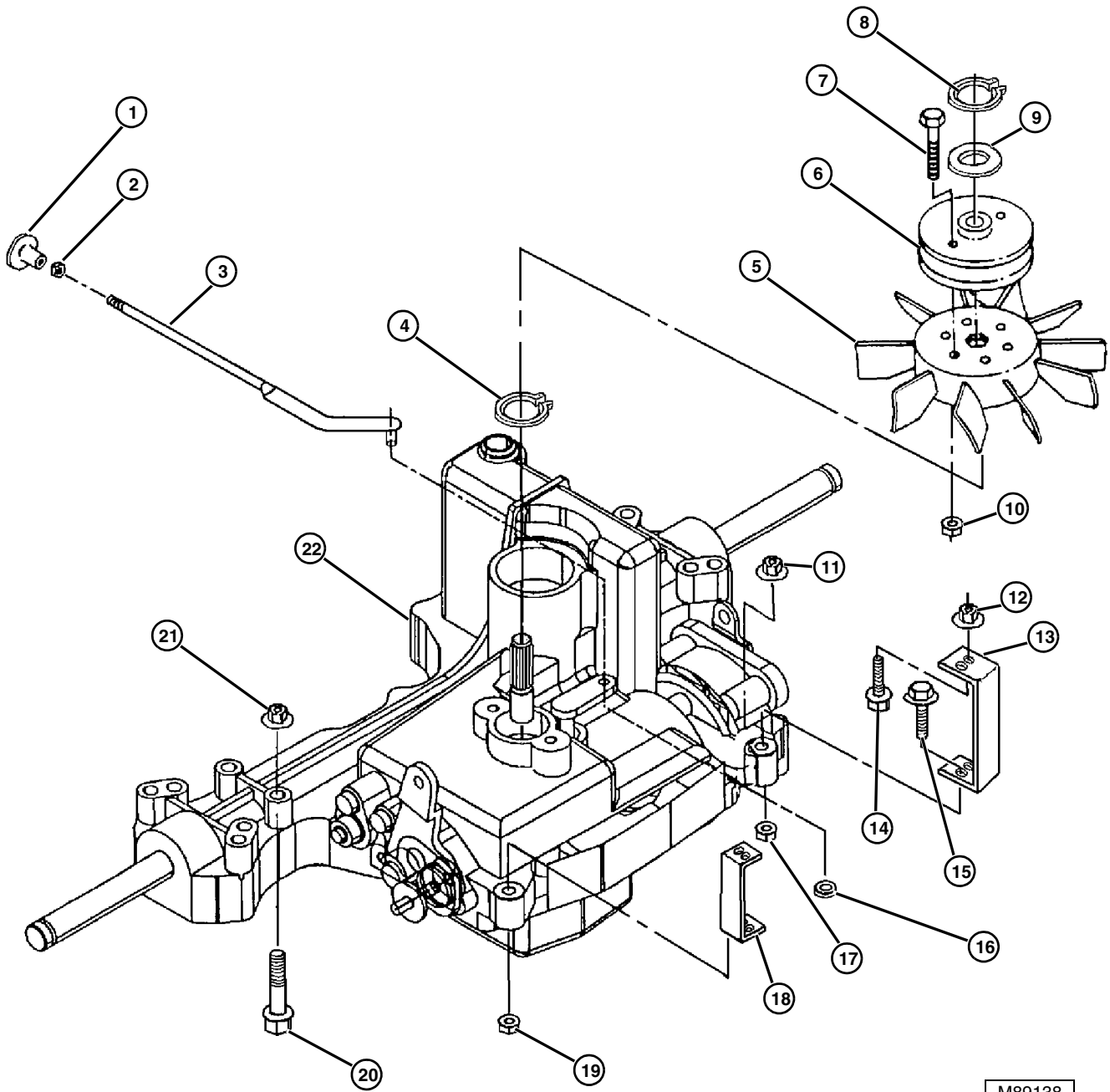


COMPONENT LOCATION



M89138

- | | | | | |
|-----------------------|-----------------|--------------|--------------|------------------------|
| 1. Knob | 6. Sheave | 11. Lock Nut | 16. Push Nut | 21. Lock Nut |
| 2. 1/4-20 Hex Jam Nut | 7. M6 x 30 Bolt | 12. Lock Nut | 17. Lock Nut | 22. Transaxle Assembly |
| 3. Rod | 8. Snap Ring | 13. Strap | 18. Strap | |
| 4. E-Ring | 9. Spacer | 14. Screw | 19. Lock Nut | |
| 5. Fan | 10. Lock Nut | 15. Screw | 20. Screw | |

THEORY OF OPERATION

