

**CORRELATION  
FLORIDA DEPARTMENT OF EDUCATION  
COURSE DESCRIPTION**

**SUBJECT:** Industrial Education  
**COURSE NAME:** Automotive Service Technology 4  
**SUBMISSION TITLE:** Automotive Excellence Volume 2 © 2007  
**PUBLISHER:** Glencoe/McGraw-Hill  
**GRADE(S):** 9-12

**COURSE CODE NUMBER:**

OUTCOME NUMBER	BENCHMARK NUMBER	INTENDED OUTCOME/BENCHMARK DESCRIPTION	PAGE(S) OR LOCATION(S) WHERE TAUGHT IN MAJOR TOOL
46.0		DEMONSTRATE PROFICIENCY IN THE OPERATION AND SERVICING OF AUTOMATIC TRANSMISSION/TRANSAXLE--The student will be able to:	
46.01		Identify and interpret transmission concern; assure proper engine operation; determine necessary action. LA.A.142, LA.A.143, LA.A.244, MA.B.442, MA.E.141	P-1 SE2: AT516-522
46.02		Research applicable vehicle and service information, such as transmission/transaxle system operation, vehicle service history, service precautions, and technical service bulletins. LA.A.142, LA.A.143, LA.A.244, MA.B.442, MA.E.141	P-1 SE2: HB48, AT402-465
46.03		Locate and interpret vehicle and major component identification numbers (VIN, vehicle certification labels, and calibration decals). LA.A.142, LA.A.143, LA.A.244, MA.B.442, MA.E.141	P-1 SE2: HB48
46.04		Diagnose fluid usage, level, and condition concerns; determine necessary action. LA.A.142, LA.A.143, LA.A.244	P-1 SE2: AT414-418
46.05		Perform pressure tests; determine necessary action. S.C.H346, LA.A.142, LA.A.143, LA.A.244, MA.B.442, MA.E.141	P-1 SE2: AT455-457, AT473-474
46.06		Perform lock-up converter system tests; determine necessary action. LA.A.142, LA.A.143, LA.A.244, MA.B.442, MA.E.141	P-2 SE2: AT434-436
46.07		Diagnose electronic, mechanical, hydraulic, vacuum control systems concerns; determine necessary action. SC.H.346, LA.A.142, LA.A.143, LA.A.244, MA.B.442, MA.E.141	P-1 SE2: AT467-483

SE2 = Student Edition Vol 2

**CORRELATION  
FLORIDA DEPARTMENT OF EDUCATION  
COURSE DESCRIPTION**

**SUBJECT:** Industrial Education  
**COURSE NAME:** Automotive Service Technology 4  
**SUBMISSION TITLE:** Automotive Excellence Volume 2 © 2007  
**PUBLISHER:** Glencoe/McGraw-Hill  
**GRADE(S):** 9-12

**COURSE CODE NUMBER:**

OUTCOME NUMBER	BENCHMARK NUMBER	INTENDED OUTCOME/BENCHMARK DESCRIPTION	PAGE(S) OR LOCATION(S) WHERE TAUGHT IN MAJOR TOOL
46.08		Diagnose noise and vibration concerns; determine necessary action. LA.A.142, LA.A.143, LA.A.244	P-2 SE2: AT434-436
46.09		Diagnose transmission/transaxle gear reduction/multiplication concerns using driving, driven, and held member (power flow) principles. SC.H.346, LA.A.142, LA.A.143, LA.A.244, MA.B.442, MA.E.141	P-1 SE2: AT438-443
47.0		DEMONSTRATE PROFICIENCY IN TRANSMISSION/TRANSAXLE MAINTENANCE, ADJUSTMENT AND IN-VEHICLE TRANSMISSION/TRANSAXLE REPAIR --The student will be able to:	
47.01		Inspect, adjust or replace throttle valve (TV) linkages or cables; manual shift linkages or cables; transmission range sensor; check gear select indicator (as applicable). LA.A.142, LA.A.143, LA.A.244	P-1 SE2: AT467-471
47.02		Service transmission; perform visual inspection; replace fluids and filters. LA.A.142, LA.A.143, LA.A.244	P-1 SE2: AT414-418
47.03		Inspect, adjust or replace (as applicable) vacuum modulator; inspect and repair or replace lines and hoses. LA.A.142, LA.A.143, LA.A.244	P-3 SE2: AT471-472
47.04		Inspect, repair, and replace governor assembly. LA.A.142, LA.A.143, LA.A.244	P-3 SE2: AT476-478
47.05		Inspect and replace external seals and gaskets. LA.A.142, LA.A.143, LA.A.244	P-2 SE2: AT418-419
47.06		Inspect extension housing; bushings and seals; perform necessary action. LA.A.142, LA.A.143, LA.A.244	P-3 SE2: AT418-419

