

**On - Highway
Hydraulic Shift Systems**



**Remote Shifting Units
and
Control Systems
for**

Allison Automatic Transmissions



What is a Bennett Shifter?

The Bennett Shifter is a mechanical device specifically designed to assure precise, trouble-free shifting of automatic and powershift transmissions. The shifter is controlled by electric signals, actuated by hydraulic oil pressure from the transmission and the selected range is transmitted to the operator by an electric indicator system.

The Transmission Detent Mechanism

All automatic or powershift transmissions have a built-in detent mechanism that is used to hold the transmission in a selected range. It is mandatory that this positioning feature not be interfered with upon selection of each gear.

Why Other Methods Fail

Most of the early failures of remotely mounted transmissions were caused by the detent mechanism being held out of position by constant pressure from either cable or air-cylinder selector systems. The net effect is that oil can be channeled to more than two clutches. . . holding the transmission in two ranges simultaneously. The final effect is clutch failure!

Why use the Bennett Shifter?

The primary reason for using the Bennett Shifter is the detent mechanism can be shifted to the desired operating range and released of all pressure. This allows the detent spring to function as designed by the manufacturer.

Positive Indication of Range Selection

The built-in indicator system is totally independent of the actuating system.

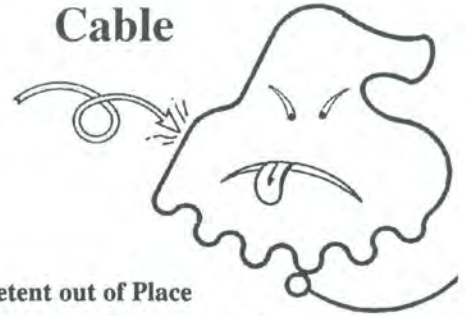
Versatile Operator Stations

The Bennett Shifter can have any number of operator locations to the same transmission. For example, refuse trucks often require more than one control station in the cab, aircraft refuelers have operator stations at each end of the vehicle, etc. Interior and all-weather exterior stations are available with industrial toggle switches, joy sticks and/or push button digital controllers.

Precise Mounting

The shifting of a transmission requires an installation that is properly engineered to assure constant geometry between the transmission and the shifting mechanism. Our mounting hardware is custom designed for each transmission application.