The hydrostatic power train is separated into the following systems:

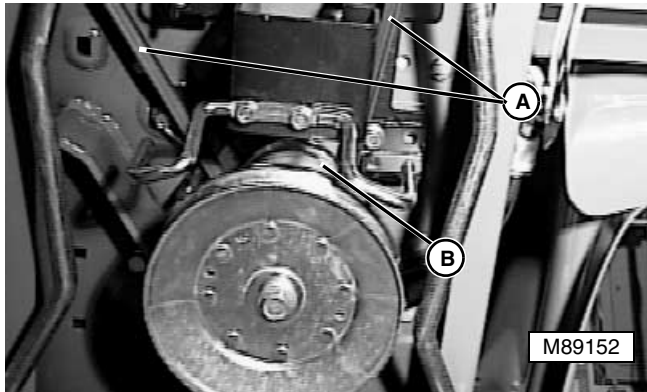
- Traction Drive Belt System
- Transaxle and Shift Pedal Linkage System
- Transport (Free-Wheeling System)

TRACTION DRIVE BELT SYSTEM

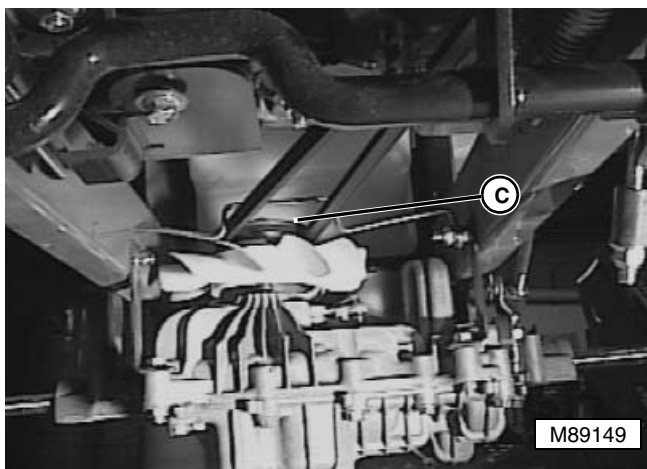
Function:

The traction drive belt transfers power from the engine to the input pulley of the hydrostatic transaxle.

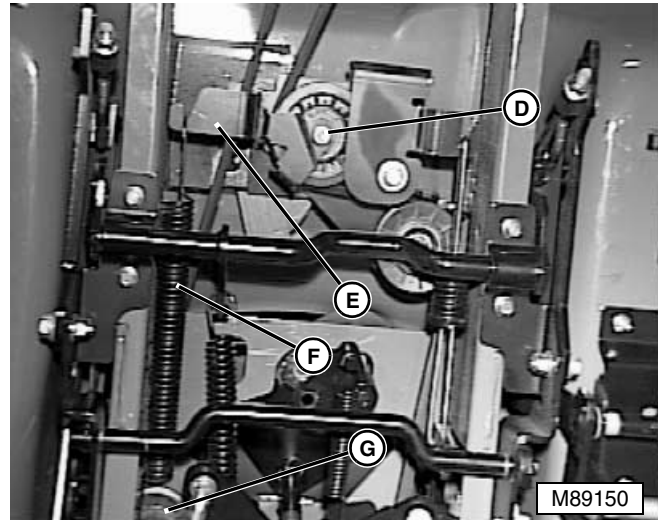
Theory of Operation:



The traction drive belt (A) is driven by the upper pulley of the engine drive sheave (B).



