

TRANSMISSION SPECIFICATION

MODEL	CL(B)T 754	CL(B)T 5961	CL(B)T 6061	CL(B)T-6063	CRT 5633	TT/TRT-2000	
Input Power (max)	445 H.P.	500 H.P.	630 H.P.	675 H.P.	430 H.P.	175 H.P.	
Input Torque ("max)	1300 lb.ft	1575 lb.ft	1950 lb.ft	2270 lb.ft	900 lb.ft.	310 lb.ft	
Input Speed (max)	2500 RPM	2500 RPM	2500 RPM	2500 RPM	2500 RPM	3000 RPM	
Speeds	5 forward 1 Reverse	6 Forward 1 Reverse	6 Forward 1 Reverse	6 Forward 2 Reverse	3 Forward 3 Reverse	2 Forward 1 or 2 Reverse	
Gear Ratios	1	5.182:1	4.000:1	4.000:1	1.00:1 Drop Box F1 3.040:1 F2 1.510:1 F3 0.760:1 R1 3.162:1 R2 1.570:1 R3 0.790:1	T(R) T - 2000 0.826:1 T2 Ratio	
	2	3.188:1	2.684:1	2.684:1		TRT IF IR: F2.398:1 R 2.321:1	
	3	2.021:1	2.01:1	2.01:1		TT 2F 1R FL 2.663:1 FH0.699:1 R 1.965:1	
	4	1.383:1	1.351:1	1.351:1	1.30:1 Drop Box F1 3.95:1 F2 1.96:1 F3 0.99:1 R1 4.11:1 R2 2.04:1 R3 1.03:1	UD T(R)T 2F 2R FL 6.612:1 FH 2.398:1 RL 6.398:1 RH 2.321:1	
	5	1.000:1	1.000:1	1.000:1		OD T(R)T 2F 2R FL 2.398:1 FH 0.826:1 RL 2.321:1 RH 0.799:1	
	6	—	0.671:1	0.671:1	0.671:1		
	R	9.927:1	5.120:1	5.120:1	5.120:1		
	R2	—	—	—	3.46:1		
	STALL TORQUE RATIO	TC-497 2.72:1 TC-498 2.45:1 TC-499 1.91:1	TC-580 2.89:1 TC-690 2.40:1 TC-680 2.17:1	TC-680 2.17:1 TC 690 2.40:1	TC-683 1.85:1	FTC-430 3.48:1 TC-550-3.29:1 TC-580-2.89:1	TT-240 5.44:1 TT-260 5.11:1 TT-445 4.92:1 TT-465 4.67:1
	Oil capacity	36 Litres	70 Litres	70 Litres	70 Litres	49.2 Litres (Drop Box)	TT 2000-1 32 Litres TT 2000-3 25 Litres

Note: F- Forward R-Reverse

ROUTINE MAINTENANCE

HINDUSTAN Transmissions require little maintenance. However careful periodic inspection to some of the points mentioned below is vital for transmission performance.

- Check the transmission fluid level at start of each shift.
- Changing of transmission fluid and filter as recommended.
- Keeping the transmission and related components clean.
- Loose bolts (transmission and mounting components).
- Transmission fluid leaks (requires immediate attention)
- Damaged or loose transmission hydraulic lines.
- Condition of control linkage and cables.
- Condition of modulator linkage, cable and actuator mechanism.
- Worn or frayed electrical connectors
- Condition and routing of wiring harness.
- Battery voltage.
- Ground connection.
- Functioning of pneumatic cylinders in case of air actuation
- Functioning of transmission temperature and pressure gauge

If adjustment or replacement of external components have to be carried out it should be done immediately on observing the abnormality.

IMPORTANCE OF PROPER OIL LEVEL

Since the transmission oil perform critical functions like

- Cooling
- Lubricating
- Transmitting power
- Clutch application

It is important that proper oil level be maintained at all times. Transmission performance is adversely affected if it is not maintained properly.

LOW OIL LEVEL

- Will cause starvation of oil to torque converter and clutches and affect transmission performance.
- Aeration -changes the viscosity and colour of oil causes cavitational noise and irregular shifting.
- Over heating.