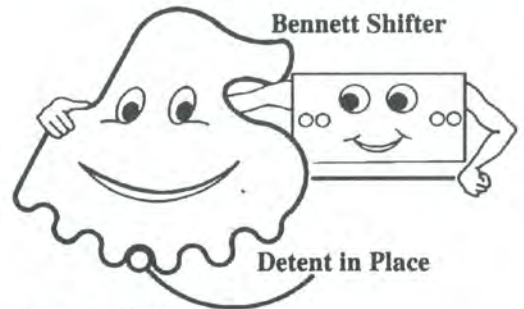
Cable



Detent out of Place

Cables often Hold the Transmission Detent Mechanism Out of Place

Bennett Shifter

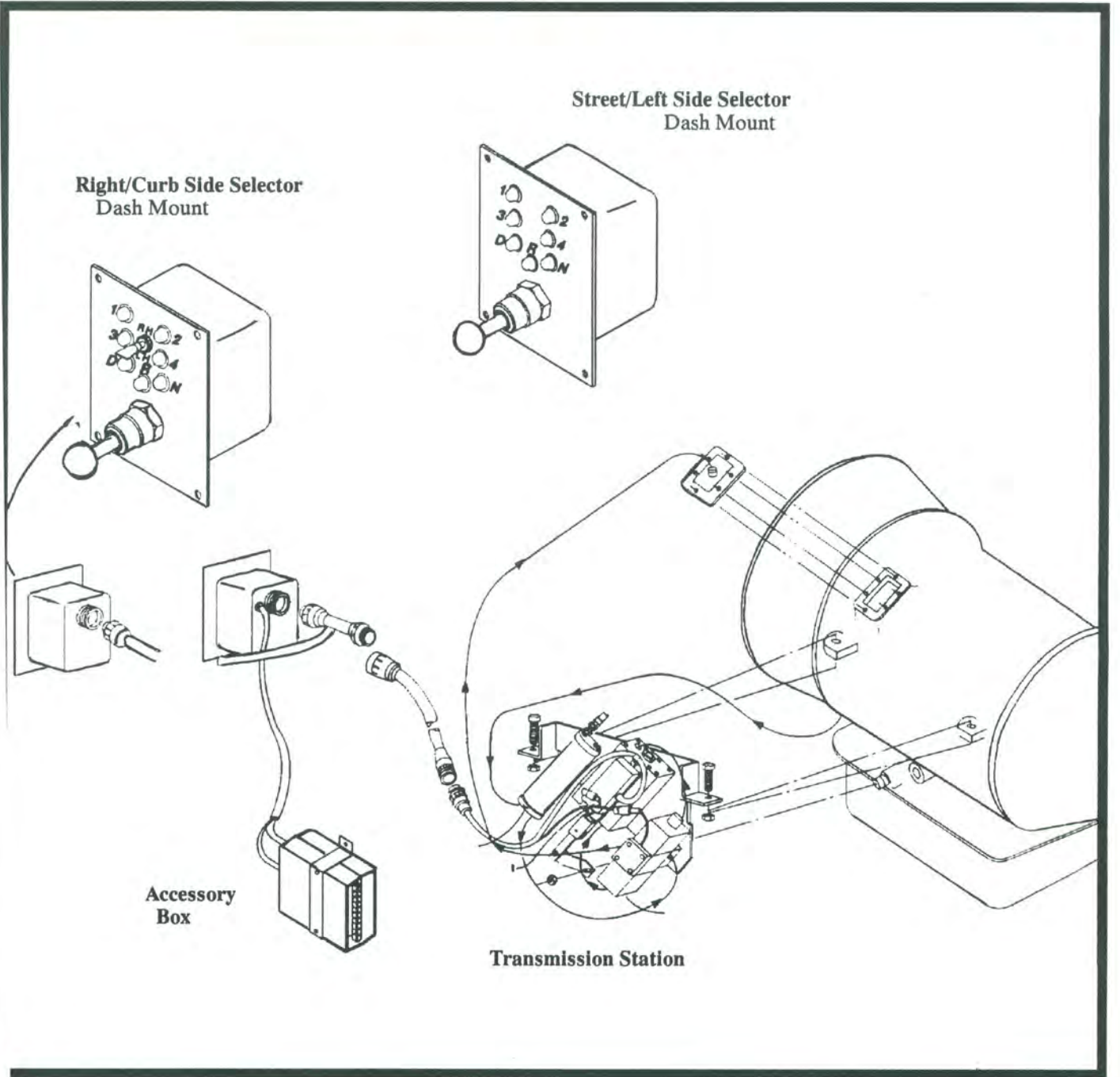


Detent in Place

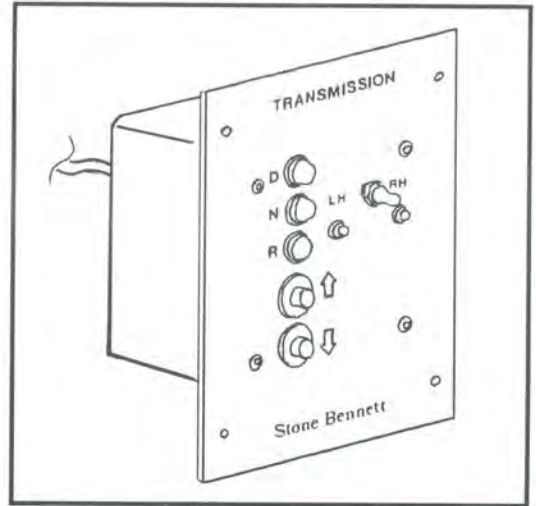
A Bennett Shifter allows the Transmission Detent Position itself Correctly



Basic System



Auto Neutral Control



The Auto Neutral control is an optional feature to the standard dual control system. This system is specifically designed for installation at the curb side driving station and functions only when used in conjunction with a standard Bennett Dual Control system.

