
SERVICE INFORMATION BULLETIN

WM453109 TREADLE VALVE FOR FMVS124 APPLICATIONS

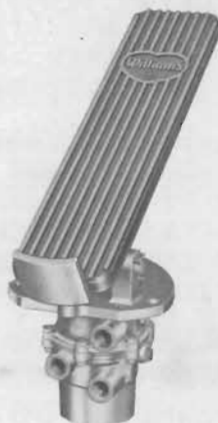


FIGURE 1

WILLIAMS AIR CONTROLS WM453109 TREADLE VALVE

THE WM453109 TREADLE VALVE IS USED IN THE AIR THROTTLE SYSTEM OF A VEHICLE TO SUPPLY AIR PRESSURE TO THE THROTTLE CONTROL CYLINDER WHICH IS MOUNTED ON THE ENGINE TO REGULATE THE POSITION OF THE THROTTLE LEVER. THE OUTPUT OF THE WM453109 RANGES FROM 0 P.S.I. WITH THE TREADLE UP, TO 60 P.S.I. (NOMINAL) AT THE FULLY DEPRESSED POSITION.

THE WM453109 AND THE APPROPRIATE WILLIAMS AIR CONTROLS THROTTLE CONTROL CYLINDER ARE USED TOGETHER AS AN AIR THROTTLE SYSTEM, WHICH COMPLIES WITH FEDERAL MOTOR VEHICLE SAFETY STANDARD NO. 124, EFFECTIVE SEPTEMBER 1, 1973, WHEN INSTALLED AND SERVICED IN ACCORDANCE WITH THE APPLICABLE WILLIAMS AIR CONTROLS PROCEDURES. FAILURE TO MAINTAIN THE TREADLE VALVE ASSEMBLY AS NOTED IN THIS BULLETIN MAY RESULT IN A MALFUNCTION OF THE PNEUMATIC THROTTLE CONTROL SYSTEM AND/OR NON-CONFORMANCE WITH FEDERAL MOTOR VEHICLE SAFETY STANDARD 124. THIS PROCEDURE MAY BE PERFORMED WITH THE TREADLE VALVE MOUNTED IN THE VEHICLE.

A. INSTALLATION INSTRUCTIONS FOR THE WM453109 TREADLE VALVE.

THE WM453109 TREADLE VALVE MUST BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS:

1. A WM453109 TREADLE VALVE MUST BE USED IN CONJUNCTION WITH ONE OF THE WILLIAMS AIR CONTROLS THROTTLE CYLINDERS THAT IS CERTIFIED FOR COMPLIANCE WITH FEDERAL MOTOR VEHICLE SAFETY STANDARD NO. 124.
2. CONNECT THE WM453109 TREADLE VALVE OUTPUT TO THE CONTROL CYLINDER WITH A MAXIMUM OF 40 FEET OF WEATHERHEAD H-9 (1/4" I.D.) HOSE WITH 904B SERIES (11/16" I.D.) HOSE ENDS, OR EQUIVALENT. HOSE AND FITTINGS SHALL BE SUPPLIED BY CUSTOMER.

A. INSTALLATION INSTRUCTIONS FOR THE WM453109 TREADLE VALVE. (CONT)

3. THE TREADLE STOP (ITEMS 6, 15) IS FACTORY SET - DO NOT ADJUST IT.
4. DO NOT MODIFY LOW RESTRICTION VENT (ITEM 8) SUPPLIED WITH THE VALVE.

B. MAINTENANCE INTERVALS

1. PERFORM THE FOLLOWING INSPECTION PROCEDURE (SECTION C) EVERY 10,000 VEHICLE MILES OR EVERY THREE MONTHS, WHICHEVER COMES FIRST.
2. PERFORM THE CLEANING AND LUBRICATION PROCEDURE (SECTION D) AS WARRANTED DURING INSPECTION.
3. PERFORM REPAIR KIT INSTALLATION AND TESTING ADJUSTMENT PROCEDURE (SECTIONS E AND F) AS WARRANTED BY INSPECTION.
4. UNDER SEVERE OPERATING CONDITIONS, MORE FREQUENT MAINTENANCE INTERVALS SHOULD BE USED.