**CORRELATION  
FLORIDA DEPARTMENT OF EDUCATION  
COURSE DESCRIPTION**

**SUBJECT:** Industrial Education  
**COURSE NAME:** Automotive Service Technology 4  
**SUBMISSION TITLE:** Automotive Excellence Volume 2 © 2007  
**PUBLISHER:** Glencoe/McGraw-Hill  
**GRADE(S):** 9-12

**COURSE CODE NUMBER:**

OUTCOME NUMBER	BENCHMARK NUMBER	INTENDED OUTCOME/BENCHMARK DESCRIPTION	PAGE(S) OR LOCATION(S) WHERE TAUGHT IN MAJOR TOOL
47.07		Inspect, leak test, flush, and replace cooler, lines, and fittings. LA.A.142, LA.A.143, LA.A.244	P-1 SE2: AT436-437
47.08		Inspect and replace speedometer drive gear, driven gear, vehicle speed sensor (VSS), and retainers. LA.A.142, LA.A.143, LA.A.244, MA.B.442, MA.E.141	P-3 SE2: AT523-525
47.09		Diagnose electronic transmission control systems using a scan tool; determine necessary action. LA.A.142, LA.A.143, LA.A.244, MA.B.442, MA.B.242, MA.E.141	P-1 SE2: AT516-518, AT551
47.10		Inspect, replace, and align powertrain mounts. LA.A.142, LA.A.143, LA.A.244	P-3 SE2: AT549
48.0		DEMONSTRATE PROFICIENCY IN OFF-VEHICLE TRANSMISSION/TRANSAXLE REPAIR (REMOVAL, DISASSEMBLY, AND REINSTALLATION), OIL PUMP AND CONVERTER--The student will be able to:	
48.01		Remove and reinstall transmission and torque converter (rear-wheel drive). LA.A.142, LA.A.143, LA.A.244	P-2 SE2: AT537, AT549-551
48.02		Remove and reinstall transaxle and torque converter assembly. LA.A.142, LA.A.143, LA.A.244	P-2 SE2: AT537-539, AT549-551
48.03		Disassemble, clean, and inspect transmission/trans-axle. LA.A.142, LA.A.143, LA.A.244	P-1 SE2: AT540-545
48.04		Inspect, measure, clean, and replace valve body (includes surfaces and bores, springs, valves, sleeves, retainers, brackets, check-balls, screens, spacers, and gaskets),and torque valve body bolts. LA.A.142, LA.A.143, LA.A.244, MA.B.442, MA.E.141, MA.B.241, MA.B.242	P-2 SE2: AT461-463

**CORRELATION  
FLORIDA DEPARTMENT OF EDUCATION  
COURSE DESCRIPTION**

**SUBJECT:** Industrial Education  
**COURSE NAME:** Automotive Service Technology 4  
**SUBMISSION TITLE:** Automotive Excellence Volume 2 © 2007  
**PUBLISHER:** Glencoe/McGraw-Hill  
**GRADE(S):** 9-12

**COURSE CODE NUMBER:**

OUTCOME NUMBER	BENCHMARK NUMBER	INTENDED OUTCOME/BENCHMARK DESCRIPTION	PAGE(S) OR LOCATION(S) WHERE TAUGHT IN MAJOR TOOL
48.05		Inspect servo bore, piston, seals, pin, spring, and retainers; determine necessary action. LA.A.142, LA.A.143, LA.A.244	P-3 SE2: AT498-503
48.06		Inspect accumulator bore, piston, seals, spring, and retainers; determine necessary action. LA.A.142, LA.A.143, LA.A.244, MA.B.442, MA.E.141, MA.B.241, MA.B.242	P-3 SE2: AT498-503
48.07		Assemble transmission/trans-axle. LA.A.142, LA.A.143, LA.A.244	P-1 SE2: AT546-548
48.08		Inspect converter flex plate, attaching parts, pilot, pump drive, and seal areas. LA.A.142, LA.A.143, LA.A.244	P-2 SE2: AT427
48.09		Measure torque converter end play and check for interference; check stator clutch. SC.H.346, LA.A.142, LA.A.143, LA.A.244, MA.B.442, MA.E.141	P-2 SE2: AT427-431
48.10		Inspect, measure, and replace oil pump assembly and components. SC.H.346, LA.A.142, LA.A.143, LA.A.244, MA.B.442, MA.E.141	P-3 SE2: AT454-457
49.0		DEMONSTRATE PROFICIENCY IN GEAR TRAIN, SHAFTS, BUSHINGS, CASE, FRICTION UNITS AND REACTION UNITS --The student will be able to:	
49.01		Measure end play or preload; determine necessary action. SC.H.346, LA.A.142, LA.A.143, LA.A.244, MA.B.442, MA.E.141, MA.B.241, MA.B.242	P-1 SE2: AT550
49.02		Inspect, measure, and replace thrust washers and bearings. SC.H.346, LA.A.142, LA.A.143, LA.A.244, MA.B.442, MA.E.141	P-2 SE2: AT545
49.03		Inspect oil delivery seal rings, ring grooves, and sealing surface areas. LA.A.142, LA.A.143, LA.A.244	P-2 SE2: AT418-419, AT454-457