The traction belt then transmits engine power to the input pulley (C) of the hydrostatic transaxle.



The traction drive belt is tensioned by the pivot idler (D), which is mounted on a spring loaded bracket (E). The tension spring (F) runs forward and hooks to the forward idler pulley (G) mounting stud.



TRANSAXLE AND SHIFT PEDAL LINKAGE SYSTEM

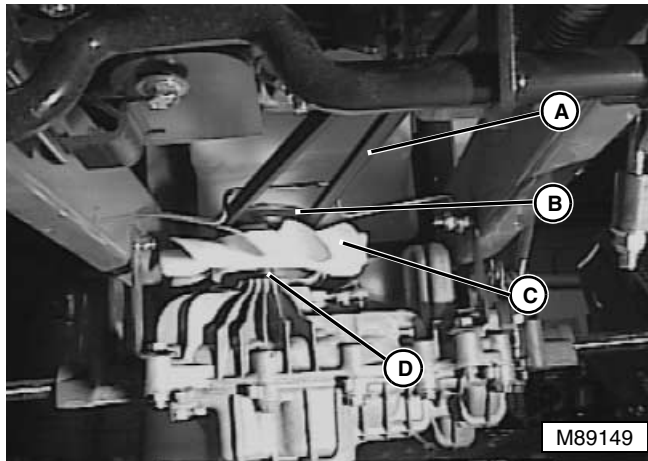
Function:

The function of the transaxle is to transfer power from the traction drive belt system (driven by the engine), to the rear wheels, and allow the operator to select ground speed and direction.

The drive belt turns the transaxle input pulley, and drives the transaxle's hydrostatic pump. When the hydrostatic drive is in neutral, no pressure is built up in the pump. When the operator engages the forward or reverse pedals, the drive linkage tilts the swash plate, inside the transaxle, off center, and the pump pistons build pressure which drives the hydrostatic motor. The motor drives the rear axle and wheels through the differential assembly.

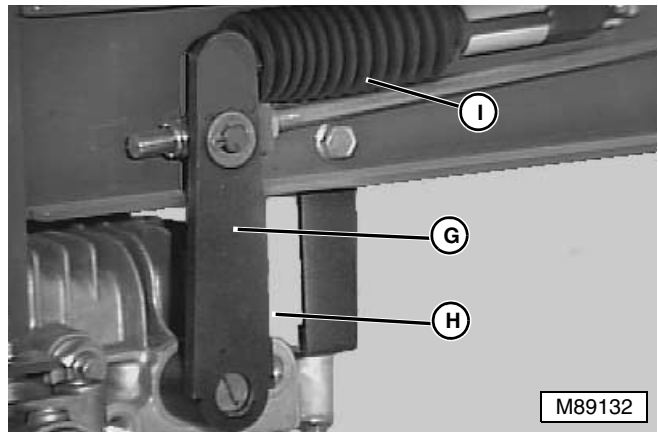
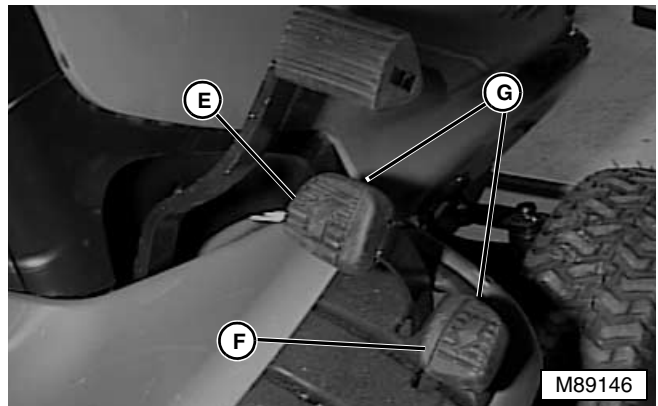
The transaxle provides infinite ground speed selections up to 5 mph in forward and up to 2.6 mph in reverse.