C. INSPECTION: (REFER TO SECTION G)

1. CHECK THE DUST BOOT ON THE CONTROL VALVE PLUNGER TO INSURE THAT IT IS CORRECTLY INSTALLED AND HAS NO TEARS OR WORN AREAS.
2. CHECK THE AREA AROUND THE TREADLE TO INSURE THAT NOTHING WILL INTERFERE WITH TREADLE OPERATION (RUGS, MATS, DISCARDED MATERIAL, ETC.).
3. CHECK THE ENTIRE TREADLE ASSEMBLY FOR CLEANLINESS. CARE MUST BE EXERCISED TO INSURE THAT EXCESSIVE DUST AND DIRT ARE NOT ALLOWED TO COLLECT AND BUILD UP AROUND AND ON THE TREADLE ASSEMBLY.
4. CHECK THE ROLLER ON THE UNDERSIDE OF THE PEDAL FOR FREEDOM OF MOVEMENT.
5. CHECK PIVOT POINTS FOR FREEDOM OF MOVEMENT, EXCESSIVE WEAR AND CORROSION.
6. CHECK ALL FASTENERS, FITTINGS, AND RETAINING RINGS TO VERIFY THAT THEY ARE ALL PROPERLY INSTALLED.
7. PRESSURIZE THE TREADLE VALVE WITH THE NORMAL OPERATING AIR SUPPLY PRESSURE IN THE VEHICLE (60 P.S.I. MIN.).
8. ACTUATE THE TREADLE VALVE BY DEPRESSING THE PEDAL BY HAND. THE ACTION SHOULD BE SMOOTH WITHOUT BINDING. WHEN THE PEDAL IS DEPRESSED, THE WM90DX CONTROL VALVE SHOULD NOT EXHAUST AIR OUT THE EXHAUST PORT. LEAKAGE SHOULD NOT OCCUR IN THE REGION OF THE DUST BOOT, OR AROUND THE WM90DX BODY SEAMS. WHEN THE PEDAL IS RELEASED, IT SHOULD RETURN IMMEDIATELY WITHOUT STICK OR SLUGGISH ACTION. EXHAUSTING ACTION SHOULD NOT CONTINUE AFTER THE OUTPUT LINE OF WM90DX HAS BEEN EXHAUSTED TO ATMOSPHERE.

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C. INSPECTION: (REFER TO SECTION G) (CONT)

9. IF ANY OF THE UNDESIRABLE CONDITIONS DESCRIBED IN STEP 8 ARE OBSERVED, OR IF EXCESSIVE WEAR AND CORROSION WAS OBSERVED IN STEP 5, THE INSTALLATION OF REPAIR KIT R453109 IS RECOMMENDED. ITEMS INCLUDED IN REPAIR KIT ARE INDICATED ON PARTS IDENTIFICATION LIST IN SECTION G. REPAIR KIT INSTALLATION AND TESTING INSTRUCTIONS ARE COVERED IN SECTIONS E AND F.
10. IF PROPER OPERATION IS OBSERVED, BUT LARGE AMOUNTS OF DUST AND DIRT HAVE BUILT-UP AROUND ROLLER AND PEDAL PIVOT REGION, IF ROLLER IS NOT FREELY MOVEABLE, OR IF DUST BOOT WAS NOT CORRECTLY INSTALLED, THE CLEANING AND LUBRICATION PROCEDURES LISTED IN SECTION D ARE TO BE PERFORMED.