The Bennett Auto Neutral contains the following features and operates **differently** from other manufacturer's Auto Neutral systems :

- When the Auto Neutral control is the active control and the park brake is applied, the transmission will shift automatically to **Neutral**. When the park brake is released, the transmission will shift automatically to **Drive**.
- The Auto Neutral control allows the operator to select only **Reverse, Neutral and Drive** ranges. (All available ranges can still be selected from the Street Side Selector, when active.)
- The operator can manually select available transmission ranges through the use of push buttons on Auto Neutral as opposed to the standard Bennett Range Selector.

IMPORTANT NOTE

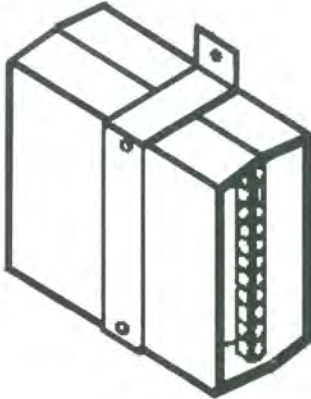
The standard Bennett single or dual control system **can be** used in conjunction with other manufacturer's auto neutral systems that apply the work or park brake when the transmission is shifted to neutral and release the brake when the transmission is shifted to drive.

Accessory Box

Standard Features :

Shift Shock Eliminator – allows protection of automatic transmissions and power trains from damage caused by shifting the transmission into forward or reverse when engine RPM's are above approximately 800 RPM (Set by the customer).

NOM (Neutral Off Module) – Requires transmission to be in **Neutral**, before engine shut down



Options :

Reverse or Neutral Relay Signal

PTO Overspeed Protection :

PTO1 – Engage and Pack in Neutral

PTO2 – Engage in Neutral, pack in gear

PTO3 – Engage and Pack in gear

OEM AVAILABILITY

The Bennett System with Shift Shock Eliminator is currently offered by the following refuse truck chassis and body manufacturers:

Amrep
Crane Carrier
Special Truck
Volvo/White
Peterbilt
Ottawa

FWD
Maxon
Able Body
Heil Co.
Mack

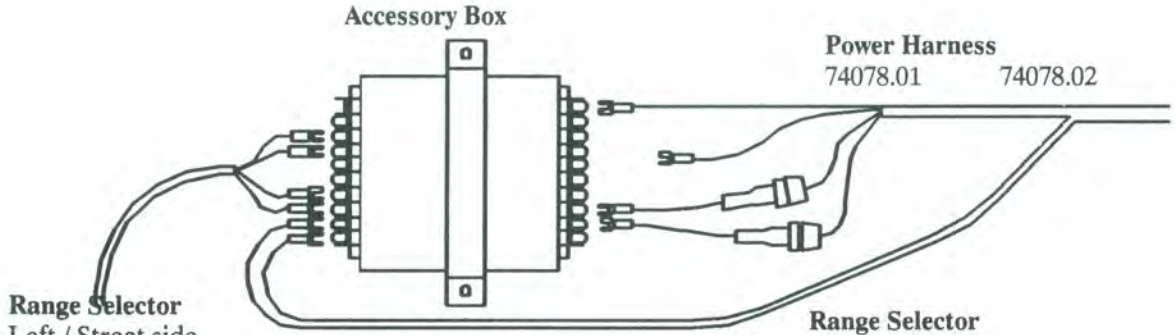
RETROFIT UNITS AVAILABILITY

Retrofit systems with R.P.M. Shift Shock Eliminator, PTO Protection and Auto Neutral are available from you nearest Stone Bennett distributor or directly from our factory in Dallas. Systems are available for all models of Allison automatic transmissions.

WARRANTY

All Stone Bennett products are warranted for one year or 50,000 miles.

Single and Dual Systems



Range Selector
Left / Street side



- CP-64A-04
- CP-64A-04X
- CP-64A-04Z
- CP-64A-08
- CP-74A-02
- CP-74A-02X
- CP-74A-02Z
- CP-74A-06

- ACX-02-12V
- ACX-03-12V
- ACX-04-12V
- ACC-02-12V
- ACC-03-12V
- ACC-04-12V
- ACD-02-12V
- ACD-03-12V
- ACD-04-12V
- ACE-02-12V
- ACE-03-12V
- ACE-04-12V