Theory of Operation:



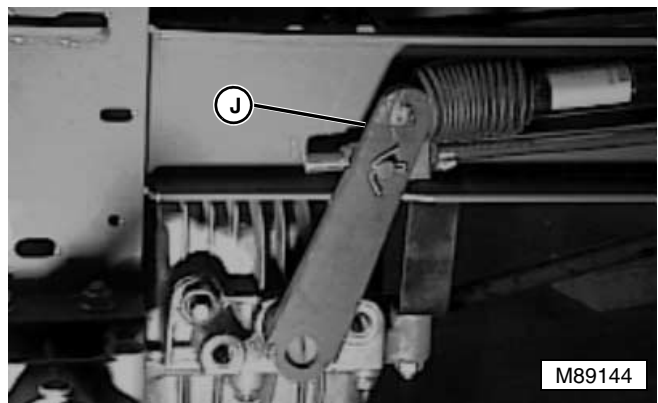
Neutral:

When the engine is running, the traction drive belt (A) turns the transaxle input pulley (B), cooling fan (C), and input shaft (D). The input shaft turns the hydrostatic pump input shaft and pump body, inside the transaxle.



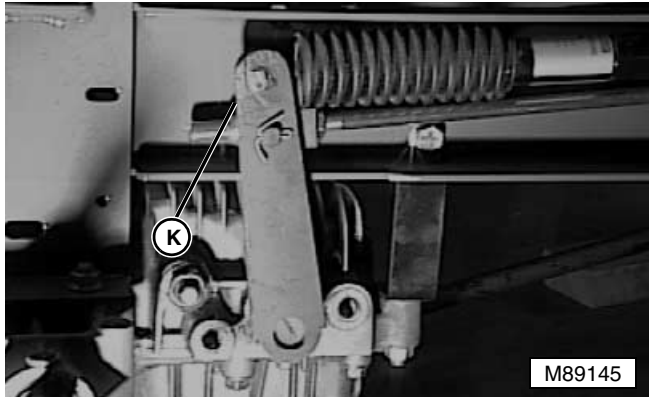
When the forward (E) and reverse (F) pedals are in the neutral position (G), the shift lever (H) and gas shock (I) are centered. When in NEUTRAL, the shift linkage holds the shifter shaft in the NEUTRAL position and the drive axles do not turn.

Forward:



When the forward pedal is depressed, the shift linkage moves the transaxle arm forward turning the shifter shaft and causing the drive axles to turn in the FORWARD direction (J).

Reverse:



When the reverse pedal is depressed, the shift linkage moves the transaxle arm rearward turning the shifter shaft and causing the drive axles to turn in the REVERSE direction (K).

TRANSPORT (FREE-WHEEL) SYSTEM

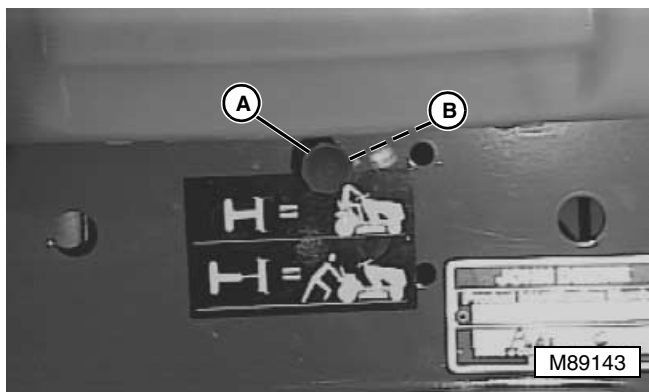
Function:

The transport (Free-wheel) system allows the operator to push the tractor forward or reverse with the engine off and the brake released.

