open ends to work with: one coming from the transmission and one going into radiator. See Figure. A



Figure A

#### 3.2 SELECTING SUITABLE ADAPTERS

Select suitable adapters for the two disconnected open ends.

#### 3.3 FOLLOW THE STEP BY STEP OPERATING INSTRUCTIONS AS DESCRIBED IN BASIC EXCHANGE

### 4. USER MAINTENANCE

#### 4.1 TROUBLESHOOTING PROBLEMS AND SOLUTIONS

If the problem cannot be resolved, or does not appear here, contact your Authorized Symtech Corporation Distributors.

**PROBLEM**  
**Power does not come on (Buzzer doesn't sound when Battery Cable is connected to power source and Timer is set to "0")**

**CAUSE / SOLUTION**  
Battery connection may be loose. Check cable low.

Check the voltage. If the reading is below 12 volts, replace the battery.

Breaker is blown. Find breaker buttons and push in to reset.

If none of the above, call your distributor for an authorization number, then remove the rear panel of the machine and check for any loose connections inside the unit.

**No pump action**

Check timer, pump, power connections. Repair or replace.

**Fitting leaks**

Tighten fitting or use sealant.

**Pump Leaks**

Tighten fitting, replace pump if internal leak.



### 4.3 ADAPTOR & HOSE APPLICATION LISTING

GM VEHICLES - SILVER		
Vehicle Description	Year	Part # (Male/Female)
GM 5/16" diameter	All	J/J1
GM 3/8" diameter	All	K/K1
GM 7/16" inverted flare	Newer SUV's & trucks	#21/ #22
GM 1/2" inverted flare	Newer SUV's & trucks	#23/#24
GM 3/8" quick connect	1996 or newer	#2 & 3/8" female hose
GM 1/2" quick connect	Newer SUV's & trucks	#25 & 1/2" female hose
GM 5/8" quick connect for pick ups (Allison 1000 series)		#27/#28
GM 3/4" quick connect for pick ups (Allison 2000 series)		#29/#30
FORD VEHICLES - GOLD		
Ford F150	Newer	#9 & 3/8" female hose
Ford 5/16" diameter	1980 & newer	B/B1
Ford 3/8" diameter	1985 & newer	A/A1
Ford quick connect fitting	1985 & newer	#1 & 5/16" female hose
Ford Contour & Mystique	1995 & newer	D/D1
Ford Escort	1995 & newer	G/G1
Ford Diesel Truck		E/E1
Ford Aerostar, Jaguar, Mercedes & Cadillac	1985 & newer	C/C1
CHRYSLER VEHICLES - GRAY		
Jeep Cherokee	1980 to 1986	H/H1
Jeep Cherokee, Grand Cherokee with quick connect fitting	1987 & newer	#3 & 3/8" female hose
Jeep Cherokee, Grand Cherokee	1993 & 1994	I/I1
Jeep Cherokee, Grand Cherokee	1998	V/V1
Jeep Grand Cherokee	1995 & newer	#3 & 3/8" female hose
Jeep Liberty		#61/#62
Dodge Durango		F/F1
Dodge Ram 1500	1999 & newer	CA/CA1
Dodge Truck V6 & V8	1995 & newer	#3 & 3/8" female hose
Dodge Truck V10 & Diesel	1995 & newer	#4 & 1/2" female hose
BMW/MERCEDES/VOLVO VEHICLES - BLACK		
BMW & Mercedes	1985 & newer	M/M1 or Ford (Gold): G/G1
BMW flare adapter	Up to 1985	N/N1
BMW O-Ring adapter	1987 & newer	L/L1
BMW w/quick connect adapter		#37 & 3/8" female hose
Landrover	Newer	#37/#39 & #41/#42
Saab 14 mm fittings		#33/
Volvo, Jaguar, Mercedes	1985 & newer	Ford (Gold): C/C1
Volvo all models	1993 & newer	AV/AV1 & #99, also #31
Volkswagen all models		VO & #35 (total of 4 pcs)
Most imports and all other types of vehicle optional adapters are:		
European Kit: # 30110505		
#31, #33/34, #35, #37, #38/39, #41/42, #43/44, #99, #VO		
Chrysler Kit: # 30110500		#CA/CA1, #F/F1, #V/V1, #61/62
Ford Kit: # 30110504		#9, #9A, #97/98
* = Optional adapter/not part of Standard Kit		
GM Kit: # 30110501		#20, #21/22, #23/24, #25, #26, #27/28, #29/30
Allison Kit #1: # 30110502		#26, #27, #28
Allison Kit #2: # 30110503		#29, #30



## GENERAL OPERATING NOTES

### A. APPLICABLE TRANSMISSION SYSTEMS

The ETF 3 service is recommended every 15,000 miles or 12 months. For vehicles over 60,000 miles or with leaking problems such as a leaky gasket, replace the gasket and correct any additional problems before doing the service. If changing transmission filter/gasket is desired or required at the same time, do the regular filter/gasket change after Transmission ETF 3 service.

### B. LOCATING TRANSMISSION OIL COOLER LINES

Look for Transmission Cooler Lines entering into and exiting out of the RADIATOR. Select ONLY One Cooler Line which is easiest to disconnect. That means there are now two open ends to work with: one coming from the transmission and one going into radiator. See Figure. A.