**CORRELATION  
FLORIDA DEPARTMENT OF EDUCATION  
COURSE DESCRIPTION**

**SUBJECT:** Industrial Education  
**COURSE NAME:** Automotive Service Technology 4  
**SUBMISSION TITLE:** Automotive Excellence Volume 2 © 2007  
**PUBLISHER:** Glencoe/McGraw-Hill  
**GRADE(S):** 9-12

**COURSE CODE NUMBER:**

OUTCOME NUMBER	BENCHMARK NUMBER	INTENDED OUTCOME/BENCHMARK DESCRIPTION	PAGE(S) OR LOCATION(S) WHERE TAUGHT IN MAJOR TOOL
49.04		Inspect bushings; determine necessary action. LA.A.142, LA.A.143, LA.A.244	P-2 SE2: AT544
49.05		Inspect and measure planetary gear assembly (includes sun, ring gear, thrust washers, planetary gears, and carrier assembly); determine necessary action. SC.H.346, LA.A.142, LA.A.143, LA.A.244	P-2 SE2: AT441-442
49.06		Inspect case bores, passages, bushings, vents, and mating surfaces; determine necessary action. LA.A.142, LA.A.143, LA.A.244	P-2 SE2: AT462-463
49.07		Inspect transaxle drive, link chains, sprockets, gears, bearings, and bushings; perform necessary action. LA.A.142, LA.A.143, LA.A.244	P-2 SE2: AT543-545
49.08		Inspect, measure, repair, adjust or replace transaxle final drive components. SC.H.346, LA.A.142, LA.A.143, LA.A.244	P-2 SE2: AT543-545
49.09		Inspect and reinstall parking pawl, shaft, spring, and retainer; determine necessary action. LA.A.142, LA.A.143, LA.A.244	P-3 SE2: AT407
49.10		Inspect clutch drum, piston, check-balls, springs, retainers, seals, and friction and pressure plates; determine necessary action. LA.A.142, LA.A.143, LA.A.244, MA.B.442, MA.E.141	P-2 SE2: AT498-503
49.11		Measure clutch pack clearance; determine necessary action. SC.H.346, LA.A.142, LA.A.143, LA.A.244, MA.B.442, MA.E.141	P-1 SE2: AT501
49.12		Air test operation of clutch and servo assemblies. LA.A.142, LA.A.143, LA.A.244	P-1 SE2: AT503

**CORRELATION  
FLORIDA DEPARTMENT OF EDUCATION  
COURSE DESCRIPTION**

**SUBJECT:** Industrial Education  
**COURSE NAME:** Automotive Service Technology 4  
**SUBMISSION TITLE:** Automotive Excellence Volume 2 © 2007  
**PUBLISHER:** Glencoe/McGraw-Hill  
**GRADE(S):** 9-12

**COURSE CODE NUMBER:**

OUTCOME NUMBER	BENCHMARK NUMBER	INTENDED OUTCOME/BENCHMARK DESCRIPTION	PAGE(S) OR LOCATION(S) WHERE TAUGHT IN MAJOR TOOL
49.13		Inspect roller and sprag clutch, races, rollers, sprags, springs, cages, and retainers; replace as needed. LA.A.142, LA.A.143, LA.A.244	SE2: AT494 P-1
49.14		Inspect bands and drums; adjust or determine necessary action. LA.A.142, LA.A.143, LA.A.244, MA.B.442, MA.E.141	SE2: 498-503 P-2

8709440

I/M*

8709440

I/M*

8709440

I/M*

8709440

<b>I/M*</b>

8709440

I/M*

8709440

I/M*