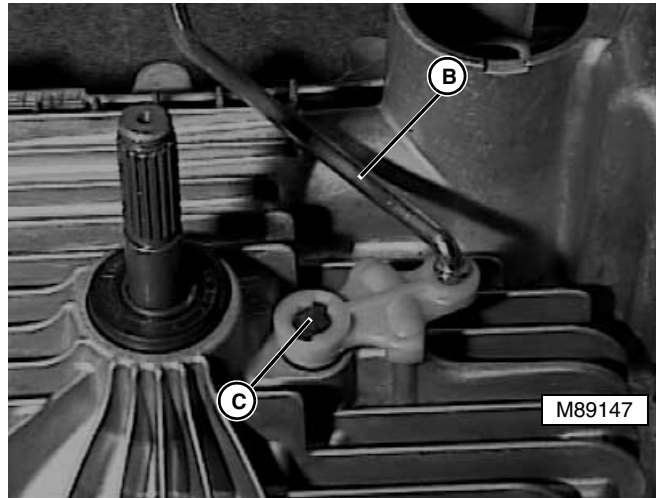
⚠ CAUTION

DO NOT operate freewheel valve with engine running or damage to hydrostatic transmission can occur.

Theory of Operation:



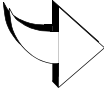
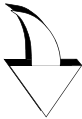
When the free wheel handle (A) is pulled out to its locked position, the free wheel rod (B) rotates the actuating shaft 35°.



When the actuating shaft (C) rotates 35° the operator is allowed to push the tractor in forward or reverse with the engine off and the brake released.



TROUBLESHOOTING

<div style="display: flex; justify-content: space-between;"> <div style="text-align: right;"> Problem or Symptom  </div> <div style="text-align: left;">  Check or Solution </div> </div>	Belt jumping off or slapping	Lack of drive in one wheel or both	Loses power under load, belt slips, or erratic drive	Jerky or aggressive engagement	Cannot get full forward or reverse speed	Input shaft /pulley will not turn	Returns to neutral during operation or under load	Noisy operation	Leaking lubricant	Brakes will not stop tractor	Park brake will not hold	Transaxle overheats	Freewheel valve pushes hard	Creeps in neutral
Belt sheaves and idlers loose, out of adjustment, worn, or damaged—tighten, replace, or adjust properly	●	●	●	●	●	●		●						
Belt worn, frayed, glazed, or stretched—replace belt	●	●	●	●				●						
Tensioning spring weak or broken—replace as necessary	●	●	●					●						
Accumulation of grass and other debris in cooling fins or around moving parts of transmission		●	●			●		●		●	●	●	●	●
Brake pedal linkage out of adjustment—adjust properly		●	●	●		●	●			●	●	●	●	
Brake components out of adjustment— adjust properly or replace transaxle		●		●		●	●			●	●	●	●	
Foot pedal linkage bent, worn, out of adjustment, or broken—replace or adjust properly		●	●	●	●	●	●					●		●
Neutral return linkage worn, bent, or broken—replace as necessary		●				●							●	●
Internal transaxle components worn, stripped, or broken—replace as necessary		●	●	●		●	●	●				●		●
Transaxle case mountings loose, worn, or broken—replace mountings or transaxle	●	●		●				●					●	●