### C. SELECTING ADAPTERS

Select suitable adapters for the two disconnected open ends.

### D. FOLLOW STEP BY STEP OPERATING INSTRUCTIONS AS DESCRIBED IN THE FOLLOWING QUICK REFERENCE GUIDES

Transmission ETF 3 Operators must be familiar with all Basic ATF Exchange procedures before proceeding with exchange.

### E. DRAIN USED ATF FROM ETF 3 USED FLUID TANK

**Step 1** Set **DRAIN USED FLUID SELECTOR** to “Drain Used Fluid” position. Set **FILL ON/OFF** Switch to "OFF".

**Step 2** Connect one end of the CLEAR Used Fluid Drain Hose to “Used Fluid Drain Port” and the other end to an used ATF collection container. Connect ETF 3 power cable to 12v D.C. battery. Buzzer should sound. Set Timer to 30 minutes.

**Step 3** Set **FILL ON/OFF** switch to “On” and wait for all used ATF to be evacuated from Used Fluid Tank.

**Step 4** Set **FILL ON/OFF** switch to “Off” and disconnect Used Fluid Drain Hose from “Used Fluid Drain Port”.

**Step 5** Set **DRAIN USED FLUID** Selector to “Fluid Exchange” position.

## BASIC ATF EXCHANGE

### SETUP

- Step 1** Find Transmission Cooler Lines. Select One Line easiest to disconnect. Select suitable adapters. Engage parking brake. Vehicles should be WARM. Check AT dipstick for type of ATF. Fill up to 20 quarts of new ATF to the supply tank.
- Step 2** Set: **EXCHANGE/CIRCULATE** valve to "Circulate". Set **FILL ON/OFF** switch to "OFF", Set **DRAIN USED FLUID** Selector to "Fluid Exchange".
- Step 3** Connect adapters to ETF 3 and Cooler Line. Connect ETF 3 cable to 12v D.C. battery. Buzzer should sound. Set Timer to 30 minutes.
- Step 4** With vehicle in PARK, start engine and determine the flow direction of the used ATF by turning **CYCLE SELECTOR SLOWLY** and SLIGHTLY from "Circulate" toward "Close" position and observing the "PRESSURE CHANGE" on the Pressure Gauge as following:

#### CORRECT

- (A) (DECREASING PRESSURE): The used ATF is entering ETF 3 "correctly" from Black Used Fluid Hose.

#### INCORRECT

- (B) (INCREASING PRESSURE): The used ATF is entering ETF 3 incorrectly" from Red New Fluid Hose. Turn off engine at once and reverse ETF 3 hose connection. Repeat step 4.

- Step 5** Check pressure, color, and flow characteristic of used ATF in Clear Hose Adaptors

**Note:** For most Chrysler and Mitsubishi vehicles, the used ATF will only come out at "Neutral" instead of "Park" gear. In these cases, perform the service with vehicle in Neutral gear.

### BEGIN EXCHANGE OPERATION

- Step 6** Turn **CYCLE SELECTOR** to "Exchange". Turn on **FILL ON/OFF** switch (New ATF should be seen in Clear Sight Hose on New Fluid Hose).
- Step 7** Make a mental note of the new ATF level (i.e. 20 quarts) and used ATF level (i.e. 0 or 1 quart) on the ATF Level Markers. After one or two minutes, check and compare level of new ATF and used ATF on the ATF Level Markers.
- (A) If new ATF is being pumped into transmission system FASTER than used ATF is being pumped out to the used ATF Tank (i.e. 4 quarts new transmission oil in and 2 quarts used transmission oil out), turn off Fill switch and wait for more used ATF to catch up (i.e. 2 quarts). When the volume of new ATF pumped in and used ATF being pumped out are equal (i.e. 4 quarts), turn on Fill switch again and repeat step 7A until ATF color of New and Used Fluid Hoses are both bright red and identical.
- (B) If new ATF being pumped into AT system is EQUAL (4 quarts in and 4 quarts out) or almost equal (3or 2.5 quarts in and 4 quarts out) to used ATF being pumped out, go to step 8.

- (C) If new ATF being pumped into transmission system is MUCH LESS than used ATF being pumped out (2 quarts in and 4 or 5 quarts out), wait for some air bubbles to appear in the Used Fluid Hose). Turn off vehicle engine and wait for ATF 3 to pump 3 quarts of new ATF into vehicle AT system. Turn on vehicle engine again and repeat step 7C until ATF color of New and Used Fluid Hoses are both bright red and identical. Step 7C is generally applicable only to vehicles with very strong AT pump and is running very hot when one is doing the ATF exchange. One usually does not have to turn off vehicle engine more than once before the ATF change is completed.

**Step 8** Wait until ATF of New and Used Fluid are both BRIGHT RED and identical.

**Step 9** Turn Cycle Selector to "Circulate" and turn off Fill switch.

**Step 10** Check vehicle ATF level. If necessary, add ATF (i.e. turning on Fill switch) or remove ATF (by turning Cycle Selector to "Exchange").

## DISCONNECTION

**Step 11** Turn off engine and reconnect Cooler Line. Recheck ATF level and check for any leaks.



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