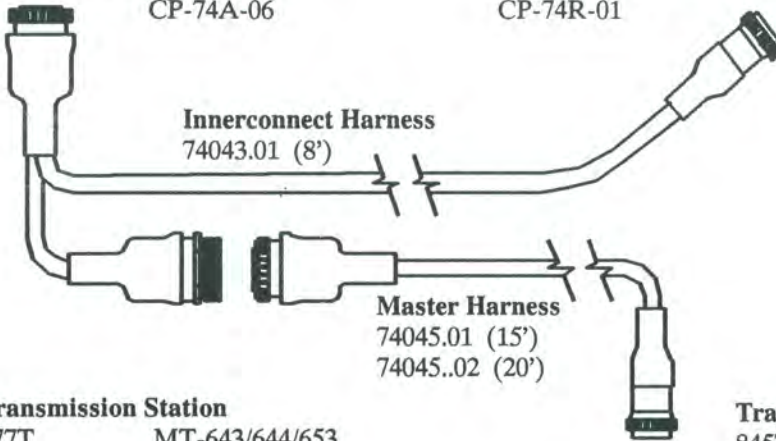
Range Selector
Right / Curb side



- CP-64RA-04
- CP-74R-02
- CP-64RA-02
- CP-74R-01



CP-AN-02



Innerconnect Harness
74043.01 (8')

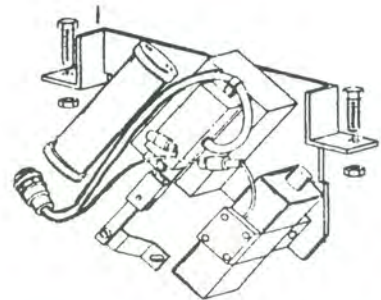
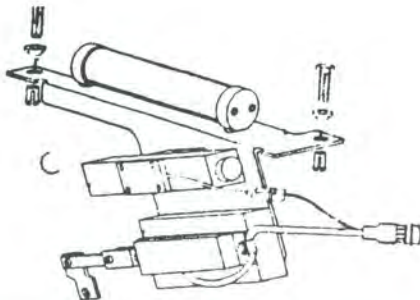
Master Harness
74045.01 (15')
74045.02 (20')

Transmission Station

- 877T MT-643/644/653
- 867T MT-654

Transmission Station

- 845T HT-754
- 969T HT-740



Single and Dual Systems

Allison Transmission Model

			MT-643
			MT-644
HT-754	HT-740	MT-654	MT-653

RANGE SELECTOR - Left/Street Side Selector :

Standard Flush Mount	CP-74A-02	CP-64A-04	CP-74A-02	CP-64A-04
Volvo White Low Entry - rear cowlng	CP-74A-02X	CP-64A-04X	CP-74A-02X	CP-64A-04X
Volvo White Low Entry - front cowlng	CP-74A-02Z	CP-64A-04Z	CP-74A-02Z	CP-64A-04Z
Remote - Bracket Mount	CP-74A-06	CP-64A-08	CP-74A-06	CP-64A-08

ACCESSORY BOX (all contain Shift Shock) :

Standard without PTO Protection	ACX-02-12V	ACX-02-12V	ACX-02-12V	ACX-02-12V
With Reverse Relay Signal	ACX-03-12V	ACX-03-12V	ACX-03-12V	ACX-03-12V
With Neutral Relay Signal	ACX-04-12V	ACX-04-12V	ACX-04-12V	ACX-04-12V
PTO1 - Engage and Pack in Neutral	ACD-02-12V	ACD-02-12V	ACD-02-12V	ACD-02-12V
With Reverse Relay Signal	ACD-03-12V	ACD-03-12V	ACD-03-12V	ACD-03-12V
With Neutral Relay Signal	ACD-04-12V	ACD-04-12V	ACD-04-12V	ACD-04-12V
PTO2 - Engage in Neutral, pack in gear	ACC-02-12V	ACC-02-12V	ACC-02-12V	ACC-02-12V
With Reverse Relay Signal	ACC-03-12V	ACC-03-12V	ACC-03-12V	ACC-03-12V
With Neutral Relay Signal	ACC-04-12V	ACC-04-12V	ACC-04-12V	ACC-04-12V
PTO3 - Engage and Pack in gear	ACE-02-12V	ACE-02-12V	ACE-02-12V	ACE-02-12V
With Reverse Relay Signal	ACE-03-12V	ACE-03-12V	ACE-03-12V	ACE-03-12V
With Neutral Relay Signal	ACE-04-12V	ACE-04-12V	ACE-04-12V	ACE-04-12V