<div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Check or Solution</div> <div style="writing-mode: vertical-rl;">Problem or Symptom</div> </div>	Belt jumping off or slapping	Lack of drive in one wheel or both	Loses power under load, belt slips, or erratic drive	Jerky or aggressive engagement	Cannot get full forward or reverse speed	Input shaft /pulley will not turn	Returns to neutral during operation or under load	Noisy operation	Leaking lubricant	Brakes will not stop tractor	Park brake will not hold	Transaxle overheats	Freewheel valve pushes hard	Creeps in neutral
Fan and/or pulley loose or damaged—tighten or replace	●					●		●				●		
Hydrostatic oil filter plugged		●	●		●			●				●		
Incorrect type or volume of lubricant used—replace with correct type and volume		●	●	●			●	●	●			●		●
Wheels and axle keys, key ways, or snap rings worn—replace as necessary		●	●		●			●						
Transaxle case halves cap screws loose or stripped—tighten to 27 N•m (20 lb-ft) or replace screws								●	●					
Poor application or incorrect sealant on transaxle case halves—replace transaxle									●					
Transport (free-wheeling) valves and linkage damaged—replace transaxle		●	●		●			●				●	●	
Engine performance problems—see Engine Section		●	●											



DIAGNOSTICS

Test Conditions:

- Tractor on level surface
- Front wheels blocked
- Engine OFF
- Rear wheels raised off surface with axle housings on jack stands

Test/Check Point	Normal	If Not Normal
1. Fan	Fan in good condition and tight	Tighten fan Repair or replace
2. Drive belt	Belt in good condition, not glazed, split, unraveled, or stretched	Replace drive belt
3. Tensioning spring	Tensioning spring installed and not damaged	Install spring Repair or replace
4. Sheaves and idlers, belt traction drive system	Drive sheaves and idlers in good condition and adjusted properly Belt not slipping, squealing, or vibrating excessively	Adjust idler assembly Repair or replace Check belt condition, check adjustment and condition of idlers and guides. Adjust, repair or replace components as needed
5. Hydro housing exterior	No cracks, leaks, or loose hardware	Tighten hardware Replace transaxle Replace any damaged components
6. Axles	Axles straight	Replace as needed
7. Wheels and tires	Air pressure equal in driving tires	Adjust air pressure
	Driving tires have same circumference	Match tires for same circumference
	Wheels not bent or out of round	Repair or replace wheels as necessary
8. Axles, wheels, and tires	Axles, wheels, and tires in good shape and functioning properly	Check axles and wheel for straitness, check condition of keys and keyways, washers, and snap rings. Check tires for tread wear and proper inflation. Repair or replace components as needed
9. Engine performance	Engine running smoothly throughout throttle range	Adjust, tune, or repair engine
10. Stroking Control Arm: (lack of forward or reverse speed)	Linkage should stroke control until it reaches the stop inside the transaxle (Forward) and should stroke about 2/3 stroke in reverse	Adjust or repair as needed

TESTS AND ADJUSTMENTS

TRACTION DRIVE SYSTEM

Reason:

To ensure forward drive, neutral return, brake linkages and belt drive system maintain traction up a 17° slope.

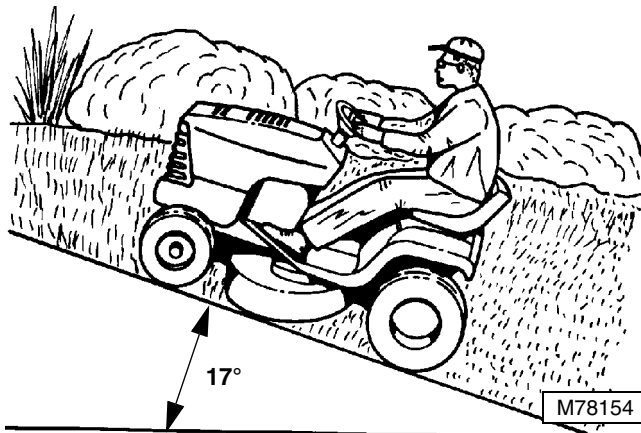
To ensure that transport (free-wheeling) valve assembly and linkage allow tractor to be pushed when engaged and to drive tractor when disengaged. Also to ensure tractor returns to neutral, engages the brake, stops tractor within specification, and holds tractor stationary in PARK position on a 17° slope or less.