HIGH OIL LEVEL

- Over heating
- Aeration of oil.

PRECAUTIONS BEFORE CHECKING OIL LEVEL

- Check if equipment is parked in level ground
- Clean thoroughly around the end of the fill tube before removing the fill tube
- Clean thoroughly around the oil level check plug before removing the plug.

COLD CHECK

- The cold check is performed in two stages
- Before starting to determine if there is sufficient transmission oil for safe starting of engine.
- After starting to determine if the level is sufficient so the equipment can be allowed for operation.
- Transmission temperature 60-120°F(16-49°C)

HOT CHECK

- The hot check is made to determine if there is sufficient transmission fluid for normal operation.
- The hot check is performed when transmission at normal operating temperature of 160-220°F (71-104°C).
- If transmission having hydraulic retarder the control must be in OFF position.

OIL LEVEL CHECK-TRANSMISSION MODEL CL(B)T, M, S, 5000, 6000 Series

COLD CHECK (EQUIPMENT PARKED IN LEVEL GROUND)

BEFORE STARTING OF ENGINE

- **FLUID LEVEL PLUGS** - Fluid level plugs are located on the rear cover of transmission remove the Upper (FULL) plug, oil should be flowing from this plug which indicates the equipment can be started for further check. If oil is not flowing add oil so it **starts** flowing from the plug close the plug and proceed to next step.
- **VISUAL INDICATOR** - For transmission provided with visual indicator the fluid should be visible in the indicator so as to start the equipment. If oil is not visible add oil so when oil is visible the equipment can be started
- **DIPSTICK** - If transmission is equipped with a dipstick, check the oil level before starting the engine. Remove the dipstick it is safe to start the engine if the oil is registering near or above the HOT RUN band (FULL). If the oil is not within the band add oil before starting.

AFTER STARTING OF ENGINE

- Start the equipment and gradually raise the engine throttle to 1000 rpm operate for 1 to 2 minutes so the system is charged .idle the engine until the temperature reaches 60-120°F (16-49°C). With the **engine rpm at IDLE** and transmission in neutral check as below.
- **FLUID LEVEL PLUGS** - Fluid level plugs are located on the rear cover of transmission remove the lower (ADD) plug, oil level must be at the ADD plug level (dripping from this hole) . Add or drain oil to bring it to this level.
- **VISUAL INDICATOR** - For transmission provided with visual indicator the fluid should be visible in the indicator and below the full mark(center). Add or drain oil to bring it to this level.
- **DIPSTICK** - If transmission is equipped with a dipstick, remove the dipstick check if the oil registers in the COLD RUN band. Add or drain oil so the oil registers in the COLD RUN band.

HOT CHECK (EQUIPMENT PARKED IN LEVEL GROUND)

- The hot check is made **while the engine rpm is IDLE**. Ensure that the transmission is in neutral condition.
- **FLUID LEVEL PLUGS** - Fluid level plugs are located on the rear cover of transmission remove the upper (FULL) plug, oil level must be at the FULL plug level (dripping from this hole) . Add or drain oil to bring it to this level.
- **VISUAL INDICATOR** - For transmission provided with visual indicator the fluid should be visible in the indicator between the FULL mark (center) and below the metallic enclosur . Add or drain oil to bring it to this level.
- **DIPSTICK** - If transmission is equipped with a dipstick, remove the dipstick check if the oil registers in the HOT RUN band. Add or drain oil so the oil registers in the HOT RUN band.

OIL LEVEL CHECK-TRANSMISSION MODEL CL(B)T 700 Series

COLD CHECK (EQUIPMENT PARKED IN LEVEL GROUND)

BEFORE STARTING OF ENGINE

- **FLUID LEVEL PLUG** - Fluid level plug is located on the transmission sump on removing the plug, oil should be flowing from this plug which indicates the equipment can be started for further check. If oil

is not flowing add oil so it starts flowing from the plug close the plug and proceed to next step.