POWER HARNESS (for Accessory Box) :

Without PTO Protection	74078.01	74078.01	74078.01	74078.01
With PTO Protection	74078.02	74078.02	74078.02	74078.02

MASTER HARNESS :

15 Feet	74045.01	74045.01	74045.01	74045.01
20 Feet	74045.02	74045.02	74045.02	74045.02

TRANSMISSION STATION :

Standard Side Mount	845T	969T	867T	877T
Side Mount with Cold Weather Pack	845TN	969TN	867TN	877TN
Side Mount with Antivibration kit	845TR	969TR	867TR	877TR
Side Mount with Cold Weather Pack & Antivib. kit	845TNR	969TNR	867TNR	877TNR

Dual Components

RANGE SELECTOR - Right/Curb Side Control :

Standard Flush Mount	CP-74R-02	CP-64RA-04	CP-74R-02	CP-64RA-04
Standard Remote - Bracket Mount	CP-74R-01	CP-64RA-02	CP-74R-01	CP-64RA-02
AUTO NEUTRAL - Right/Curb Side Selector dash	CP-AN-02	CP-AN-02	CP-AN-02	CP-AN-02

INNERCONNECT HARNESS :

Dual Control Only	74043.01	74043.01	74043.01	74043.01
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How to Order Total Systems

The system specification number is a representation of all the features and options contained in the shift system.

**** - *** - AHM????**

10 Single Control System

20 Dual Control System

**** - *** - AHM????**

545 for Allison AT-540 series.

653 for Allison MT-640 series and MT-653.

654 for Allison MT-654 series.

740 for Allison HT-740 series.

754 for Allison HT-750 series.

**** - *** - AHM???? (Standard features of the Bennett Shifting System)**

A = RPM Shift Shock Eliminator

H = PTO Cover For Sump Drain

M = Nitrogen charged Accumulator

**** - *** - AHM???? (Selectable options to intermix with AHM)**

B = Bracket Mount instead of In-Dash mounted Street Side Selector.

C = PTO Protection: Pack-on-Fly, Engage-in-Neutral

D = PTO Protection: Pack-in-Neutral, Engage-in-Neutral.

E = PTO Protection: Pack-on-Fly, Engage-on-Fly.

F = Reverse Relay for Backup Horn/Lights.

G = Neutral Relay (if Reverse Relay not called in Option F).

I = Bracket Mount for Mack Tower (Street Side Selector).

L = Bracket for Morse Tower (Street Side Selector).

N = Cold Weather Pack added to Transmission Station.

Q = Bracket for Quad Stat Tower (Street Side Selector).

R = Antivibration dampener mounted to Transmission Station

Options For Dual Control System

O = Auto Neutral Control instead of standard Right Range Selector.

P = Use same Mounting Bracket B, I, L, or Q if selected for Street Side

Note : Alpha options are intermixed with the standard features of AHM so that entire sequence is in alphabetical order ACHIMR, etc.

Examples

A dual control system for an MT-654 with Curb Side Auto Neutral instead of a standard range selector would be 20-654-AHMO. The same configuration with a Reverse Relay included in the Accessory Box would be 20-654-AFHMO.

A single control for an HT-740 with remote mounting bracket on the Range Selector, a Neutral Relay and an Antivibration Dampener mounted to the Transmission Station would be 10-740-AGHMR. Adding a Cold Weather Pack to the Transmission Station would be 10-740-AGHMNR.

Location of Control Features

Feature	Location
Shift Shock Eliminator.....	ACCESSORY BOX
Reverse Relay Signal.....	ACCESSORY BOX
Neutral Relay Signal.....	ACCESSORY BOX
PTO Control.....	ACCESSORY BOX
Auto Neutral Control.....	RANGE SELECTOR – Right/Curb Side
Antivibration Kit.....	TRANSMISSION STATION
Cold Weather Pack.....	TRANSMISSION STATION

Contact Stone Bennett Master Distributor: T.H. Anderson Pump Co., Inc

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