Test Drive:

CAUTION

DO NOT engage FORWARD foot pedal too aggressively during the 17° slope test drive. Tractor may tip over backwards. It is recommended that the mower deck be installed before performing the 17° slope test.

1. Attach mower deck to tractor.
2. Carefully test drive tractor to see if traction drive system pulls tractor steadily up a 17° slope.
3. If tractor fails traction test, the drive belt may be excessively worn, stretched, glazed or unraveling. Replace if above conditions exist.



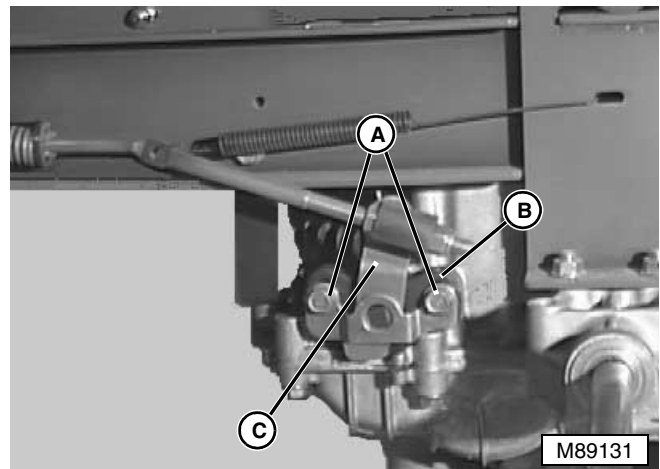
4. Drive or push tractor onto a 17° slope, depress the brake pedal and lock it in the PARK position.
5. FORWARD and REVERSE pedals must return to NEUTRAL position, PARK brake must hold tractor in a stationary position on slope and tractor must not creep downward once park brake is locked into position.

6. Drive tractor on dry pavement in a safe, open and level area at fast idle in the forward direction. Apply a “panic stop” force (no more than 50 pounds of force)—tractor **must stop** within **1.5 M (5 ft)** and both wheels should “**lock-up**”, leaving skid marks on pavement.
7. Repeat steps 4—6 for reverse. Tractor must stop within **0.9 M (3 ft)**.
8. If any test fails, the brake linkage must be adjusted or components replaced.

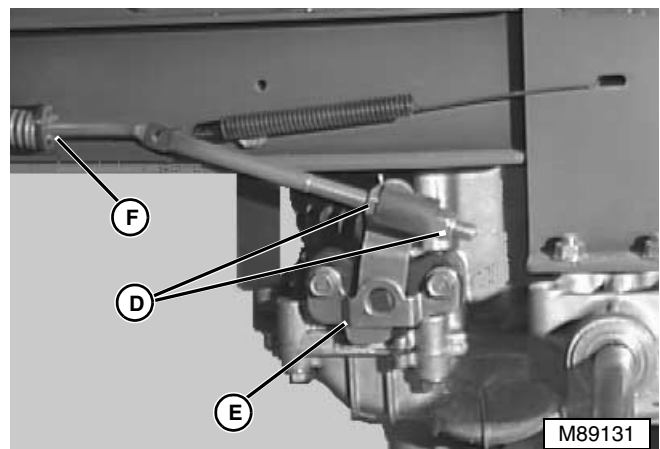
PARKING BRAKE – LT155/LT166 ADJUSTMENT

Procedure:

1. Release park brake.
2. Raise and support tractor and remove left rear wheel.



3. Set park brake. Brake should engage when the brake lever reaches the vertical position.
4. If the brake does not engage at the vertical position, loosen cap screws (A) and rotate slotted block (B) until brakes just start to apply when lever arm (C) is vertical.
5. Tighten brake lever cap screws to **52 N•m (38 lb-ft)**.





Suggest:

If the above button click is invalid.

Please download this document first, and then click the above link to download the complete manual.

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