D. CLEANING AND LUBRICATION

1. REMOVE THE RETAINING RINGS ON THE PEDAL PIVOT PIN, AND PEDAL ROLLER PIN. TAKE OUT PINS AND REMOVE PEDAL ROLLER. REMOVE PEDAL FROM TREADLE BASE.
2. PULL THE DUST BOOT AND ACTUATING PLUNGER OUT OF THE CONTROL VALVE.
3. CLEAN ALL THE METAL PARTS IN A PETROLEUM BASE CLEANING SOLVENT, SUCH AS MINERAL SPIRITS (STODDARD SOLVENT) OR KEROSENE, AND AIR DRY.
4. CLEAN CONTROL VALVE PLUNGER AND THE BORE OF THE CONTROL VALVE WITH A CLEAN CLOTH DAMPENED WITH SOLVENT. TAKE CARE NOT TO LET SOLVENT GET INTO THE WM90DX CONTROL VALVE.
5. CHECK FOR EXCESSIVELY WORN, DAMAGED, OR CORRODED PARTS. IF SUCH PARTS ARE FOUND, THE INSTALLATION OF REPAIR KIT R90DX IS RECOMMENDED. ITEMS INCLUDED IN REPAIR KIT ARE INDICATED ON PARTS IDENTIFICATION LIST IN SECTION G. REPAIR KIT INSTALLATION INSTRUCTIONS ARE COVERED IN SECTION E.
6. LUBRICATE PIVOT POINTS AND ROLLER BUSHING WITH A THIN LAYER OF DRY LUBRICANT (MOLYKOTE 321 OR EQUIVALENT). NOTE: DO NOT USE GREASE OR OILS, AS THESE WILL ATTRACT AND RETAIN CONTAMINANTS.
7. WIPE THE DUST BOOT CLEAN AND INSTALL IT AND THE ROD PLUNGER IN THE CONTROL VALVE, TAKING CARE TO SEE THAT THE DUST BOOT IS ENGAGED IN THE SEALING GROOVES OF THE CONTROL VALVE AND ROD PLUNGER.
8. REINSTALL THE PEDAL ROLLER. INSTALL BUSHINGS IN PEDAL PIVOT HOLES AND PUT PEDAL BACK ON TREADLE BASE, TAKING CARE TO ENGAGE THE TORSION SPRING COILS WITH THE PIVOT PIN. CHECK TO INSURE THAT ALL RETAINING RINGS HAVE BEEN INSTALLED.
9. PERFORM TESTING AND ADJUSTMENTS PER SECTION F.

E. REPAIR KIT INSTALLATION: (REFER TO SECTION G) (CONT)

1. DISASSEMBLE TREADLE VALVE AS DESCRIBED IN STEPS 1 AND 2 OF SECTION D.
2. INSTALL R90DX KIT PORTION OF R453109 REPAIR KIT PER SERVICE INFORMATION BULLETIN S-044 PROVIDED. DO NOT PERFORM STEPS 14 THRU 16 AS PRESENTED IN S-044. IF IT IS NECESSARY TO REPLACE ANY PART NOT CONTAINED IN THE REPAIR KIT, THE WM90DX CONTROL VALVE MUST BE REPLACED WITH A NEW UNIT.
3. CLEAN PEDAL ROLLER AND PEDAL IN A PETROLEUM BASE CLEANING SOLVENT AND AIR DRY.
4. REASSEMBLE TREADLE VALVE AS DESCRIBED IN STEP 8 OF SECTION D EXCEPT USE NEW PINS, RETAINING RINGS, PIVOT PIN BUSHINGS AND TORSION SPRING AS PROVIDED. NEW ROLLER AND BUSHINGS ARE TO BE INSTALLED ON PEDAL.
5. TEST AND ADJUST TREADLE VALVE PER SECTION F.