- **VISUAL INDICATOR** – For transmission provided with visual indicator the fluid should be visible in the indicator so as to start the equipment. If oil is not visible add oil so when oil is visible the equipment can be started
- **DIPSTICK** – If transmission is equipped with a dipstick, check the oil level before starting the engine. Remove the dipstick it is safe to start the engine if the oil is registering near or above the HOT RUN band (FULL). If the oil is not within the band add oil before starting.

AFTER STARTING OF ENGINE

- Start the equipment and gradually raise the engine throttle to 1000 rpm operate for 1 to 2 minutes so the system is charged. Idle the engine until the temperature reaches 60-120°F (16-49°C). With the engine rpm at IDLE and transmission in neutral check as below.
- **VISUAL INDICATOR** – For transmission provided with visual indicator the fluid should be visible in the indicator and below the ADD mark(center). Add or drain oil to bring it to this level.
- **DIPSTICK** – If transmission is equipped with a dipstick, remove the dipstick check if the oil registers in the COLD RUN band. Add or drain oil so the oil registers in the COLD RUN band.

HOT CHECK (EQUIPMENT PARKED IN LEVEL GROUND)

- The hot check is made while the engine rpm is IDLE. Ensure that the transmission is in neutral condition.
- **FLUID LEVEL PLUG** – Fluid level plug is located on the transmission sump remove the (FULL) plug, oil level must be at the FULL plug level (dripping from this hole). Add or drain oil to bring it to this level.
- **VISUAL INDICATOR** – For transmission provided with visual indicator the fluid should be visible in the indicator between the ADD and FULL mark. Add or drain oil to bring it to this level.
- **DIPSTICK** – If transmission is equipped with a dipstick, remove the dipstick check if the oil registers in the HOT RUN band. Add or drain oil so the oil registers in the HOT RUN band.

OIL LEVEL CHECK-TRANSMISSION MODEL TT / TRT 2000 Series

LOCATION OF OIL LEVEL CHECK PLUG

- For transmission with long drop(-1) the plugs are located on the front (converter housing side) lower left side of main housing viewed from the front side.
- For transmission with short drop(-3) the plugs are located on the rear lower left side of the main housing.

COLD CHECK (EQUIPMENT PARKED IN LEVEL GROUND)

BEFORE STARTING OF ENGINE

- **FLUID LEVEL PLUGS** – Remove the Upper (FULL) plug, oil should be flowing from this plug which indicates the equipment can be started for further check. If oil is not flowing add oil so it starts flowing from the plug close the plug and proceed to next step.
- **DIPSTICK** – If transmission is equipped with a dipstick, check the oil level before starting the engine. Remove the dipstick it is safe to start the engine if the oil is registering near or above the HOT RUN band (FULL). If the oil is not within the band add oil before starting.

AFTER STARTING OF ENGINE

- Start the equipment and gradually raise the engine throttle to 1000 rpm to 1500 rpm operate for 1 to 2 minutes so the system is charged. idle the engine until the temperature reaches 60-120°F (16-49°C). With the engine rpm between 1200 to 1500 rpm and transmission in neutral check as below.
- **FLUID LEVEL PLUGS** – Fluid level plugs are located as indicated above remove the lower (ADD) plug, oil level must be at the ADD plug level (dripping from this hole). Add or drain oil to bring it to this level.
- **DIPSTICK** – If transmission is equipped with a dipstick, remove the dipstick check if the oil registers in the COLD RUN band. Add or drain oil so the oil registers in the COLD RUN band.

NOTE :

Foaming or spurting may indicate a false oil level. A true level is indicated by a steady trickle of oil flowing from the check plug hole. The transmission may be operated safely as long as the oil is above the level of the lower (Add) oil check plug.

✓ **KEEPING OIL CLEAN**

It is absolutely necessary that the oil filled into the transmission be clean. Oil must be handled in clean containers and fillers funnels to prevent foreign material entering into the system.

✓ **OIL AND FILTER CHANGE**

Oil and oil filter change frequency is determined by transmission application and the severity of operating conditions. In general, the oil and external filter elements must be changed depending upon the type of filter element used. The change interval for filter elements is dealt with separately. To drain the oil, remove the drain plug provided on the oil pan or rear cover depending on the transmission. To drain the dropbox remove the plug from the bottom of the dropbox housing. Oil will drain better if the transmission oil is hot. Replace the plug after the oil is drained.