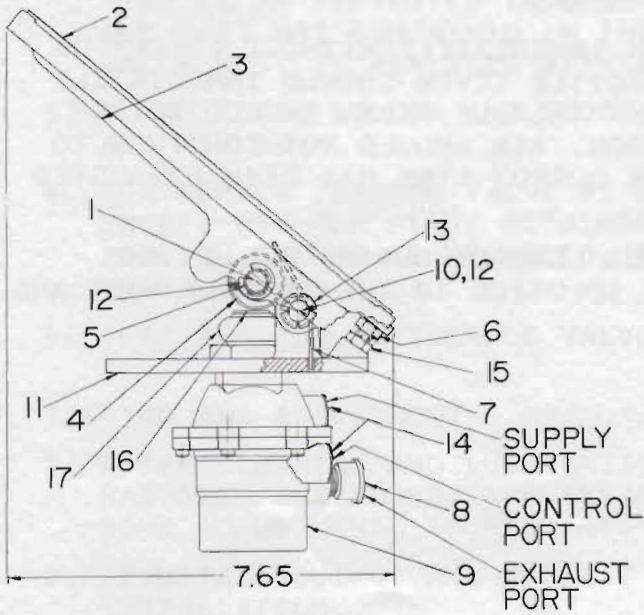
F. TESTING AND ADJUSTMENT

1. AFTER CLEANING AND LUBRICATION, OR WM90DX OR WM453109 REPAIR KIT HAS BEEN INSTALLED, THE TREADLE VALVE ASSEMBLY MUST BE TESTED. SOME ADJUSTMENT TO HEEL REST CAPSCREW MAY BE NECESSARY.
2. REINSTALL OUTPUT AND EXHAUST LINES IF REMOVED FOR REPAIR KIT INSTALLATION.
3. CONNECT 60 P.S.I. (MINIMUM) AIR SUPPLY TO SUPPLY PORT OF WM90DX VALVE. **CAUTION:** CONNECTION OF AIR SUPPLY TO EXHAUST PORT BY MISTAKE CAN CAUSE DAMAGE TO WM90DX VALVE.
4. DUE TO TOLERANCES IN TREADLE VALVE PORTS, WHEN A R90DX REPAIR KIT OR A NEW WM90DX REPLACEMENT CONTROL VALVE IS INSTALLED IN THE TREADLE VALVE ASSEMBLY, THERE WILL EITHER BE CLEARANCE BETWEEN THE ROLLER AND VALVE PLUNGER, OR THE ROLLER WILL BE CONTACTING AND POSSIBLY DEPRESSING THE VALVE PLUNGER. ONE OF THE TWO CONDITIONS MAY OCCUR EVEN THOUGH THE TREADLE IS IN THE RELEASED (UP) POSITION. **CAUTION:** THERE MUST BE A CLEARANCE OF .005 - .015 INCH BETWEEN ROD PLUNGER AND PEDAL ROLLER TO BE MEASURED WHILE A MINIMUM OF 60 P.S.I. AIR PRESSURE IS APPLIED TO THE INLET PORT OF WM90DX. IF THE ABOVE CLEARANCE CANNOT BE ACHIEVED, IT WILL BE NECESSARY TO READJUST HEEL REST CAPSCREW TO MEET THE CLEARANCE REQUIREMENT NOTED ABOVE; THEN LOCK JAM NUT AGAINST TREADLE MOUNTING BASE (ITEM 11), TORQUE TO 30 INCH LBS, WHILE DOING SO, HOLD HEEL REST CAPSCREW WITH A WRENCH TO PREVENT IT FROM TURNING.

F. TESTING AND ADJUSTMENT (CONT)

5. FULLY ACTUATE THE TREADLE VALVE BY DEPRESSING THE PEDAL BY HAND. MOVEMENT OF PEDAL SHOULD BE FREE WITHOUT STICKING OR BINDING. THE ENGINE THROTTLE LEVER SHOULD GO TO FULL THROTTLE POSITION. WHEN ACTUATED, THE WM90DX VALVE SHOULD NOT EXHAUST AIR OUT THE EXHAUST PORT; LEAKAGE SHOULD NOT OCCUR IN THE REGION OF THE DUST BOOT OR AROUND THE WM90DX BODY SEAMS.
6. RELEASE PEDAL, IT SHOULD RETURN IMMEDIATELY WITHOUT STICKY OR SLUGGISH ACTION. THE ENGINE THROTTLE LEVER SHOULD IMMEDIATELY RETURN TO THE IDLE POSITION. THE TREADLE PEDAL SHOULD RETURN WITHOUT STICKY OR SLUGGISH ACTION. AIR SHOULD NOT CONTINUE TO EXHAUST FROM WM90DX VALVE AFTER OUTPUT LINE HAS BEEN EXHAUSTED TO ATMOSPHERE.
7. CHECK THE VALVE AND FITTINGS FOR LEAKAGE DURING ALL OF THE ABOVE TESTS BY APPLYING A SOAP SOLUTION TO THE EXHAUST PORT AND ALL JOINTS.

G. PARTS IDENTIFICATION LIST AND DRAWING.



ITEM	DESCRIPTION	NOTE
1	END GROOVED PIN	2
2	TREADLE COVER	
3	TREADLE	
4	ROLLER	2
5	BUSHING .38A .44B	2
6	SCREW .31-18 X .75	2
7	TORSION SPRING	2
8	LOW RESTRICTION VENT	
9	WM90DX VALVE	
10	TREADLE PIN	2
11	TREADLE MOUNTING PL	
12	RETAINING RING	2
13	BUSHING	2
14	THREAD PROTECTOR	
15	JAM NUT .31-18	2
16	VALVE PUSHROD	1
17	DUST BOOT	1

NOTES:

- 1) INCLUDED IN R90DX REPAIR KIT.
- 2) INCLUDED IN R453109 REPAIR KIT.

REPAIR KIT FOR WM90DX
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