While replacing filter elements, the seal rings in the filter housing should also be replaced along with the new filter element to prevent leakage.

HOW TO KEEP LITTLE PROBLEMS FROM BECOMING BIG PROBLEMS

By observing the operation of the transmission and making periodic inspections, minor problems can be rectified and thus major breakdown can be avoided. If one of these condition occur:-

- Overheating
 - Unusual sounds
 - Erratic shifting
 - Oil leaks from the transmission
- Notify your vehicle maintenance personnel immediately.**

ELECTRONICALLY CONTROLLED SHIFT MECHANISM ON CLBT 5/6000 TRANSMISSIONS

An electronic microprocessor based shift system has been released for CLBT 5000/6000 series transmission by AVTEC PPD. The system is referred as :

A TEC - Allison Transmission Electronic Control / CEC Commercial electronic controls.

New models equipped with (ATEC) CEC control are designated as CLBT 6062, CL(B)T-6063 CL(B)T-5963, and CLT-6063

(ATEC) CEC system provides the shifting 'thought' process for Allison Transmission.

Electronic Control equipped transmissions use the same clutching and planetary gearing components as conventional Transmissions.

- The operating principles are the same, but electronic control utilizes an electronic system to control the transmission's Hydraulics.
- The Electronic control uses an electro hydraulic valve body - the Hydraulic circuits within the electro hydraulic valve body are controlled by solenoids (12 Volts).
- The solenoids are ultimately switched on and off by signals from the electronic control or ECU.

The basic components of the (ATEC) CEC system are :

- ECU Electronic Control Unit
- Range selector
- Throttle sensor
- Output speed sensor
- Electro Hydraulic Valve Bodies (Main control & Lockup Valve body)
- Cab Electrical harness
- Secondary mode electrical harness
- Check Trans light
- Diagnostic test switch

(ATEC) CEC Hydraulic Circuit - Refer to Schematic given in this booklet.

(ATEC) CEC Fault diagnosis and trouble shooting : Refer to CLBT 5/6000 ATEC service manual supplement and trouble shooting Manual-SM 005.

CAUTION-Please note that all (ATEC) CEC CL(B)T 6062, CL(B)T-6063 and CL(B)T-5963 transmission operate on 12 Volts system.

TROUBLE SHOOTING FOR CLBT 754

	CAUSE	REMEDY
A. AUTOMATIC SHIFT OCCURS AT TOO HIGH SPEED		
1.	Governor valve stuck	1. Clean or replace governor
2.	Shift signal valve spring adjustment too tight	2. Back off adjustment ring.
3.	Valves sticky	3. Overhaul valve body assy
4.	Shift point not adjusted	4. Adjust tension of shift signal valve
B. AUTOMATIC SHIFT OCCURS AT TOO LOW SPEED		
1.	Governor valve stuck	1. Clean or replace governor
2.	Governor defective	2. Replace governor
3.	Modulator valve sticking	3. Clean or replace
4.	Shift point not adjusted	4. Adjust tension of shift signal valves
C. LOW MAIN PRESSURE IN ALL RANGES		
1.	Low Oil level	1. Add oil
2.	Filter Element clogged	2. Replace filter element
3.	Seal ring at oil intake damaged	3. Replace seal
4.	MPR Spring weak	4. Replace spring
5.	Control Valve body leak	5. Replace control valve
6.	Valves sticky	6. Overhaul control valve
7.	Oil pump damaged	7. Replace or rebuild pump
D. LOW MAIN PRESSURE IN ONE RANGE		
1.	Leakage in clutch apply	1. Replace or rebuild valve body assy.
2.	Leakage at piston	2. Overhaul transmission and replace piston seals.
E. EXCESSIVE CREEP IN FIRST AND REVERSE GEARS		
1.	Idle throttle setting too high	2. Adjust throttle setting (refer vehicle manual)